Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary

Edited by

Imre Lengyel

JATEPress, University of Szeged
Hungary, 2003

First published in 2003

Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary

ISBN:

Publisher: JATEPress, University of Szeged
Editor: Imre Lengyel
Print: JATEPrint, Szeged

Contents

Part 3: Regional Development in Hungary

Contributors

András Bálint is Assistant Professor, Faculty of Business Administration, Small Business Development Center, Budapest University of Economic Sciences and Public Administration, Budapest, Hungary

Norbert Buzás is Associate Professor of Economics, Deputy Dean, Faculty of Economics and Business Administration, Department of Regional and Applied Economics, University of Szeged, Hungary

Szabolcs Deák is Assistant Professsor, Faculty of Economics and Business Administration, Department of Regional and Applied Economics, University of Szeged, Hungary

Ferenc Farkas is Professor of Economics, Head of Department, Faculty of Business and Economics, Department of Management and Organization, University of Pécs, Hungary

Erzsébet Hetesi is Associate Professor of Economics, Deputy Dean, Faculty of Economics and Business Administration, Department of Marketing and Management, University of Szeged, Hungary

Szabolcs Imreh is Assistant Professor, Faculty of Economics and Business Administration, Department of Regional and Applied Economics, University of Szeged, Hungary

László Kállay is Deputy Director, Economic Analysis Institute, Ministry of Economy and Transport, Budapest, Hungary

Imre Lengyel is Associate Professor of Economics, Head of Department, Faculty of Economics and Business Administration, Department of Regional and Applied Economics, University of Szeged, Hungary

Tamás Mészáros is Professor of Economics, Faculty of Business Administration, Head of Small Business Development Center, Budapest University of Economic Sciences and Public Administration, Budapest, Hungary

Péter Mogyorósi is Director of Laser Consult Kft., Szeged, Hungary

Ferenc Mozsár is Associate Professor of Economics, Faculty of Economics and Business Administration, Department of Theoretical Economics, University of Szeged, Hungary

Balázs Révész is Assistant Professor, Faculty of Economics and Business Administration, Department of Marketing and Management, University of Szeged, Hungary

László Szerb is Associate Professor of Economics, Faculty of Business and Economics, Department of Managerial Economics and Accounting, University of Pécs, Hungary

Péter Szirmai is Associate Professor of Economics, Faculty of Business Administration, Deputy Head of Small Business Development Center, Budapest University of Economic Sciences and Public Administration, Budapest, Hungary

Ferenc Tráser is Director, Business and Operational Management, University of Szeged, Hungary

Attila Varga is Associate Professor of Economics, Faculty of Business and Economics, Department of Economics, University of Pécs, Hungary

Zoltán Veres is Associate Professor of Economics, Head of Department, Faculty of Economics and Business Administration, Department of Marketing and Management, University of Szeged, Hungary

Márton Vilmányi is Assistant Professor, Faculty of Economics and Business Administration, Department of Marketing and Management, University of Szeged, Hungary

Preface

In 2004 Hungary is going to join the European Union. This is the final step of a transformation process having taken place in the past fifteen years. The political changes emerging at the end of the 80s confronted the countries of Central-Eastern Europe with three major challenges: the transformation from a state social economy to a market economy, the structural and technological changes in the economy and the challenges presented by processes related to globalization. Although it had to overcome several difficulties, Hungary also lived up to all of these three challenges. In the first decade of the political changes focus was mainly on developing the political-institutional conditions as well as establishing the democratic rule of law and a functioning market economy. However, today's main tasks are to build up a knowledge-based economy, strengthen the competitiveness of enterprises and develop the regions that are lagging behind.

The present volume includes 14 essays highlighting three important issues of the Hungarian economy: the Hungarian characteristics of knowledge transfer, the aspects of promotion Hungary's small and medium size enterprises and the questions of regional development. The European Union lays special emphasis on all three issues and offers different forms of assistance that will be available after the accession. However, regardless of the EU's assistance, these are among the key issues indispensable for the successful development of the Hungarian economy.

The first part of the volume introduces and discusses the most important features of knowledge transfer. Among theoretical questions related to knowledge transfer, the services promoting efficient company knowledge management are of special importance (*Ferenc Farkas*). The role of universities in the regional development of the economy becomes more and more significant especially owing to the establishment of a knowledge-based economy (*Attila Varga*). The institutes assuming an important role within Hungary's innovation system are introduced and the effectiveness of their operation is evaluated in this section (*Norbert Buzás*). The most important players of innovational services together with their limits are also reviewed (*Péter Mogyorósi, Márton Vilmányi and Balázs Révész*). In a transitional country, not only market players but also public figures and public goods created and operated by them assume an essential role in stimulating knowledge transfer; that is why the different interpretations of the meaning of public goods are also examined (*Ferenc Mozsár*).

The second section analyzes the Hungarian characteristics of SMEs. In transitional countries it is necessary to stimulate entrepreneurship and establish business networks in order to compete in the global contest (*László Szerb*). One of the relevant problems that small enterprises have to face is the lack of capital – Hungary, as other countries, has designed micro-loans to alleviate this situation (*László Kállay*). In order to render today's SMEs competitive, it is indispensable to utilize information technologies; according to the results of surveys the different

types of SMEs have different relations towards novelties in this field and furthermore, draw up different strategies to carry out development (*Tamás Mészáros and András Bálint*). The recent challenge of the Hungarian enterprise-development policy, has not been financing the foundation of new enterprises but preparing operating companies for the intensifying competition due to our joining the EU (*Péter Szirmai*). In achieving customer satisfaction and loyalty, marketing plays a vital role and its latest methods are more and more often adopted by Hungarian enterprises, as well (*Zoltán Veres and Erzsébet Hetesi*).

The essays in the third part of the volume deal with the development of Hungarian regions concentrating on the key problems present in the region of the Southern Great Plain. In Hungary regional inequalities are increasing; according to the most figures three regions are experiencing a fast development while the other four regions are lagging behind (*Szabolcs Deák and Imre Lengyel*). One of the underdeveloped regions is that of the Southern Great Plain although recently different schemes have been developed for its improvement (*Imre Lengyel*). The region's largest city is Szeged with excellent logistic opportunities. Improving the road system may contribute to the whole region's development (*Ferenc Tráser*). Using the EU's SME Charter as a basis, several institutions facilitate and support the operation of SMEs in the region (*Imreh Szabolcs*).

The majority of essays in the present volume were written by researchers of the Department of Regional and Applied Economics, Faculty of Economics and Business Administration, University of Szeged. The main area of research at the Faculty is the regional and local development of economy; within this area special emphasis is placed on technology transfer and the assistance provided to SMEs. In these questions the Faculty cooperates with researchers of other universities, mainly the Faculty of Business and Economics, University of Pécs and the Faculty of Business Administration, Small Business Development Center, Budapest University of Economic Sciences and Public Administration, Budapest. The works of the researchers participating in such collaborations are also included in this volume.

Szeged, June 2003

Imre Lengyel
Editor

Department of Regional and Applied Economics
Faculty of Economics and Business Administration
University of Szeged, Hungary

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 1-14

1 The Role of Leadership in Knowledge Management and Knowledge Transfer

Ferenc Farkas

1.1 Introduction

A research team made up of lecturers of the Faculty of Economics and Social Sciences of Rostock University and the Faculty of Business and Economics of Pécs University has been investigating the evolution of organisational competences needed for the economic development since 1998 with the financial support of DAAD/Hungarian Scholarship Commission (József Eötvös Public Funds) in the two countries. The third phase of the shared research in the years 2001/2002 aimed at analysing the specific features of knowledge management in professional service organisations through corporate examples and case studies based upon questionnaires and in-depth interviews.

The chief goal of the research was to examine the role of leadership in the knowledge management and the external as well as internal knowledge transfer of professional service organisations.

1.2 What is knowledge?

At the beginning some clarification of terminology is needed. This especially applies to the concept of knowledge. For some organization theorists it has become customary to turn to philosophy to grasp the essence of the knowledge concept. One possible approach is to use the distinction between know-that and know-how. Regarding know-that, the so-called traditional analysis of knowledge holds that a belief held by a person has to be justified and true in order to qualify for knowledge (Moser et al 1998). There is also a more practical kind of knowledge - know-how - that manifests itself in actions. More specifically, it is about how to appropriately, efficiently and successfully perform actions (Ryle 1949).

Nonaka (1994) used a modified terminology loosely based on the work of philosopher *Michael Polanyi* (1966). According to his view, the ability to express knowledge should serve as a criterion. on the one hand there is knowledge that can be - relatively - easy communicated in language, while the other kind of knowledge, tacit knowledge, has a more personal character. Knowledge management - as

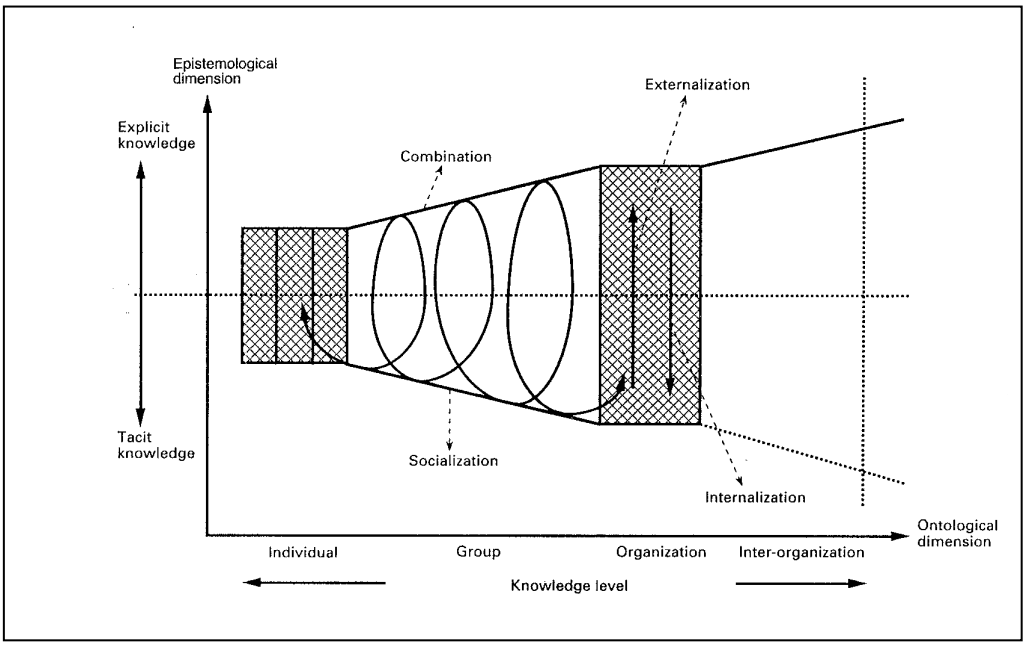
.

understood by Nonaka (1994) - builds on the conversion of both kinds of knowledge into one another. But there are two things to be kept in mind when focussing on a philosophical terminology:

(i) Neither management nor organization theory share the same goals as a philosophical theory of knowledge. A philosopher's task in the knowledge domain could probably be best described as performing thoughts on *human knowledge*, namely what is real and what we can know about this reality. Philosophical terminology is aimed at general phenomena that apply to knowledge of humankind as a whole. Additionally, time is not a crucial concept in this regard. Organization theory on the other hand is aimed at the understanding of organizations, for example their goals, functioning and behaviour

(ii) Apart from the different goals of analysis there is another point to consider when trying to use Polanyi's philosophical terminology in organization theory: the traditional theory of knowledge paid a premium on reflection, while this does not seem to be a matter of concern to Nonaka (1994). At the heart of Nonaka's ideas seems to be a way of influencing the company's performance in the' conversion of both types of knowledge. Knowledge in this view includes an immediate potential to act (Figure 1.1).

Figure 1.1 Spiral of organizational knowledge creation



Source: Nonaka and Takeuchi (1995: 73)

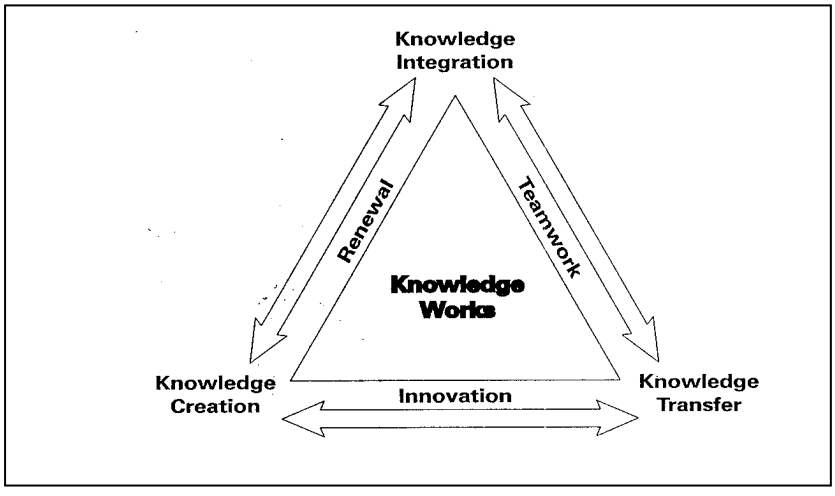
The terminology used for this paper is as follows. Data are building blocks for information, they can be representations of past events that people notice and bring to the attention of other people in an organization (Sanchez 2001). Information is data that is arranged in meaningful patterns. Knowledge as understood here is always specific to a special situation or point of view and gives a potential to act. These acts can be the creation of ideas or concepts, the application of knowledge in corporate decision-making etc. Nevertheless, the core distinction between tacit and explicit knowledge has been very well accepted. *Tacit knowledge*, for example, seems to have found a foundation in recent psychological research on implicit learning (Reber 1993).

1.3 Why knowledge management?

Knowledge management has become one of the most popular topics of management literature in recent years. A whole clump of research and publications proves the increasing value of intangible assets, knowledge property and the significance of the great potential lying in their efficient management. In the course of the research we argued in our theoretical work supporting the practical project that the growing importance of knowledge as a resource can be attributed to three factors, which form preconditions of one another. These are:

- structural reorganisation,
- the globalisation of economic activities and
- the evolution of information and globalisation technologies.

Figure 1.2 The knowledge works form



Source: Fruin (1997: 28)

The structural shift from labour- and capital-intensive activities to knowledge-intensive activities means that companies sell knowledge-based products and services on an ever larger scale. This structural change modifies organisational structures and leads to the reinterpretation of leadership and employee roles. The globalisation of the economy alters the international division of labour; industrialised nations turn into knowledge-based nations. The information and communication technologies make the quick and world-scale transparency of information possible. This, again, will result in rapid market changes and an accelerated innovation speed. In the framework of this project we mainly concentrated on structural changes. The scope of our research was a determined set of knowledge-orientated companies, and knowledge works, as Figure 1.2 has presented it.

In knowledge-orientated companies, the requirements and expectations which employees have to meet, their group work and roles are considerably determined by organisational concepts. From the point of view of knowledge creation, Nonaka and Takeuchi (1995) analysed top-down and bottom-up theories and came to the conclusion that a third method, a certain middle-up-down theory is more suitable for furthering knowledge creation. According to this theory, top managers develop a vision, while the middle management level elaborates clear concepts, which front-line colleagues and trained employees understand and implement. The middle management forms a type of intermediary level in charge of finding the adequate words, metaphors and slogans, which trained staff or customers will understand and enthusiastically embark upon task implementation. Middle managers act as knowledge engineers mediating between reality (which actually exists) and vision (which should be achieved).

However manifold the theories and methods of the individual companies may be, they all comply, consciously or spontaneously, with the principles of knowledge-based management. Nonaka's basic model shows how the implementation of corporate goals can be promoted by deliberate intervention, i.e. through shaping, co-ordinating and developing the knowledge base. Such actions can improve the motivation system of knowledge transfer, e.g. training measures, alliances with other companies, etc. These steps can contribute to success and yield financial and non-financial results of company operation.

1.4 A simple model of the knowledge transfer process

Barney (1995) argued that resources in order to be a source of competitive advantage have to be valuable, rare, not easily imitable and organizationally embedded. Apart from the first two dimensions, the possibility of imitation poses a challenge. In order to prevent knowledge from being imitated, it seems useful to connect it to factors that are not easily communicated such as tacit elements of

knowledge, local influences etc. But for the firm to be of any value knowledge must not only reside inside the originating organizational entity but also has to be transferred to places where it can be usefully applied. The solution to this problem seems to be to broaden our view to incorporate external variables in the discussion of the transfer process.

Bend (2000) offers a frame of reference for knowledge transfer to relate to. On the one hand there are *structural preconditions* for knowledge transfer to be effective such as the availability of relationship networks that allow the exchange of information. They are usually based on trust between partners and/or power relationships between individuals or groups. Knowledge itself also plays an important role: whether it is explicit or implicit knowledge, whether it depends on contexts factors for its understanding, whether it is complex or to be kept secret - this all influences the way a knowledge transfer is effected. The third structural element are the participants to an knowledge exchange - their role, the distance between them, the potential for absorption and the opportunity of putting the knowledge into use. On the other hand there is a process dimension of the knowledge transfer to be analysed: it is the media and transfer tools used but also the direction and level of development that results from the knowledge transfer.

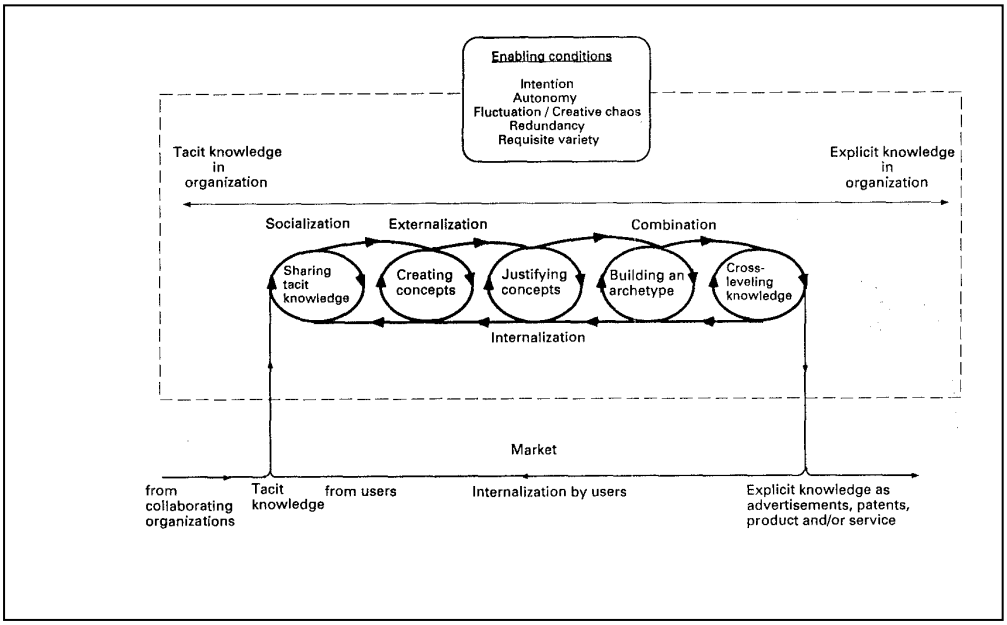
1.5 Relevant factors to a knowledge transfer process

One type of knowledge mentioned above is *tacit knowledge.* Zander and Kogut (1995) operationalised tacit knowledge on an organizational level using complexity, the possibility to codify it in written statements (like manuals), and the observability of the knowledge by competitors or internal staff (e.g. identification of relevant items without own experience in the subject matter). It seems reasonable to assume that the extent to which transferable knowledge is tacit has an influence on the transfer process itself.

Knowledge can reside within *individuals* or within the *relationships* between individuals, groups, or sub-groups. This points to the difference between communication intensiveness and knowledge intensiveness. It is not communication per se that allows knowledge to be created and transferred. Itself the creation is a complex process. Nonaka and Takeuchi draw up a five-phase mode (Figure 1.3).

But the transfer certainly plays a crucial role: without verbal or even non-verbal communication the only way to organize knowledge transfer would be to move around people holding the relevant knowledge. Speaking of explicit knowledge the question of transfer boils down to opportunities for knowledge sharing, possible delays of the transmission and biases from both sides of the communication equation (Huber 1991). There is an abundance of suggestions for choosing appropriate communication channels: direct communication, electronic channels such as email, bulletin boards and so on.

Figure 1.3 Five-phase model of the organizational knowledge creation process



Source: Nonaka and Takeuchi (1995: 84)

Modes of cooperation between individuals can also play an important role. Current literature on professional service firms postulates advantages of less formal cooperation mechanisms such as social norms and values, but it also acknowledges the necessity of hierarchical means of control, incentive systems and professional standards. The impact these means have on the way knowledge is shared is of principal importance to knowledge management in professional service firms. A related factor is the distribution of decision-making power within the organization.

Turning the attention towards the *recipients* of transferred knowledge it is important to make assumptions on their absorptive capacity (Cohen and Levinthal 1990). Basing the argumentation on an expertise model of knowledge management, it is important to have information on the education, experiences of professionals, the social context under which the transfer is taking place and the hierarchical or intra-group status of the recipient. Regarding context, it is assumed that the more similar the background of action the less likely it is the necessity of the transfer of tacit knowledge.

Because knowledge manifests itself in actions one also has to look for potential applications of knowledge. These applications can be routine and/or frequent tasks, such as the audit of financial statements by an audit firm or can be one time only, exceptional tasks (Dixon 2000). The difference between these two types of applications is that more routine tasks can be properly analysed, separated into clear,

identifiable steps and that more experience can be gathered in the performance of the task.

It is necessary to *distinguish between the how and the what* of a knowledge transfer (Boland et al 2001). The "how" of knowledge transfer seems to be a somewhat generic activity, some ideas on how to conceive of the process have been sketched above. Knowledge sharing can be thought of as the flow of pieces of knowledge within a network based on cooperative relationships. This network forms the basis of the social context against that knowledge is transferred. Knowledge can be transferred directly from sender to recipient, where psychological factors play a crucial role. An important influence on the success of transfer means is the *signalling* of the importance of the knowledge or the goal that has to be achieved. This has to be treated as a separate item in conceptions of knowledge transfer mechanisms.

The flow of knowledge within the network needs not be unidirectional, it is also possible that it passes several "nodes" within the network, where it is reinterpreted. Because of interpretation the content and associated value of the knowledge is constantly contested. Knowledge that does not fit to actual situations, problems or feelings is unlikely to pass many sequential "interpretation barriers".

Finally, knowledge has to lead to *actionable results* to be of any value to the organization. Knowledge management cannot lead to the creation of customer value or even to competitive advantages without its application to relevant client problems. While knowledge is usually developed in domains, actual application problems often do not fit these areas of expertise. So the work on specific client problems poses a kind of acid test on the effectiveness of the knowledge sharing efforts. It is important that the parties of a client engagement agree on a common definition of the problem to be solved, state their opinions from their respective perspective and together build a solution to the problem at hand.

1.6 The professional knowledge base as a possible content of knowledge transfer

In this research has been proved that the value created by having professionals do the job will not be obviously visible from the process side of knowledge transfer, it enters the arena from the *content* side. As indicated above at the heart of professionalism is a belief in specialized, applied knowledge (expertise). But there is also a component to this knowledge that cannot be standardized or commodified or at least is thought to be so (Freidson 2001). Knowledge's companion therefore is some form of social control as performed by professional bodies. For professionals this means that they have to find a balance between the relative autonomy granted from the profession's claim to a specialized body of knowledge and strategic imperatives of the professional service firm (Broadbent et al 1997). This also applies

to changes in regulation, the contents of the professional knowledge base or to changes in strategic direction of the firm.

Professional service firms therefore are not free to internally structure their work processes. They have to obey the boundaries of specialize d fields of expertise as set by the profession. Recently, there have been some movements in this area, indicating that some companies are creating multi- disciplinary practices, for example composed of auditors, tax consultants and lawyers. But these movements will also be mirrored by corresponding pronouncements of professionals' licensing bodies. The point is the following: setting up a knowledge management initiative in a professional service firm will almost surely result in a separation of knowledge fields where some experts are taking a leading role in the further development of the area.

For knowledge transfer this means that one would expect relatively little transfer of professional knowledge between the designated areas of expertise. Usually this makes sense, because for example latest developments in audit methodologies are of little value to lawyer operating under the game corporate roof. On the other hand knowledge on individual customers, their known preferences and past service offerings can be of value. This may also apply to the usage of common information technologies such as Lotus Notes. What is of concern here is that different points of view resulting from different professional background should mostly appear at the engagement level.

Within the professional areas of expertise on the other hand, individuals can build on a common vocabulary (as learnt during their education), common institutions that help in the formulation of new expressions, the explanation of new phenomena and provide a forum for the exchange of ideas to its professionals. Often, conferences are organized by parties external to the firm, furthermore journals are published that help in the distribution of new ideas. Another factor is the actual work experiences of professionals on an engagement, where "standard" knowledge management explanations seem to hold best.

1.7 Why study professional service firms?

The term professional service firm is used to describe companies that work in an industry that is characterized by a self-regulation of professionals regarding the contents of their work. The content is usually connected to a claim of expertise, that is a special body of knowledge based on the education and experience of individual members of the profession. Services delivered by members of the profession share some unique properties: they are usually custom-made, knowledge-intensive services, the service delivery process is characterized by judgements of experts and professional standards play at least a role in setting minimal levels of conduct. At the individual level, the explicit content of the body of knowledge is usually well

developed in professional settings. Knowledge is of great concern for professional service firms because it is one important input factor to successful competition in the market place. If one assumes a general trend towards more knowledge-based products and services in Our economy, lessons drawn from the management of professional service firms can be of value to other organizations as well. Furthermore, many social arrangements and even legal regulations are in place around professionals, indicating a need for the protection of knowledge assets.

How does this influence the way professional service firms are organized? One way of thinking about it is to consider Maister's (1985) so-called "3S framework". According to this framework three goal-categories are immanent in all kinds of professional service firms: (i) solutions that satisfy customer needs are demanded by the market- place (output side - client *service),* which requires (ii) motivated and capable individuals working for the company (input side - professional *satisfaction*). Furthermore the work of professional service firms is on (iii) a for-profit basis (financial *success).* The organizational structure of these firms is usually based on individual client-projects. Depending on the contents of these projects and the level of expertise required to perform them three generic types of projects can be distinguished (Maister 1993). There are so called brain projects that require professionals to find a unique, innovative solution to complex client problems. Grey hair projects are based on an experience in related situations the client is facing. The value proposition of procedure projects is not so much based on effectiveness of a service rather it includes a solution to a standardized problem, e.g. an ISO 9.000 - certification with related services.

When looking at professional knowledge, care has to be taken when talking about the management of “the knowledge” of an organization. One has at least to distinguish two levels - on the one hand there is the body of knowledge common to all members of a profession and serves as a kind of "entry ticket" (when passing the required examination) and common base upon which to build. It is not the case that this common body of knowledge is critical for competitive advantages of social entities working in the domain regulated by professional standards. This takes place at the expert level. After a prolonged period of time - usually more then ten years - in practicing a special activity individuals could be termed experts when their performance level fit expectations. Building a reputation for quality service for many professional service firms means relying on experts in their respective fields. This is what makes knowledge transfer for professional service firms tricky: you cannot simply ask experts what they know and write this down.

Regoczei and Hirst describe the problem as follows: "Even if knowledge itself does not come in pieces, language does. What the expert says - words, phrases, expressions, and sentences - are all piece like and discrete, and inevitably there is a mismatch between the possibly continuous, aggregate or conglomerate-like substance on the one hand, and the hard-edged, bony concepts and linguistic expressions on the other" (Regoczei and Hirst 1994: 20).

Getting experts from various field to work effectively together on a client problem requires something more. If we remember the time it takes in active practice to hope to be able to perform on an expert level, it would be a mistake to subscribe to an operational level of analysis only (Ericsson and Charness 1997).

1.8 Professional service organisations: the sample

In the framework of a formerly implemented German-Hungarian DAAD-project entitled 'Novel strategic concepts and the development of rural areas', the process of competence evolvement was demonstrated in the case of numerous German and Hungarian companies (DAAD 1998, 2000). However, we failed to get all employees involved expediently and comprehensively in the company processes, which would be one of the key elements of knowledge management.

In the framework of the new project we attempted to trace those factors which make it possible for management systems to transform the individual knowledge of all employees into collective knowledge and to make good use of it in a venturesome manner – i.e. for the sake of the company's success. Experience shows that the miscarriage of knowledge management in practice is due to the improper means of implementing in-company knowledge transfer (Szűcs 1999). It was also a goal of this project to find appropriate methods since the use of knowledge with suitable tools is a high-priority management task.

The subject of our investigation was the scope of companies where knowledge development is of crucial importance, namely professional service firms such as consultants, planning offices and accountants. Accordingly, the shared project consists of three parts within which a comparison of corporate knowledge development matters has been carried out regarding the individual professions.

The peculiarities of knowledge transfer in the three above mentioned types of professional service organisations have been presented in a separate study (Farkas and Kühnel 2002).

The construction of the data base needed to attain the goal of the research began in both countries with the registration of the parent population. In Germany this was carried out with the help of professional publications and professional telephone directories. In Hungary a nearly complete list of firms to be potentially interviewed was compiled with the aid of the professional associations (Hungarian Association of Management Consultants, National Chamber of Hungarian Accountants, etc.).

The sample, on the whole, is not representative, but the scale of the scrutinised organisations (50 questionnaires sent out per country and per branch) makes reliable analysis and conclusions possible. The questionnaire had originally been prepared in German language. We used a word-by-word translation in Hungary.

The distribution of the analysed sample (the returned and processed questionnaires) is shown in Table 1.1. The survey was carried out in autumn 2001 and spring 2002 in Germany and Hungary, respectively.

Table 1.1 The distribution of sampled firms on the basis of national and branch status

Branch	**Country**		
	Hungary	**Germany**	**Total**
Consultant	37	21	58
Accountant	27	23	50
Agency*	18	31	49
Total	**82**	**75**	**157**

Note: The denomination 'agency' does not properly cover the organisations included in the third branch. Organisations managing or accomplishing projects are pigeonholed here, the main task of which is to mediate knowledge and other resources. The German version of the questionnaire used the expression 'office of engineers'.

The information gained from the questionnaires is enriched by case studies based upon in-depth inteviews (in a size of 20 pages each). The total number of case studies is 6, made up of 3 German and 3 Hungarian, 1 representing every one branch. A methodological guide was elaborated to accompany the case studies. All branch studies were focused on one key field of leadership. Hence the primary aspects of the analysis were

- communication, in the case of consultants,
- feedback and control, in the case of accountants and
- shaping the organisational structure, in the case of agencies.

1.9 Main conclusions

The professional service organisations (PSOs) surveyed and described in the case studies dispose of a great number of knowledge management features in Germany as well as in Hungary, which influence the leadership of these organisations in effect. As effective leadership is situative in any case, i.e. tailored to the prevailing situation, it is useful to began by summarising the specific features of PSOs we experienced – in the first place concentrating on knowledge management

characteristics. The conclusions comprehend the common elements of national features; the otherwise existing cultural differences are not dealt with in this paper[1].

(a) Consultants under scrutiny

- These organisations want to be 'different', they strive to differentiate themselves from other consultants. They elaborate a methodology, software, IT system, report and presentation system of their own. They aim at shaping and communicating an independent corporate culture.
- Beyond the codified principles, their methodology is tailored to the clients, their products cannot be regarded as mass products, nor their services as mass production.
- Their competition strategies are, for the most part, competitive, endeavouring to be the first. It is typical of them to pick up and make the most of information quickly. The structure, technology (knowledge platforms) and resources are co-ordinated accordingly.
- The gathered information is rapidly passed on to the employees.
- Knowledge management is part of corporate policy. The most important forms of knowledge division and transfer are training and mentoring.

(b) Accountants under scrutiny

- The environmental (above all legal) determination of the organisations of this branch is strong, although provisions of law change frequently – particularly in Hungary. The preparation for applying EU regulations is a great challenge.
- Changing rules on the one hand mean a pressure to learn, and on the other hand require strong interest representation (safeguarding) activities in this branch.
- International (globalised) knowledge has been accumulated in the large firms of the branch. This knowledge cannot easily be put to good use in Hungary yet. In Germany there is a greater demand for creativity.
- The externalisation of codified knowledge is hampered by the trade secret obligation, a basic characteristic feature of the branch.
- In this branch, work (thus the necessary knowledge) is often combined with consultancy, hence it is given a twofold character.
- The bearer of knowledge in the projects is the team, and not the individual. Knowledge management is a kind of internal service which does not generate further knowledge.

[1] Further, detailed results of this research can be found in a compilation of essays and studies published in Germany (DAAD 2002). This volume synthesises of the edited versions of the presentations of the scientific symposium held on 24-25 July 2002 in Rostock.

(c) Offices of engineers and agencies under scrutiny

- The organisations of this branch are in transition in both countries: linear-functional structures are taken over by project-team organisations.
- The participating expert usually only knows the particular project and disposes of the knowledge needed for that. Teams and often subcontractors are necessary to implement complex projects. The work of subcontractors has to be co-ordinated as well.
- The applied knowledge embraces obligatory knowledge elements bought by the client from the professional service organisation. Clients do not know statutory provisions and regulations.
- In this branch, project management knowledge represents a core competence.
- The most important element of individual and organisational knowledge in this branch is contact capital.
- In the course of knowledge management, organisations must seek to turn knowledge acquired from the projects into organisational knowledge. This process requires the documentation of the elements of knowledge.
- The demand for knowledge needed for compiling and managing applications for tenders (EU tenders) is characteristic of this branch, in the first place in Hungary. Human resource and organisational conditions must be provided for this purpose, otherwise the companies of the branch can reckon with loss of knowledge.

References

Bend, A. 2000: *Wissenstransfer in multinationalen Unternehmen.* Gabler, Wiesbaden.

Boland Jr, R.J., Singh, J., Salipante, P., Aram, J.D., Fay, S.Y. and Kanawattanachai, P. 2001: Knowledge representations and knowledge transfer. *Academy of Management Journa1,* 44 (2): 393-418

Broadbent, J., Dietrichs, M. and Roberts, J. 1997: *The end of the professions?* Routledge, London.

Cohen, W.M. and Levintha1, D.A. 1990: Absorptive capacity – a new perspective on learning and innovation. *Administrative Science Quarterly*, 35: 128-153

DAAD 1998: *Neue strategische Konzepte and die Entwicklung des ländlichen Raumes*. DAAD Projekt, Universität Rostock, p. 137

DAAD 2000: *Neue strategische Konzepte and die Entwicklung des ländlichen Raumes*. DAAD Projekt, Universität Rostock, p. 164

DAAD 2002: *Wissensmanagement und Wissensorientierte Führung in Professional Service Firms*. DAAD Projekt, Universität Rostock, p. 256

Dixon, N.M. 2000: *Common knowledge - how companies thrive by sharing what they know.* Harvard Business School Press, Boston.

Farkas, F. and Kühnel, Á. 2002: Knowledge Transfer within a Professional Service Firm. *Organizacija Letnik* 35 (1): 43-48

Freidson, E. 2001: *Professionalism - the third logic*. Polity Press, Cambridge.

Fruin, W.M. 1997: *Knowledge works*. Oxford University Press.

Huber, G.P. 1991: Organizational learning - The contributing processes and the literatures. *Organization Science*, 2: 88-115

Maister, D.H. 1985: *The one-firm jirm - what makes it successful.* Sloan Management Review, 27(1): 3-13

Maister, D.H. 1993: *Managing the professional service firm.* Free Press, New York.

Moser, P.K., Mulder, D.H. and Trout, J.D. 1998: *The theory of knowledge - a thematic introduction.* Oxford University Press, Oxford.

Nonaka, 1. 1994: A dynamic theory of knowledge creation. *Organization Science*, 5: 14-37

Nonaka, I. and Takeuchi, H. 1995: *The knowledge creating company*. Oxford University Press, Oxford.

Polanyi, M. 1966: *The tacit dimension.* Smith Peter, Glouchester.

Reber, A. S. 1993: *Implicit learning and tacit knowledge - an essay on the cognitive unconscious.* Oxford University Press, Oxford.

Regoczei, S. and Hirst, G. 1994: Knowledge and knowledge aquisition in the computational context. In Hoffman, R. (ed) 1994: *The psychology of expertise: cognitive research and empirical AJ.* Lawrence Erlbaum Associates, Mahwah.

Ryle, G. 1949: *Concept of mind.* Hutchinson, London.

Sanchez, R. 2001. Managing knowledge into competence. In Sanchez, R. (ed): *Knowledge management and organizational competence.* Oxford University Press, Oxford.

Szűcs, P. 1999: Tudásmenedzsment – a hosszú távú siker megalapozója (Knowledge management – The foundation of success in the long term). *Gazdaság-Vállalkozás-Vezetés* 3: 17-23

Zander, U. and Kogut, B. 1995: *Knowledge and the speed of transfer and imitation of organizational abilities - an empirical test.* Organization Science, 6(1): 76-92

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 15-31

2 Agglomeration and the Role of Universities in Regional Economic Development

Attila Varga

2.1 Introduction

As Hungary has successfully been transformed into a country with a well-functioning market economy and a stable democratic political system the main economic issues are no longer related to transition but to modernization and the establishment of a sustainable long run growth path. Does the country have the capacity to follow the direction of knowledge-based economic development as perhaps the most promising way of modernization? Historical experience suggests that Hungary might have a good potential in this respect as indicated by the disproportionately high number of Hungarian-born Nobel laureates or the number of important inventions developed by Hungarian scientists in the last century. An economic development policy supporting certain scientific fields at universities and promoting collaboration between universities and the local industry could perhaps be a good instrument to fuel economic growth by scientific excellence. In this respect, as in many others, studying international experiences might be helpful to set more realistic expectations. One of the related key issues is the role of agglomeration (i.e., the size of the regional economy) in the efficiency of university-based regional economic development policies. This chapter*, based on data of one of the most targeted high technology sectors, the electronics industry, provides an analysis of the United States experience.

Since the early eighties, resulting from major structural changes in modern economies, a new wave of regional economic development policies has begun to emerge both in the US and in Europe (Atkinson 1991, Isserman 1994, Osborne1994). While traditional approaches (i.e., "smokestack chasing" via providing attractive financial conditions and business climate for relocating companies) were suitable tools for boosting localities in the era of mass production, they are no longer appropriate in the age of technology-led economic growth when economic globalization and the preeminence of knowledge and information in production have given rise to a renewed importance of regions (Acs 1999, Florida, Gleeson and Smith 1994, Scott 1996). This new set of policies, called "self-improvement" (Isserman 1994), or "high-performance economic development"

*This chapter draws on Varga (2000) and Varga (2001).

(Florida, Gleeson and Smith, 1994) aims at advancing a region's technology base and human infrastructure through the implementation of specific, technology related programs. In collaboration with the regional industry, governments support technology development, assist in industrial problem solving, provide start-up assistance, and help local firms finance new technologies (Coburn 1995).

Motivated by the success stories of Silicon Valley and Route 128, regional technology programs put a significant weight on promoting technology transfers from universities to the local industry. Not only has the direct support for university research increased (in the US academic R&D grew form $ 7 billion in 1980 to $ 17 billion in 1993 in 1987 dollars[1]), a major portion of technology related expenditures of regional governments is being spent on programs requiring different forms of university involvement. For example, according to the data in Coburn (1995), 30 % of the budget of state cooperative technology development programs in 1994 went directly to universities located in the state. This category of expenditures includes supporting university-industry technology centers, promoting university-industry research partnerships, and involvement in different forms of equipment and facility access programs. Moreover, about 70 % of the total budget of state technology programs is, in part, associated with some kind of university participation. University-industry research centers (UIRCs) appear to be the most favored vehicles of government involvement in academia-supported regional development. In 1990, federal and state governments spent about $ 1.9 billion on research and related activities at the estimated 1,056 UIRCs of the US (Cohen, Florida and Goe 1994). More than that, 40 US states maintain technology extension programs, many of them are located on university campuses. Additionally, 20 states support incubators and research parks, most of them assume significant university involvement (Coburn 1995).

Despite high expectations regarding positive regional economic effects of technology transfers from academia, scholarly evaluations of technology-based economic development programs are still rare in the literature[2]. Empirical economic research on regional university knowledge effects still struggles with data problems at lower levels of geographic and industrial aggregation and the absence of a comprehensive theory of regional innovation systems[3].

Studies carried out within the classical Griliches-Jaffe knowledge production function framework report strong and significant effects of technology transfers from university research laboratories to regional innovation both at the level of US

[1] National Science Board (1993)

[2] According to my knowledge, the study by Bania, Eberts, and Fogarty (1992) is the only major scholarly attempt in this area of research.

[3] Regarding university knowledge effects, modeling approaches belonging to the tradition of the neoclassical growth theory in Anderson (1981) and Anderson et al. (1989) and the regional investment model in Florax (1992) should be referred to here as major achievements in this research field. For a recent survey of the literature see Varga (2002).

states and metropolitan areas (Jaffe 1989, Acs, Audretsch and Feldman 1991, 1994, Anselin, Varga and Acs 1997). However, this effect exhibits notable sectoral variations (Anselin, Varga and Acs 2000a, 2000b).

Several observations support the hypothesis that the intensity of academic technology transfers is not stable across regions. For example, Acs, Herron and Sapienza (1992) and Feldman (1994b) point to the case of Johns Hopkins University and Baltimore. Despite the fact that Johns Hopkins is the largest recipient of federal research funds, no significant high technology concentration has emerged in the Baltimore area. Similarly, based on data in the early 1980s, while roughly equal in terms of research activity, Cornell University ($110 million in 1982) and Stanford University ($130 million in 1982) were situated in completely different regional innovative complexes: only 2 innovations were recorded for the production sector in Ithaca, versus 374 in the San Jose region. Regarding technology policy, these observations suggest that the same amount of university research support might affect regions differently, depending on the characteristics of their economic activities.

Besides definite differences in the scope and practical applicability of research programs at universities and regional variances in cultural traditions (Saxenian, 1994), it seems a reasonable assumption that agglomeration might play an important role in explaining spatial variations in university knowledge effects. To explain the modest university impact in Baltimore, Feldman (1994b) points to the possible role of the absence of a "critical mass" of high technology enterprises, the lack of producer services, venture capital and entrepreneurial culture.

In this chapter, the methodology developed in Varga (1998) is applied to study differences in the agglomeration effect on local university technology transfers. Applying a unique data set of innovation counts and professional employment in private R&D laboratories, an MSA level analysis is carried out within the Griliches-Jaffe knowledge production framework (Griliches 1979, Jaffe 1989). Section 2 presents the empirical model. It is followed by a data introduction and a discussion of estimation issues. Section 4 reports the regression results, while section 5 demonstrates the agglomeration effect on academic technology transfers. Concluding remarks follow.

2.2 The empirical model

A major obstacle of testing the effect of agglomeration on university technology transfers is the lack of a comprehensive measure of academic knowledge spillovers. Technology transfers from academic institutions might be captured by university patent citations (as was done in Jaffe et al. 1993), by the number of graduates finding jobs in the area, or by counts of local faculty spin-off firms. However, these variables cover local academic knowledge spillovers only partially.

For modeling purposes, an implicit measure of academic technology transfers is proposed in Varga (1998). This measure is based on the Griliches-Jaffe knowledge production function (Griliches 1979, Jaffe 1989). The knowledge production function has the form of

$$(1) \qquad \log(K) = \alpha_0 + \alpha_1 \log(RD) + \alpha_2 \log(URD) + \varepsilon$$

where *K* measures new knowledge produced by high technology companies, *RD* is industrial research and development, *URD* is university research in the respective fields of engineering and hard sciences and ε is a stochastic error term. According to equation (1), production of economically useful new knowledge depends on two local inputs: the high technology industry's own R&D efforts and local university research. Jaffe points out that a positive and significant coefficient of the university research variable indicates university technology transfer effects on industrial knowledge production (Jaffe 1989: 957). As such, the magnitude of α_2 can be considered as a measure of local academic knowledge spillovers: the higher the value of this coefficient, the more intensive the effect of university knowledge transfers on local innovation activities. This measure has a particular feature: it is not tied to any specific manner of technology transfers. It summarizes knowledge spillovers of any form in a single value[4].

The parameter expansion method of Casetti (1997) is applied in this chapter to test for the effect of agglomeration on academic knowledge spillovers measured by the coefficient of the university research variable in equation (1). Knowledge transfer mechanisms[5] are classified into three categories:

- information transmission via local *personal networks* of university and industry professionals (local labor market of graduates, faculty consulting, university seminars, conferences, student internships, local professional associations, continuing education of employees),
- technology transfers through *formal* business relations (university spin-off companies, technology licensing), and
- spillovers promoted by university *physical facilities* (libraries, science laboratories, computer facilities).

[4] Given that the coefficient of the university research variable in equation (1) reflects local academic technology transfers implicitly, this is not a perfect measure of knowledge spillovers. The absence of such a correct measure is the reason of its substitution with a "second best" solution applied in this chapter.

[5] The various mechanisms of local university knowledge transfers have been widely discussed in the literature (e.g., National Science Board 1983, Dorfman 1983, Johnson 1984, Rogers and Larsen 1984, Wicksteed 1985, Parker and Zilberman 1993, Saxenian 1994).

It is presupposed that the amount of technological information transmitted to the local high technology industry from the available pool of knowledge at academic institutions is controlled to a large extent by agglomeration. *Concentration of high technology production* is assumed to intensify information flows through the personal networks of university and industry professionals (for example, it increases local demand for faculty consulting services and raises the probability that graduates get jobs in the proximity of universities). Professional assistance from local *business services* (e.g., financial, legal, marketing services) enlarges knowledge spillovers by facilitating faculty spin-offs and technology licensing from academic institutions[6]. In general, relative to large companies, small firms are less endowed with research facilities. It is a major reason why small businesses rely more on university knowledge transfers (Link and Rees 1990, Acs, Audretsch and Feldman 1994). Consequently, it is expected that *small firm concentration* enhances local university technology spillovers.

The following expansion equation models the dependence of academic knowledge transfers on the concentration of economic activities.

$$(2) \qquad \alpha_2 = \beta_0 + \beta_1 \log(PROD) + \beta_2 \log(BUS) + \beta_3 \log(LARGE) + \mu$$

In equation (2), the magnitude of university knowledge spillovers, measured by α_2, is expected to be positively influenced by the concentration of high technology production (PROD) and business services (BUS). Technology transfers from academic institutions are supposed to be negatively affected by the relative importance of large firms (LARGE) in the geographical area (as suggested by Link and Rees 1990, and Acs, Audretsch and Feldman 1994).

Knowledge spillovers from industrial research laboratories measured by α_1 in equation (1) are also assumed to depend on agglomeration. It is widely recognized in the innovation literature, that local networks of related firms are major sources of new technological information (Dosi 1988, Hippel 1988, Edwin Mansfield and Elisabeth Mansfield 1993). By enlarging the pool of available technical knowledge, concentration of production intensifies knowledge flows through the local networks of firms (Feldman 1994a). It has been well documented that locally available business services promote technological spillovers via supporting spin-off firm formation (Dorfman 1983, Rogers and Larsen 1984, Saxenian 1994). Acs, Audretsch and Feldman (1994) found that knowledge spillovers among private R&D laboratories are more significant sources of innovation for large companies than for small firms. Thus, agglomeration effects on technology spillovers among firms are modeled as follows:

[6] Regional technology transfers are being supported by different types of local service companies. Not only patent attorneys or management services but also several engineering services are considerable sources of significant support in technology spillovers. Unfortunately, industry classification does not support such details in data collection. A proxy, a measure of business service activities has been chosen as a rough indicator of local service input to technology transfers.

$$(3) \qquad \alpha_1 = \gamma_0 + \gamma_1 \log(PROD) + \gamma_2 \log(BUS) + \gamma_3 \log(LARGE) + \eta$$

with the same notation as above. It is assumed that concentration of production and business services and the relative importance of large firms influence local inter-firm technology transfers positively.

A substitution of equations (2) and (3) into (1) provides the expanded knowledge production function:

$$\begin{aligned}(4) \quad \log(K) = {} & \alpha_0 + \gamma_0 \log(RD) + \gamma_1 \log(PROD)\log(RD) + \\ & + \gamma_2 \log(BUS)\log(RD) + \gamma_3 \log(LARGE)\log(RD) + \beta_0 \log(URD) + \\ & + \beta_1 \log(PROD)\log(URD) + \beta_2 \log(BUS)\log(URD) + \\ & + \beta_3 \log(LARGE)\log(URD) + [\eta \log(RD) + \mu \log(URD) + \varepsilon]\end{aligned}$$

Equation (4) will be used for estimation. It models the production of economically useful new technological knowledge as being dependent on industrial and university R&D activities interacting with local agglomeration factors: concentration of production, business services and large companies.

2.3 Data and estimation

Estimation of equation (4) is based on the same unique data set of US metropolitan areas as in Anselin, Varga and Acs (2000a and 2000b). New technological knowledge (K) is measured by counts of product innovations introduced on the US market in 1982. Innovation counts come from the United States Small Business Administration (SBA) innovation citation database (Edwards and Gordon 1984). This data set is a result of an extensive survey of the new product sections of trade and technical journals. County and MSA aggregates of the innovation data are available in two-digit SIC industry details and only for 1982. To date the SBA data are the best available measure of US innovative activity[7].

Private research activities (RD) are proxied by professional R&D employment. The source of this data is the 17th edition of Industrial Research Laboratories of the United States (Jaques Cattell Press 1982)[8]. Following the common approach, university

[7] For a detailed description of the data set and its advantages over the traditionally used patent data see Acs and Audretsch, 1990 and Feldman, 1994a. A comparative analysis of innovation and patent counts as measures of new knowledge in the KPF context is provided in Acs, Anselin and Varga (2002).

[8] Although it is a reasonable approach to account for a four or five-year lag between innovations and research (as was done in Acs and Audretsch 1990, Acs, Audretsch and Feldman 1991, and in Feldman 1994), this approach is not followed here. The technical reason is that 1982 is the first year that the Classification Index of the Directory allows for appropriate industry level aggregations. Besides this technical impediment, the validity of the choice of the year 1982 is supported by the trends in R&D lab

research expenditures stand for research activity at academic institutions (URD). The data are collected from the NSF Survey of Scientific and Engineering Expenditures at Universities and Colleges (National Science Foundation 1982).

Data measuring the concentration of high technology production (PROD), business services (BUS) and the relative presence of large firms (LARGE) come from County Business Patterns (Bureau of the Census, 1983). Concentration of the electronics industry is accounted for by the location quotient of sectoral employment in the metropolitan area[9]. Business services activities are measured by employment in SIC 73. The percentage of electronics firms with employment exceeding 500 accounts for the relative importance of large companies. For a more detailed description of the data see Anselin Varga and Acs (2000a, 2000b).

Three potential estimation problems of the expanded knowledge production function need closer attention: the problems of heteroskedasticity, multicollinearity, and spatial dependence. The fact that the error term of equation (4) depends on observation-specific private and university research values may cause heteroskedasticity in the estimated model. Repeated occurrence of the same variables in subsequent terms of the knowledge production function could be the source of serious multicollinearity. In the following analysis, the Breusch-Pagan (BP) heteroskedasticity test (Breusch and Pagan 1979) and the multicollinearity condition number (Belsley et al. 1980) are applied to test for misspecifications in the forms of heteroskedasticity and multicollinearity.

Potential statistical problems associated with dependence among observations in cross-sectional data are extensively treated in the spatial econometrics literature (e.g. Anselin 1988, Anselin and Florax 1995, Anselin and Bera 1998). Two forms of spatial dependence may exist in a linear regression context: spatial lag dependence and spatial error autocorrelation. A presence of any kind of spatial dependence can invalidate regression results. In the case of spatial error autocorrelation, OLS parameter estimates are inefficient whereas in the presence of spatial lag dependence, parameters become not only biased but also inconsistent (Anselin 1988).

The general expression for the spatial lag model is

$$y = \rho W y + x\beta + \varepsilon \tag{5}$$

location. As reported in Malecki (1979, 1980a, 1980b), location patterns of R&D laboratories tend to be stable for a relatively long period of time. This observation suggests that a regression model on lagged research variables would not provide significantly different outcomes from those reported in this study.

[9] A location quotient relates local and national importance of an industry, based on its relative share in the local and in the national economy. Formally: $LQ = (EMPSEC_{MSA}/EMPTOT_{MSA})/(EMPSEC_{NATION}/EMPTOT_{NATION})$, where EMPSEC and EMPTOT stand for employment in the specific sector and total employment, respectively. LQ > 1 shows that industry employment is more concentrated in the region than on average in the nation.

where y is an N by 1 vector of dependent observations, *W* is a row standardized spatial weight matrix[10], *Wy* is an N by 1 vector of lagged dependent observations, ρ is a spatial autoregressive parameter, *x* is an N by K matrix of exogenous explanatory variables, β is a K by 1 vector of respective coefficients, and ε is an N by 1 vector of independent disturbance terms.

Autocorrelation among regression error terms represents an alternative form of spatial dependence. Spatial error autocorrelation is modeled as follows

$$y = X\beta + \varepsilon \tag{6}$$

with

$$\phi = \lambda W\varepsilon + \xi \tag{7}$$

where λ is the coefficient of spatially lagged autoregressive errors $W\varepsilon$ and ξ is an N by 1 vector of independent disturbance terms. The other notation is as before[11].

Three spatial weights matrices are applied in the following empirical study. D50 and D75 are distance-based contiguities for 50 and 75 miles, respectively while the third one, IDIS2, is an inverse distance squared weights matrix [12]. The presence of spatial dependence is tested for by Lagrange Multiplier test statistics (Burridge 1980, Anselin and Florax 1995). Empirical regressions are carried out in SpaceStat, an econometric software designed for the analysis of spatial data (Anselin 1992).

[10] Relative positioning of observations is modeled in spatial weights matrices. The dimension of a spatial weights matrix *W* is given by the number of observations of the regression. A matrix element $w_{i,j}$ reflects the spatial relation between observations *i* and *j*. Depending on the expected structure of spatial dependence, a matrix element $w_{i,j}$ can represent either contiguity relations between observations or it can model the role of distance in dependence. If two observations are contiguous (i.e., they share a common border or are located within a given distance band), the value of $w_{i,j}$ is larger than zero, and zero otherwise. The larger-than zero value is 1 in case of a simple contiguity matrix and it is a number between zero and one if the elements are row-standardized, that is, every element is divided by the respective row sum. If spatial dependence is expected to be determined by distance relations, a matrix element is based on the distance of observations i and j (i.e., their inverse distance or the square of the inverse distance).

[11] The applied spatial econometric methodology is well suited for modeling the spatial extent of knowledge spillovers. Spatial dependence in the knowledge production function, either in the form of lag or error autocorrelation, is a sign of knowledge transfers among the spatial units of analysis. In any case of spatial dependence, the correctly specified spatial econometric equation accounts for spillovers both within and among the spatial units (Anselin, Varga, and Acs 1997, Varga 1998).

[12] Two MSAs are considered contiguous in D50 if their center counties are located within a 50-mile distance range. The same reasoning applies for D75. These matrices are intended to reflect potential spatial dependencies within commuting distances around an MSA. IDIS2 captures spatial effects that might come from the whole geographic area of the regression.

2.4 Regression results

Parameter expansion results are reported in Table 2.1 for the electronics industry. The first column lists estimation results for equation (4). The extremely high value of multicollinearity (with condition number of 168) makes it impossible to reasonably evaluate the relative importance of different agglomeration factors in the processes of local knowledge transfers. In the second and third columns, parameters of the two research variables are expanded, separately.

Table 2.1. Regression results for Log (INN) in the Electronics industry (N=70, 1982)

Model	Full Model OLS	RD Model OLS	URD Model OLS	Final Model ML-Spatial Error
Constant	-0.315	-0.141	-0.130	-0.186
	(0.183)	(0.186)	(0.187)	(0.149)
log(RD)	-0.061	-0.595	0.174	0.139
	(0.409)	(0.201)	(0.061)	(0.053)
log(URD)	-0.183	0.081	-0.507	-0.424
	(0.292)	(0.042)	(0.140)	(0.116)
log(RD)log(PROD)	0.209	0.039		0.043
	(0.053)	(0.011)		(0.009)
log(RD)log(BUS)	0.022	0.173		
	(0.095)	(0.038)		
log(RD)log(LARGE)	-0.097	0.009		
	(0.079)	(0.031)		
log(URD)log(PROD)	-0.127		0.026	
	(0.039)		(0.009)	
log(URD)log(BUS)	0.094		0.134	0.123
	(0.069)		(0.029)	(0.024)
log(URD)log(LARGE)	0.073		0.004	
	(0.055)		(0.023)	
LAMBDA				0.376
				(0.111)
R^2 - adj	0.712	0.671	0.653	0.700
LIK	-3.194	-9.627	-11.476	-4.095
Multicollinearity	168	44	42	38
B-P for Heteroskedasticity	5.360	4.755	11.652	4.719
LM-Err (D75)	4.239	9.319	11.141	
LM-Lag (D75)	4.755	5.530	6.948	0.275
LR-Error (75)				9.638

Notes: estimated standard errors are in parentheses; critical values for the B-P statistic with respectively 8, 5, and 4 degrees of freedom are 15.51, 11.07, and 9.49 (p=0.05); critical values for LM-Err LM-Lag and LR-Err statistics are 3.84 (p=0.05) and 2.71 (p=0.10); the

spatial weights matrixes are row-standardized: D50 is distance-based contiguity for 50 miles and D75 is distance based contiguity for 75 miles.

The results show that both university and industrial knowledge transfers are significantly and positively affected by the concentration of production and business services. Another common result is that the small firm effect is not significant for either form of research effects. However, high multicollinearity (an inherent shortcoming of the applied parameter expansion methodology) is a technical impediment to accounting for all the possible factors of agglomeration. Instead, the strongest effects are examined in the final model. The model in the fourth column exhibits the best properties in terms of regression fit and multicollinearity. Spatial dependence among regression error terms is taken care of by means of maximum likelihood estimation. Business services are the major agglomeration factors explaining technology transfers from universities while knowledge spillovers among research laboratories are dominantly promoted by production concentration.

2.5 University effect and agglomeration: a demonstration of the importance of a "critical mass" for successful technology transfers

Regression results in Table 2.1 clearly evidence that the available pool of technological knowledge at academic institutions exerts diverse impacts on the local economy, depending on the level of concentration of economic activities in a metropolitan area. However, the scale of local economic activities that is sufficient enough to yield substantial academic knowledge transfers still remains an important issue for the analysis.

In order to address the "critical mass" of local economic activities problem, MSAs in the samples are categorized into three different "tiers." The categorization is based on the intensity of local academic knowledge transfers measured by the estimated coefficients of the university research variables in the industrial knowledge production functions. Given that knowledge production is formulated in the form of a Cobb-Douglas function, these coefficients measure innovation elasticities with respect to university research spending.

Based on the final model in Table 2.1, the intensity of academic technology transfers in location j is calculated as follows:

(8) Elasticity [Innovation, University Research]$_j$ =

$$\delta \log(K_j) / \delta \log(URD_j) = -0.424 + 0.123 \log(BUS_j).$$

The first column of Table 2.2 lists average elasticities of innovation with respect to university research. It is clear that all the variables included in the table follow the same decreasing tendency of innovation elasticities. The third column lists average values of innovation predictions. These predictions are based on parameter estimates

in Table 2.1. Compared to the respective average tier values of observed innovations, the estimated model of knowledge production provides good average predictions for the second and third tiers. However, the model consistently underpredicts average levels of innovation activities in the first tier. This observation suggests that for first tier MSAs actual university technology transfers are probably higher in their intensity than indicated by innovation elasticity predictions.

Table 2.2. Average values of innovation elasticities, innovation, R&D activities, employment and population by innovation elasticity categories for the Electronics industry

	EL(I,U)	INN36	INN36PR	RD36	URD36	EMP36	POP
Tier 1	0.164	23	9	2875	16154	38121	3.1
Tier 2	0.091	4	3	307	3950	9625	0.9
Tier 3	0.032	2	2	224	3119	5187	0.5

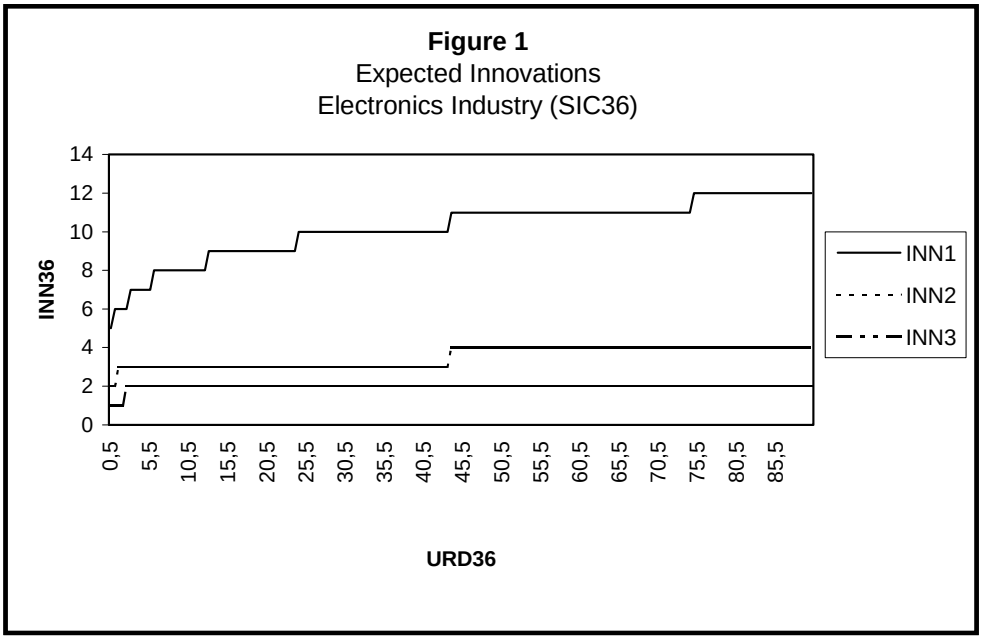
Notes: EL stands for elasticity of innovation with respect to university research; INN is the number of innovations in the MSA; INNPR is predicted innovations RD stands for R&D professional employment; URD is university research expenditures in thousands of US dollars; EMP is industry employment; POP is population in millions of inhabitants.

Figure 2.1 demonstrates the effect of agglomeration on local university technology transfers. In essence, this figure simulates the impacts of a *pure* university-based regional economic development policy in metropolitan areas exhibiting different levels of economic activities. In other words, the effects of increased university research expenditures on innovation are presented, while all the other characteristics of the MSAs are assumed to remain the same. The X axis represents university research expenditures, while the Y axis depicts expected innovations for university research spending sizes and for different MSAs in both figures. University research activities depicted on the X axis in the figure reflect the range between the highest and lowest levels of observed university research expenditures. The three curves stand for different expected innovation outcomes associated with the same amounts of university research spending. Expected innovations for each tier were calculated based on the final model in the last column of Table 2.1. For each tier, average values of private research and the two research coefficients were held constant while university research spending was the only variable element in the calculations.

Figure 2.1 demonstrates the dramatic differences in the "productivity" of the same amount of university research spending depending on the size of economic activities in a geographic area. First tier metropolitan areas possess the "critical mass" of local economic activities, that is, those cities absorb university effects in

the most efficient manner. This critical mass is characterized by population of around 3 million, electronics industry employment of about 40 thousands and the number of professional research staff in industrial laboratories of 3 thousands.

Figure 2.1 Expected innovations



While increased academic research expenditures have basically no effects on innovation activities in second and third tier cities, the impact of academic research in the first tier is remarkable. (Over the range of respective university research expenditures, innovation activity increases from 5 innovations to 12.)

A pure university-based regional development policy seems not to be effective enough to "upgrade" geographical areas in the second and third tiers to a higher level of innovative activity. With the exception of third tier cities (where knowledge production reaches the lowest level of second tier innovations after about 4 millions of university research expenditures), even the maximum amount of university research spending is not high enough to reach the lowest average level of knowledge production in the next tier of metropolitan areas.

Sensitivity of innovative activity to increased university research spending gradually decreases in first tier cities. While at lower levels of university research activities, boosting local universities seems to be a cost effective way of economic development, this advantage seems to disappear quickly: the larger the amount of university research spending, the higher the cost of each additional innovation.

2.6 Summary and conclusions

Universities have gained increased attention in modern, technology-based regional economic development policies. Despite high expectations regarding positive economic effects of university support, scholarly evaluations of policies promoting local technology transfers from universities are still scarce in the literature. An important area of research is the effect of spatial concentration of economic activities on university-based regional economic development policies. This chapter provided formal empirical evidence of the positive impact of agglomeration on local academic technology transfers for the US electronics industry.

Parameter expansion analyses were carried out within the classical Griliches-Jaffe knowledge production framework. Testing and correcting for spatial effects in regression equations earned a particular attention in the empirical investigations. University technology transfers are most sensitive to the presence of business services in the Electronics sector. It was demonstrated that the same amount of university research spending is associated with notable differences in knowledge production depending on the concentration of economic activities in the metropolitan area.

In addition, it was found that the presence of a "critical mass" of agglomeration in the metropolitan area is required in order to expect substantial local economic effects of academic research. To reach the critical mass a relatively high level of regional concentration of economic resources is needed: population size of around 3 million, electronics industry employment of about 40 thousands and the number of professional research staff in electronics industry laboratories of nearly 3 thousands. Simulations of university knowledge effects suggest that pure university-based regional economic development policies are not effective enough to "upgrade" localities to a higher tier of innovative activities. Simulation results also suggest that cost-effectiveness of university support is in an indirect relationship with the level of academic research expenditures.

A major message of the findings in this chapter is that strengthening universities in order to advance local economies seems be a good option for relatively well-developed metropolitan areas but not necessarily for lagging regions. For the latter group of localities a more comprehensive approach appears suitable including a complex regional economic development plan that targets not only local academic institutions, but also high technology employment, business services and small firms.[13]

[13] To some extent, the applied data and methodology set the limitations on the interpretations of the results. Since the SBA innovation data are available for one year, only a static analysis is allowed in this study. Consequently, results reflect a "longer term" equilibrium under the assumption that economic variables do not go under significant changes. The innovation data set does not make it possible to differentiate among innovations based on their economic importance. It is possible that some places are over-represented because of their relatively numerous but not necessarily important

Results of the analyses reflect the general trend of agglomeration effect and should be interpreted this way. Individual cities can (and do) exhibit different combinations of regional economic features while maintaining the same intensity of academic technology transfers. The essence of the results is that individual metropolitan areas cannot be "too far" from the average size in order to preserve tier-specific university effects.

Despite its limitations, the analysis of this chapter strongly indicates that university-based economic development policies can be efficient tools for relatively matured high technology agglomerations. For less developed regions the results suggest reducing efforts on university-based regional economic development policies and concentrating more on the growth of high technology employment (via traditional "chasing" approaches) and widening the base of local business services[14]. This message could be very useful for Hungarian policy makers to consider universities as potential engines of local economic development from a more realistic perspective.

References

Acs, Z. (ed) 1999: *Regional Innovation, Knowledge and Global Change*. Pinter, London.

Acs, Z. and Audretsch, D. 1990: *Innovation and small firms*. MIT Press, Cambridge, MA.

Acs, Z., Anselin, L. and Varga, A. 2002: Patents and innovation counts as measures of regional production of new knowledge. *Research Policy,* 31: 1069-1085

Acs, Z., Audretsch, D. and Feldman, M. 1991: Real effects of academic research: a comment. *American Economic Review,* 81(1): 363-367

Acs, Z., Audretsch, D. and Feldman, M. 1994: R&D spillovers and recipient firm size. *The Review of Economics and Statistics,* 76(2): 336-340

Acs, Z., Herron, L. and Sapienza, H. 1992: Financing Maryland biotechnology. *Economic Development Quarterly,* 6(4): 373-382

Anderson A. 1981: Structural change and technological development. *Regional Science and Urban Economics,* 11: 351-361

Anderson, A., Batten, D. and Karlsson. C (eds) 1989: *Knowledge and industrial organization.* Springer, Berlin.

product developments relative to others where only a few but fundamental innovations were reported. Due to its tendency for quickly increasing multicollinearity, the applied parameter expansion model reflects only the effects of the most important local agglomeration features on academic technology transfers and it cannot be used for a complete modeling approach.

[14] This result is robust: for the aggregate high technology sector essentially the same consequence was reached in Varga (1998, 2000).

Anselin, L. 1988: *Spatial econometrics: methods and models*. Kluwer Academic, Boston.

Anselin, L. 1992: *SpaceStat tutorial*. NCGIA, University of California, Santa Barbara.

Anselin, L. and Bera, A. 1998: Spatial dependence in linear regression models with an introduction to spatial econometrics. In Giles, D. and Ullas, A. (eds): *Handbook of economics and statistics*. Marcel Dekker, New York.

Anselin, L. and Florax, R. (eds) 1995: *New directions in spatial econometrics*. Springer, Berlin.

Anselin, L., Varga, A. and Acs, Z. 1997: Local geographic spillovers between university research and high technology innovations. *Journal of Urban Economics*, 42 (3): 422-448

Anselin, L., Varga, A. and Acs, Z. 2000a: Geographic spillovers and university research: a spatial econometric perspective. *Growth and Change*, 31: 501-516 (Special Issue on Endogenous Growth: Models and Regional Policy).

Anselin, L. and Varga, A. and Acs, Z. 2000b: Geographic and sectoral characteristics of academic knowledge externalities. *Papers in Regional Science*, 79: 435-445

Atkinson, R. 1991: Some states take the lead: explaining the formation of state technology policies. *Economic Development Quarterly*, 5: 3-44

Bania, N., Eberts, R. and Fogarty, M. 1993: Universities and the startup of new companies: can we generalize from Route 128 and Silicon Valley? *The Review of Economics and Statistics*, 75(4): 761-766

Belsley, D., Kuh, E. and Welsch, R. 1980: *Regression diagnostics, identifying influential data and sources of collinearity*. Wiley, New York.

Breusch, T. and Pagan, A. 1979: A simple test for heteroskedasticity and random coefficient variation. *Econometrica*, 47(5): 1287-1294

Bureau of the Census 1982: *County Business Patterns*. Data obtained from *ICPSR* online data Services.

Burridge, P. 1980: On the Cliff-Ord test for spatial correlation. *Journal of the Royal Statistical Society B*, 42(1): 107-108

Casetti, E. 1997: The expansion method, mathematical modeling and spatial econometrics. *International Regional Science Review*, 20(1-2): 9-32

Coburn, C. (ed) 1994: *Partnership: A Compendium of State and Federal Cooperative Technology Programs*. Battelle, Columbus.

Cohen, W., Florida, R. and Goe, R. 1994: *University-Industry Research Centers*. Carnegie Mellon University.

Dorfman, N. 1983: Route 128: the development of a regional high technology economy. *Research Policy*, 12: 299-316

Dosi, G. 1988: Sources, procedures and microeconomic effects of innovation. *Journal of Economic Literature*, 26(3): 1120-1171

Edwards, K. and Gordon, T. 1982: *Characterization of Innovations Introduced on the U.S. Market in 1982*. The Futures Group, U.S. Small Business Administration.

Feldman, M. 1994a: *The geography of innovation*. Kluwer Academic Publishers, Boston.

Feldman, M. 1994b: The university and economic development: the case of Johns Hopkins University and Baltimore. *Economic Development Quarterly*, 8(1): 67-76

Florax, R. 1992: *The university: a regional booster? Economic impacts of academic knowledge infrastructure*. Avebury, Aldershot.

Florida, R., Gleeson, R. and Smith, D.F.Jr. 1994: *Benchmarking Economic Development: Regional Strategy in Silicon Valley, Austin, Seattle, Oregon, and Cleveland.* H. John Heinz III School of Public Policy Management Working Paper Series, 94-30, Carnegie Mellon University, July.

Griliches, Z. 1979: Issues in assessing the contribution of research and development to productivity growth. *Bell Journal of Economics,* 10(1): 92-116

Hippel, E. 1988: *The sources of innovation.* Oxford University Press, New York.

Isserman, A. 1994: State economic development policy and practice in the United States: a survey article. *International Regional Science Review* 16: 49-100

Jaques Cattell Press 1982: *Industrial Research Laboratories of the United States.* (17th edition), R. R. Bowker, New York and London.

Jaffe, A. 1989: Real effects of academic research. *American Economic Review,* 79(5): 957-970

Jaffe, A., Trajtenberg, M. and Henderson, R. 1993: Geographic localization of knowledge spillovers as evidenced by patent citations. *Quarterly Journal of Economics*, 63(3): 577-598

Johnson, L. 1984: *The high-technology connection. Academic/industrial cooperation for economic growth*. ASHE-Eric Higher Education Research Report, No. 6. Washington, DC, Clearinghouse on Higher Education, The George Washington University.

Link, A. and Rees, J. 1990: Firm size, university based research, and the returns to R&D. *Small Business Economics*, 2(1): 25-32

Malecki, E. 1979: Locational trends in R&D by large U.S. corporations, 1965-1977. *Economic Geography*, 55: 309-323

Malecki, E. 1980a: Corporate organizations of R&D and the location of technological activities. *Regional Studies,* 14: 219-234

Malecki, E. 1980b: Dimensions of R&D location in the United States. *Research Policy*, 9: 2-22.

Mansfield, Ed. and Mansfield, El. 1993: *The economics of technical change*. Edward Elgar, Aldershot.

National Science Board 1983: *University-industry research relationships.* Washington, DC, National Science Foundation.

National Science Board 1993: *Science and Engineering Indicators.* Washington, D. C., National Science Foundation.

National Science Foundation 1982: *Academic Science and Engineering: R&D Expenditures, Fiscal Year 1982.* Data obtained from *CASPAR* data files.

Osborne, D. 1990: *Laboratories of Democracy*. Harvard Business School Press, Boston.

Parker, D. and Zilberman, D. 1993: University technology transfers: impacts on local and U. S. economies. *Contemporary Policy Issues,* 11: 87-99

Rogers, E. and Larsen, J. 1984: *Silicon Valley fever*. Basic Books, New York.

Saxenian, A. 1994: *Regional advantage: culture and competition in Silicon Valley and Route 128*. Harvard University Press, Cambridge.

Scott, A. 1996: Regional motors of the global economy. *Futures,* 28: 391-411.

Varga, A. 1998: *University Research and Regional Innovation: A Spatial Econometric Analysis of Academic Technology Transfers.* Kluwer Academic Publishers, Boston.

Varga, A. 2000: Local academic knowledge spillovers and the concentration of economic activity. *Journal of Regional Science,* 40: 289-309

Varga, A. 2001: Universities and regional economic development: Does agglomeration matter? In Johansson, B., Karlsson, C. and Stough, R. (eds): *Theories of Endogenous Regional Growth – Lessons for Regional Policies.* Springer, Berlin: 345-367

Varga, A. 2002: Knowledge transfers from universities and the regional economy: A review of the literature. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges*. University of Pécs Press, Pécs: 147-171

Wicksteed, S. 1985: *The Cambridge phenomenon. The growth of high technology industry in a university town.* Segal Quince & Partners, London.

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 32-46

3 Organizational Elements of Knowledge Transfer in Hungary: Towards a Functional System of Innovation

Norbert Buzás

3.1 Introduction

Traditional economical theory recognized only land, labor and capital as the factors of production. Knowledge was formerly considered as the source of increasing returns since it can be reused without cost once created. This has seriously been changed recently because technology developments in the last century transformed the majority of wealth-creating processes from a physically-based platform to a knowledge-based one. Due to the increased mobility provided mainly by the Internet, information can be transported instantaneously around the world and any advantage gained by one company could be eliminated "overnight". The only comparative advantage is companies' ability to derive values from the information flow resulting knowledge. In this emerging new era technology and knowledge became the key factors of production.

According to the OECD researchers, knowledge-based economy directly bottoms "on the production, distribution and use of information and knowledge" (OECD 1996: 7). This definition emphasizes the importance of two elements of an emergent continuum represented by the sequence of data → information → knowledge (Miller 1999: 87). In order to demonstrate their differences, we have to distinguish knowledge from information and data.*

Since information requires the relation among different data, the collection of data itself may not be considered information (Fleming 1996). Such relation strongly depends on the actual context and has little implication for the future. As this relation is dependent on the emerging associations influenced by prior cognitions of the recipient, various kinds of information can be derived from the same data. Actually, as Bellinger (1997) defined it, *information* relates to description, definition or perspective (what, who, where, when).

Beyond the relations, there is a pattern (Bateson 1988) amidst data and information with the potential to represent *knowledge*. It only becomes functional, however, when one is able to realize and understand the pattern and its implication.

*This study was supported by Hungarian Research Fund (OTKA F043043). This paper was prepared to the Hungarian nationalstudy for work Package 4 of the KNOGG (Knowledge, Growth and Globalisation, contract number HPV1-CT-2001-50001).

Referred to information, such pattern has more completeness resulting that knowledge includes strategy, practice or method (how).

Knowledge theory makes a fundamental distinction between explicit (codified) and tacit knowledge. Boutellier (2000: 208) described codified knowledge as embodied in products or documented knowledge. He characterized tacit knowledge also as of two categories: experienced (know-how) knowledge and social knowledge. The transfer processes of codified knowledge are undoubted unlike in the case of tacit, which is not easily transmitted, and thus is not an obvious source of increasing returns. On the contrary, Langlois (2001) has proven that even so knowledge does not have to be codified to generate economic growth.

Beyond the increase of economic growth, knowledge can even lead to structural changes in economy and in life-styles on a global scale. Neef (1998) stated that new products and emerging services resulting from the knowledge-mediated growth may bring about profound changes in the nature of work, e.g. from low skill to high skill. Due to this change, the traditional dominance of old industrial classes was transformed into a knowledge-based manufacturing in which considerable proportion of labor force was employed as knowledge workers. High-tech industries became predominant and for smaller firms specialized knowledge serves as the principal factor of growth. The absorptive capacity of new technologies and the informational asymmetry can determine the new roles of nations in globalization.

3.2 Development path on a company level: a managerial approach

As was pointed out by Amidon Rogers (1996), the global marketplace is influenced by five major forces that must be understood in order to take advantage of the business opportunities provided by the global economy: the shift from information to knowledge; from bureaucracies to networks; from training to learning; from national to transnational; and from competition to cooperation. All these forces result in the emergence of (virtual) networked organizations working with collaborative learning systems which enable the flow of knowledge throughout the organization.

The reference above describes such changes in the five-step evolution of *R&D management*, but it can easily be extended towards the *general business strategy* of firms because such changes radically affect even the strategic management of companies. As a result of this extension we can document the evolution of management approaches leading to a knowledge-driven economy comprising knowledge-based companies through four generations below.

In the first generation mainly *tangible assets* had to be managed. In those old days the strategy was to manage equipments and production lines effectively to provide the maximum value for the owners. The core strategy was operating in

isolation and tangible assets provided the majority of the economic value of a company.

In the second generation the combination of different functional areas first the *project* was the asset to be managed resulting successful product development and greater market focus. Later, with the stabilized formal linkages between functional areas, the *enterprise* became the asset to be managed and managers considered risk minimization and sharing rewards across the firm as their main task.

In the third generation the management turned to customers because the best way to achieve rapid changes in the global marketplace was seen as the concurrent learning together with customers. New product ideas were validated already at an early stage by using customers' feedback. In this phase the *customer* was the asset to be managed and customer satisfaction was the overall focus.

Nowadays, at the dawn of knowledge-driven economy, *knowledge* is the asset to be managed. Business performance in this emerging phase can be measured by the ability to create and apply new ideas. This "knowledge production" makes demand on the special knowledge management tools, such as monitoring knowledge flow the same way the flow of capital or raw material is managed in a company. Customer relationship management is also transformed into customer knowledge management (Gibbert 2002) as a new knowledge sharing process in which the new focus is on customer success rather than on customer satisfaction. In this new age of technology the main share of company value is attributed to intellectual property and companies should use strategies to manage their intangible assets.

Due to the changing value of knowledge, the way of technology transfer and the institutions involved have also been changed recently. The traditional model of technology transfer in which technology moves from a well characterized economic unit to another one has been transformed to a complex knowledge transfer process (Amesse and Cohendet 2001) resulting in special knowledge sharing platforms, such as technology clinics in Finland (Autio and Wicksteed 1998) or Cooperative Research Centers in Hungary (Buzás 2002). Market players with significant knowledge need to access complementary forms of knowledge from other players to ensure the most efficient use of their internal knowledge. These knowledge-sharing networks can reduce the risk of overspecialization.

As a consequence of the functional description of the knowledge-based economy and the managerial approach towards its development, as well, the main features can be summarized as follows:

a) technology and knowledge are the main factors of production,
b) intangible assets are the primary subjects to manage,
c) networks are characterized as knowledge-based partnering with constant trade-off by the accession of complementary forms of knowledge.

3.3 Knowledge-based economy in Hungary: state of the art

As the spread of knowledge has changed the patterns of the global division of labor and comparative advantages have been rearranged or eliminated by new technologies, the relative position of actors in the new global economy is mainly determined by their capacity to absorb and modify knowledge. For a small Central European country like Hungary, the emergence of a knowledge-based economy means a special double challenge: during the economic transitions, the additional requirements of a knowledge-based society must also be taken into account but at the same time the broadening of the economic gap has to be avoided. After several decades of planning economy, government had to recognize that its role should be to facilitate rather than control technology and the knowledge transfer process.

Considering financial and legal issues, Hungary is in the most advanced group of candidate countries together with the Czech Republic, Estonia, Poland and Slovenia. In this group serious efforts were made to restructure and reorganize science and technology facilities (Meske 2000) creating new bodies, newly established institutions including financial ones, changes in activity profiles and novel legislative elements (a substantive new Act of Innovation is in progress).

However, these changes did not really result in a new revolutionary innovation system as far as effectiveness is concerned. Although the importance of research and development became a watchword, the related expenditures did not increase satisfactorily. In the 70's and 80's, about 2% of the GDP was spent for R&D, which arose mainly from state-owned enterprises. After the transition the economic stabilization resulted in the dramatic decrease of R&D expenditures. In 2000 this value was still up to 1%. The number of researchers employed in the knowledge intensive sector is still low and the knowledge transfer between academic and business spheres is incidental (Lengyel 2002).

More than a decade after the onset of economical and political transformation, the deficit in cooperation between science and economy, the lack of diffusion-focused elements (mainly at universities) in the innovation system and the non-functioning organizations prevent the evolvement of an effective innovation system that would be appropriate for a knowledge-based economy in Hungary.

For the characterization of the necessary key institutions in a less developed country, one may be tempted to adapt existing institutions which would be recommended based on international comparison. However, such institutions have usually worked in a developed economy for many years; hence their adaptation with smaller modifications in a transition economy could not live up to the expectations.

For this reason, what seems to be the best way for Hungary is an obstacle-based and not an institutional-based adaptation of the necessary elements. Within the scope of this strategy, the real economic functions of the institutions implemented by developed countries must be revealed first. When these functions are clarified, those obstacles, that impede the effective environment for a knowledge economy and that

should be overcome by the institutions, can be characterized. As the next step, by comparison of such obstacles coming from developed economies and the internal economic background of a transition economy (for example Hungary), the challenges for the latter one, which must be overcome by its own institutions can be defined. Finally, by taking into account social and economic traditions, the optimal institutional system can be established for the less developed country. For the reasons above, the features of these institutions could be different from those serving as models in the initial phase.

Following this train of thought, with the help of a comprehensive institutional survey some challenges below have been determined which have to be faced up in creating the appropriate environment for knowledge transfer in Hungary:

a) encouraging entrepreneurial activity in the knowledge-based industry,
b) intensifying knowledge flow from universities to the industry and knowledge sharing within triple-helix (university-industry-government) relationships,
c) increasing the rate of private money in R&D expenditures,
d) boosting knowledge-based regional development and specialization.

The related key organizational elements that are either missing or recently established will be discussed in the followings.

3.4 Cooperative Research Centers: increasing private money in R&D

The traditional theory describes innovation as a linear process of consecutive phases starting with scientific research followed by stages of development and production, and terminating with distribution of a product or technology. In the last decades it was recognized that innovation is not straightaway because in order to be successful it needs interactions among actors, e.g. academic institutions, product developers, sellers and consumers (OECD 1996). These inputs and feedbacks result in the emerging network characteristic of the innovation process including sorely cooperative partners.

Before the economic transition in the central planning system of socialism there was regular contractual cooperation between public research institutions and state-owned firms, which more or less assured the transfer of results from research institutes to the industry. After the transformation, the ownership structure of the economy has been seriously changed. Based on the institutional development towards a market-driven economy, Hungary is characterized as one of the most progressed countries in Central and Eastern Europe where the share of the private sector is over 80% (Tihanyi and Roath 2002).

The emerging institutions of the market-driven economy among others were private ownership, commercial banking and liberal foreign trade. Beside privatization and monetary policy, the limited government intervention was also

prioritized in the transition. Accordingly, instead of the state the major industrial investors desired to finance the high-risk scientific research projects on the basis of long-term interest in

a) results coming from research and becoming the financer's property,
b) persistent human resource supply by using the research project as "training site",
c) cost-effective research facilities by sharing the use of devices.

The integration of private firms into common research projects is substantial also for that, because the rate of private money in R&D expenditures is much lower than in the EU. While in Western Europe the average rate of private money in R&D expenditures is about 65%, moreover in Sweden it approaches 75%, in Hungary the contribution of private companies to the research costs is only 40%. This is not typical for all post-socialist countries because in the Czech Republic the composition of R&D appropriations shows a similar pattern to that of the EU (Eurostat 2002).

In spite of preliminary expectations, traditional bigger firms had limited interest in research networks and showed little willingness to build up any R&D infrastructure outside "fences" for fear of loosing control over their investments. For these reasons, the public sector still has to play a particularly important role in creating a business environment which can serve as the model of the European practice of scientific research in order to enable SMEs to keep their competitiveness after the integration. Such governmental interventions, on the other hand, result in an increased integration of the academic, public and private sectors.

In order to reinforce Hungarian scientific and technological excellence through the integration of R&D capacities and activities, the Hungarian Ministry of Education (R&D Secretary) provided financial assistance through an application process to establish thematic *Cooperation Research Centers (CRC)* in 2001. Host institutions had to be universities with a certified Ph.D. program and criteria for participation of business partners also included involvement in the center's activities. As for "seed capital", government provided half of the budget for the first three years in the range of USD 200.000 to 1 million. During this initial period centers have to develop a cooperative way of business in order to make returns which cover at least the burn rate of the CRC for the next 3-6 years.

Due to governmental intervention, the approach of private companies has been changed at one blow. On one hand, through the organization (votes in the CRC's board) the frame guarantees that the project can directly be influenced by all partners. Private companies, on the other hand, were benefited by different cost-based advantages. They have access to the low-cost university facilities and budget-prized Ph.D. students as well-trained human resource. Occasionally, private companies can use the "no-cost" side within universities or any other public institutions (e.g. hospitals). Last, but not least, special taxation benefits relating to cooperative research may also be enjoyed.

In the first round, five CRCs were established:

(a) *Trans-University Centre for Telecommunications and Informatics* was established in Budapest by three departments of two universities along with Hungarian subsidies of some multinational informatics companies (Ericsson, Compaq and Sun) and the market leader Hungarian mobile communication company, Westel among others. The main purpose of this CRC is to develop Internet-based and mobile communication systems for the 21st century.

(b) *CRC on Industrial and Medical Application of Lasers* was set up in the Southern Transdanubian region of Hungary by 5 partners from the academic sector in association with 13 private companies. Although the research center has its headquarters in Pécs, it covers knowledge not only at the local but at the national level as well because several expertise groups in laser technology located in Budapest and Szeged are also present among its academic and private partners.

(c) The University of Miskolc together with 30 industrial partners gave life to the *CRC on Mechatronics and Material Science*. Out of the five CRCs, this centre has the most diverse geographical coverage including representatives of the steel industry located at Dunaújváros or the subsidiaries of the household devices giant, Electrolux from Jászberény.

(d) Similarly to the infocommunication research centre above, the *CRC on Rational Drug Design* was also established in Budapest. The academic sector is supremely represented in this research centre because beside the 2 academic, 1 non-profit and 4 private pharmaceutical and biotech founding partners, other 10 academic departments joined as associated partners. The latter ones participate without financial placement, but in return make available their knowledge.

(e) *CRC for Chemical Industrial Development Based on Green Technologies* was established in Veszprém by the Institute of Chemical Engineering of the University, Hungary's chief oil company (Mol Rt.), and 5 other chemical and pharmaceutical firms. This research center is based on the long-time tradition of chemical industry existing in the city.

Due to the multiplicative effects, the first bunch was followed by other CRC-like organizations (for example the Renewable Energy and Green Technologies R&D Program Center in Szeged) working under similar conditions to those of supported CRCs.

All such organizations develop and use a joint research infrastructure and jointly manage any knowledge produced. Sharing of all rights related to products, technologies or intellectual property is contracted prior to the first step of joint development. A CRC offers the possibility to develop an excellent way of cooperative, interdisciplinary research to the parties involved stimulating new research directions. Last, but not least, the formation of CRCs and similar

organizations has considerably increased the proportion of private capital in innovation processes.

3.5 Spin-off companies: diversification of the knowledge-based industry

The formation of spin-off (spin-out) companies occurs when a former employee of the parent company with a certain technology or essential knowledge leaves to start his/her own firm. Due to the features of the small technology-based companies, spin-offs are among the most promising ways to commercialize technology or knowledge. While established companies adopt only new technologies closely aligned with the company's existing products, spin-offs can take advantages to absorb early stage technologies and develop them in time for market entry. Technology start-up companies can have enough flexibility to change business directions if the market requires so while established companies have standard procedures and much less ability to adapt and tailor early stage technologies as necessary. Furthermore, proximity of spin-offs to the birthplace of technologies can assure ongoing support from inventors making the technology transfer process complete.

Spin-off companies can be categorized based on the attributes of the parent organizations (Oakey 1995): the major source of the new technology-based firm can be either higher-education institutions (university spin-offs) or industrial firms (corporate spin-offs). Since universities more frequently encourage the transfer of knowledge to be used outside the university than do private companies, the formation of university spin-offs is predominant.

Irrespectively of their features, the entrepreneurial spirit is particularly important in the formation of spin-off companies. In terms of entrepreneurship, research shows that the European Union lags behind the United States (COM 2003). The aversion towards taking business risks among Europeans is a main contributing factor to this attitude. In the US the brightest young people establish their own businesses, and in case of failure they keep on trying to set up new companies until they either succeed or, after *several* failed attempts, apply for a job. In contrast, there is a European tendency according to which only those individuals start new businesses who do not find a decent job. This attitude resulted in a huge "entrepreneurship deficit" in Western Europe (COM 2003). Due to the entrepreneurial philosophy above mentioned, in the USA spin-offs were popularized many years ago and created legendary and prestigious places, like "Silicon Valley" and "Route 128" near Boston. On the contrary, due to the lack of motivation in many European countries spin-off companies are less favored among scientists and universities often opposed the launch of such firms.

In order to study how to prevail the European tendency in a developing economy and what the main obstacles impeding the establishment of new technology-based

companies are, the spin-off formation process was investigated in Hungary (Buzás 2003). In the study, both scientists with marketable scientific results and university students were considered as potential entrepreneurs. The latter group provided valuable information about the deficiencies of the education system which focuses mainly on the needs of large multinationals and neglects the small-sized enterprise-specific topics. The results showed that there are three main obstacles preventing the spin-off formation: lack of motivation, competence and reputation.

Scientists often refuse to become businessmen and in order to save their independent position as researchers they express their preferences for invention over selling (motivation gap). The barrier of lacking motivation could only be overcome by reducing the fear of an uncertain future.

If a scientist is motivated enough, the academic career can serve as a good platform for launching a company, but limited experience in commercial matters (competence gap) blocks the business. Even commercially oriented researchers have limited capabilities in finance or intellectual property rights. They need an advisor with managerial abilities to transform the research results into business success.

A successfully launched spin-off company itself, however, can not guarantee prosperity because trustworthiness is essential (reputation gap) for business partnering. Entrepreneurs do not have much time to become well known and to establish a strong reputation. Young spin-off companies are in constant need for guarantors confirming their outstanding technical expertise and creditability.

In order to encourage the formation of spin-off companies, in 2002 the Hungarian Government issued a call for proposals for the financial contribution to their establishment costs up to 40.000 EUR per applicant. This support can be used for the preparation of a feasibility study, adaptation of research results, acquisition of know-how, protection of intellectual property rights or preparation of prototypes. The small number (34) of proposals confirms that the above mentioned result, according to entrepreneurship has not primary financial, but motivational obstacles in Hungary. For this reason, the main task is to create an entrepreneurial climate at universities by implementing training programs and disseminating success stories.

3.6 Missing TLOs: the imperfect Triple Helix

Over the last decade, a number of concepts were proposed for modeling university-industry-government relations. One of the better known models is the *Triple Helix* in which the three separate spheres are defined institutionally (Leydesdorff and Etzkowitz 1996). In this model for analyzing innovation systems, knowledge transfer is no longer considered as a linear process from origin to application, but a complex system with unique communication interfaces operating in distribute mode. In the model the interactions between the spheres are mediated by special organizations such as technology transfer offices and innovation agencies.

Prior to 1980, technology transfer offices were not remarkable in the university-industry nexus. The situation substantially changed when the Bayh-Dole Act came into force in the US at the end of 1980, allowing universities and other non-profit organizations to patent and commercialize the results of their discoveries made under government-funded research (Schmoch 1999). Because the majority share of research at US universities is funded from public financial sources, this act meant a breakthrough in the history of university-industry relations.

As a result of the Bayh-Dole Act, a lot of technology transfer offices were established at universities throughout North America in the 1980's perfecting the Triple Helix. Following the US practice, many other countries established their institutional framework to encourage university-industry technology collaborations and facilitate the commercialization of university inventions (WIPO 2002). Such establishments, which can universally be called *TLOs (Technology Licensing Offices)* regardless of their institutional arrangements, play a crucial role in identifying technologies with higher commercial potential and assisting inventors in licensing negotiations.

Due to the traditional differences in innovation policies, countries could follow different models in the commercialization of domestic discoveries. The US (bottom-up) innovation policy principally focuses on creating incentives for universities so that they commercialize their inventions themselves. Federal actions foster experimentation in university policies with respect to how to best exploit the windfall of intellectual property rights brought about by the Bayh-Dole Act. On the contrary, the Swedish way of selling academic research ideas is far from those figured in the US because in Sweden the government attempts to directly create a mechanism facilitating commercialization (Goldfarb and Henrekson 2003). Bureaucratic interventions enforce Swedish universities to establish an internal policy focusing on the marketing of intellectual assets. According to the authors, the latter (top-down) model is similar to the models applied by most EU countries. This "European way" proved to be much less effective than the US pursuance of commercialization because of the lack of incentives for European scientists to get personally involved in the transactions.

In the second half of last century, Hungary's economic policy artificially separated research units from the industry, this way breaking the traditionally close relationship between research and production. After the economic change of the 90's, the knowledge flow from companies to universities intensified, but the opposite direction of information drift is not supported by the relevant institutions (Papanek and Borsi 2001). In spite of increasing governmental financial support for R&D, the lack of effective TLOs at the Hungarian universities results in an imperfect Triple Helix preventing the effective commercialization of the inventions.

This situation was primarily induced by the status of intellectual property rights related to inventions. Because of the shortage of capital, universities and public research institutes had no financial sources to cover the submission and maintenance

costs of patents, as a result, universities had to refuse their primacy right for the in-house inventions. As a consequence of this, during the last decades the intellectual property rights were either awarded directly to the inventors or became public without protection. This is the opposite of the American practice, where patent rights are generally awarded to the universities.

Without a solid patent portfolio, units dealing with technology transfer at Hungarian universities could not establish fruitful industrial links over the last decade. For this reason, the emerging TLOs presently do not have an established business environment, thus they cannot act as effective knowledge dealers. In spite of their less efficiency, self-organized TLOs and their route-searching represent a bottom-up character of Hungarian policy towards the commercialization of university knowledge, while the governmental interventions described above (CRCs and spin-off encouragement) incorporate its top-down nature.

3.7 Science Parks in Hungary: 'seedbeds' of innovation or high-tech fantasy?

There is no uniformly accepted definition of a science park and, as was pointed out by Kung (1995), there are thirty terms used to describe similar organizations such as 'science park', 'research park', 'technology park', 'innovation centre' etc. without any clear distinction. MacDonald (1987) concluded that most of the above terms have two common features:

(a) a property-based development close to a place of learning;
(b) high quality units in a pleasant environment.

In addition, Westhead (1997) emphasized that such parks can serve as catalytic incubators for the transfer of research into production. Using a business-focused approach, Storey and Tether (1998) defined the role of science parks as enabling commercialization of the research ideas at the local universities and establishing businesses using sophisticated technologies. An overall definition was given by the UK Science Park Association describing the science parks as a property-based initiative which

- "has formal and operational links with a university or other higher educational institutions or major centre of research;
- is designed to encourage the formation and growth of knowledge based businesses and other organizations normally resident on site;
- has a management function that is actively engaged in the transfer of technology and business skills to the organizations on site."

The development of science parks in Europe received its impetus from the success of the early established parks in the USA. In many European countries until

the 1980s there was not a significant number of science parks, but a sudden boom took place over the last decade. By the middle 1990s, 310 science parks were developed in the 15 countries in the EU where about 15,000 firms were located employing more than 230,000 jobholders (Storey and Thether 1998).

The role of science parks in the innovation processes is, according to the findings in literature, doubtful. Massey et al. (1992) found that geographical proximity between a university and a science park serves as only a weak promoter of the technology transfer. For this reason they consider such parks as "high tech fantasies". Based on an empirical survey of over 160 on- and off-park high-technology firms in Israel, the location of a science park is shown to have a weak relationship with the innovation level (Felsenstein 1994). Based on these results the innovation-entrenching role of science parks is primary to inducing innovation. In the survey of Surrey Research Park, Vedovello (1997) argues that proximity cannot strengthen the formal links between universities and the industry in a science park, but such closeness proved to be important for *informal* connections. Bakouros et al. (2002) also revealed mainly informal links between the firms and the local university in Greek science parks. The latter authors reveal the complete absence of research-type synergies between the on-park companies.

In contrast, Löfsten and Lindelöf (2002) recently described significant differences between on- and off-park companies in the linkages to the local university. Analyzing 10 science parks and 273 firms in Sweden with statistical methods they confirm the role of the formal university-industry links in the development of new technology-based firms (NTBFs). Concerning the effectiveness of NTBFs in science parks they have found, however, no greater R&D outputs for on-park firms compared to off-park companies.

The above contradictions of relation between the intensity of formal technology transfer and geographical proximity in science parks could be resolved by a service-based explanation. Science parks are a particularly suitable location for new business opportunities and generate a more motivated branch of entrepreneurs with respect to innovation than off-park locations. New technology-based firms, however, are generally not able to utilize such advances without the training and business placing programs and assisted networking organized by the park management (Löfsten and Lindelöf 2002). For this reason, the factor of success in a science park resides in managed business services creating more formalized technology relations, which result in more profitable NTBFs.

There are more organizations in Hungary defining themselves as innovation parks or research parks. Because of the lacking critical mass of private companies or the less developed technology-based relations to the universities, however, these parks cannot be considered as Felsenstein's (1994) "seedbed" of innovation. Considering the commonly accepted features, only one park seems to operate as a science park in Hungary: Infopark in Budapest. Infopark Incorporation was established at the end of 1996 by the Budapest University of Technology (BUT),

Eötvös Loránd University (ELU), the Hungarian Ministry of Economy and the Prime Minister's Office. Two universities possess 25+1% of the voting shares, and with a golden share the Hungarian State assured the eternal use of the area as a technology innovation park.

The location of Infopark is optimal to create links between firms and universities and to exploit the possible synergies, because the park covers the field attached directly to the founder universities' locations at the side of the river Danube. Taking into account the existing technologies, research profiles and educational experiences at BUT and ELU, Infopark was specialized in information and communication technologies with the aim to collect companies with significant experiences in the field of computer technology, telecommunication and multimedia. The first settler was the biggest Hungarian telecommunication company (MATÁV), which established its new R&D center in the Park. The Hungarian giant was followed by Hungarian subsidiaries of IBM, Hewlett Packard, Nortel and Panasonic.

After five years of initiatives, Barta (2002) surveyed the functional linkages and real services in Infopark. She found that Infopark was not yet able to promote the founders with any technology information services, contract R&D services, market studies, auditing, quality management services or product promotions. The lack of accessible central services enforces founders to build up such services in-house constraining future cooperations inside the Park. Because of the absence of real services, Infopark cannot serve as intermediate and, notwithstanding its excellent facilities, functions in its present stage as an "office park" only.

Regarding innovation processes as key elements of regional development, two years ago the government decided to define various evolutionary paths for the large number of industrial estates in Hungary (Lengyel 2000, Lengyel and Deák 2002). One of the four desired outcomes of this progression would have been developing science parks with the participation of universities or research institutions. As Barta (2002) concluded, successful science parks in a transition economy need considerable and persistent governmental support in order to create the essential services giving life to them. Because of the limited sources, in transition economies governments should focus their attention on a limited number of estates where the conditions are really promising for a science park with value-added internal services; otherwise companies will keep away from the park.

References

Amesse, F. and Cohendet, P. 2001: Technology transfer revisited from the perspective of the knowledge-based economy. *Research Policy,* 30: 1459-1478

Autio, E. and Wicksteed, B. (1998): *Technology Clinic Initiative.* Tekes, Helsinki.

Bakouros, Y. L., Mardas, D. C. and Varsakelis, N. C. 2002: Science park, a high tech fantasy? An analysis of the science parks of Greece. *Technovation,* 22: 123-128

Barta, Gy. 2002: Tudományos parkok a kollektív tanulás kialakulásában. (Science parks in the evolvement of collective learning.) In Buzás, N. and Lengyel, I. (eds): *Ipari parkok fejlődési lehetőségei (Potential advances for industrial parks).* JATEPress, Szeged: 109-124

Bateson, G. 1988: *Mind and Nature: A Necessary Unity*. Bantam, New York.

Bellinger, G. 1997: *Knowledge management*. www.outsights.com/systems/kmgmt/kmgmt.htm

Boutellier, R., Gassmann, O. and von Zedtwitz, M. 2000: *Managing Global Innovation*. Springer, Berlin.

Buzás, N. 2002: *From technology transfer to knowledge transfer: an institutional revolution*. Paper presented at Annual Meeting of IGU Commission on Dynamics of Economic Spaces, Johannesburg, South Africa.

Buzás, N. 2003: *Entrepreneurial attitudes influencing the formation of spin-off companies in a transition economy*. Paper presented at Annual Meeting of IGU Commission on Dynamics of Economic Spaces, Vancouver, Canada.

COM 2003: *Green Paper: Entrepreneurship in Europe.* Commission of the European Communities, Brussels.

Felsenstein, D. 1994: University-related science parks – 'seedbeds' or 'enclaves' of innovation? *Technovation,* 14: 93-110

Fleming, N. 1996: *Coping with a Revolution: Will the Internet Change Learning?* Lincoln University, Canterbury, New Zeeland.

Gibbert, M., Leibold, M. and Probst, G. 2002: Five styles of customer knowledge management, and how smart companies use them to create value. *European Management Journal*, 20: 459-469

Goldfarb, B. and Henrekson, M. 2003: Bottom-up versus top-down policies towards the commercialization of university intellectual property. *Research Policy,* 32: 639-658

Kung, S.-F. 1995: *The Role of Science Parks in the Development of High Technology Industries: with Special Reference to Taiwan* (Ph.D. thesis). University of Cambridge.

Langlois, R. N. 2001: Knowledge, consumption, and endogenous growth. *Journal of Evolutionary Economics,* 11: 77-93

Lengyel, I. (ed) 2000: *A Dél-alföldi régió kis- és középvállalkozás-fejlesztési operatív programja (Development programming for SME's in the Southern Great Plain region)*. University of Szeged, Department of Regional and Applied Economics, Szeged.

Lengyel, I. 2002: The Competitiveness of Hungarian Regions. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 235-246.

Lengyel, I. and Deák, Sz. 2002: The features of regional competitiveness in Hungary, especially at the Hungarian-Rumanian border. In Falnita, E. (ed): *Economics and Management of Transformation*. Mirton, Timisoara: 719-730

Leydesdorff, L. and Etzkowitz, H. 1996: Emergence of a Triple Helix of University-Industry-Government Relations. *Science and Public Policy,* 23: 279-286

Löfsten, H. and Lindelöf, P. 2002: Science Parks and the growth of new technology-bases firms – academic-industry links, innovation and markets. *Research Policy,* 31: 859-876

MacDonald, S. 1987: British Science Parks: reflection on the politics of high technology. *R&D Management,* 17: 25-37

Massey, D., Quintas, P. and Wield, D. 1992: *High Tech Fantasies: Science Parks in Society. Science and Space.* Routledge, London.

Meske, W. 2000: Changes in the innovation system in economies in transition: basic patterns, sectoral and national particularities. www.wzb.de/wt/meske/spp2000a.doc

Miller, W. L. and Langdon, M. 1999: *4th Generation R&D. Managing Knowledge, Technology and Innovation.* John Wiley, New York.

Neef, D. (ed) 1998: *The Knowledge Economy*. Butterworth-Heinemann, Boston.

Oakey, R. 1995: *High-technology New Firms: Variable Barriers to Growth*. Paul Chapman, London.

OECD 1996: *The knowledge-based economy*. OECD, Paris.

Papanek, G. and Borsi, B. 2001: Knowledge flow between research units and companies in Hungary. Comparing the GKI Co. and TUB experiences. *Periodica Polytechnica Ser. Soc. Man. Sci.*, 9: 51-59

Rogers, A. and Debra, M. 1996: The challenge of fifth generation R&D. *Research-Technology Management,* July-August: 33-41

Schmoch, U. 1999: Interaction of Universities and Industrial Enterprises in Germany and the United States – a Comparison. *Industry and Innovation,* 6: 51-68

Storey, D. J. and Tether, B. S. 1998: Public policy measures to support new technology based firms in the European Union. *Research Policy,* 26: 1037-1057

Tihanyi, L. and Roath, A. S. 2002: Technology transfer and institutional development in Central and Eastern Europe. *Journal of World Business,* 37: 188-198

Vedovello, C. 1997: Science parks and university-industry interactions: Geographical proximity between the agents as a driving force. *Technovation,* 17: 491-502

Westhead, P. 1997: R&D "inputs" and "outputs" of technology-based firms located in and off Science Parks. *R&D Management,* 27: 45-62

WIPO 2002: Research and Innovation issues in University-Industry Relations. Background Information Document prepared by the SMEs Division of the World Intellectual Property Organization, www.wipo.com

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 47-59

4 Experiences in the Fields of Innovation Services in Hungary at the Age of Millennium

Péter Mogyorósi, Márton Vilmányi and Balázs Révész

4.1 Introduction

The political changes in Hungary at the turn of the 1980s and 1990s induced social and economic changes. In the early 1990s the actors and the rules of economic life changed, which was a trauma not only for the individuals but also for the whole national economy as GDP, export, competitiveness and the standard of living decreased. By today the trauma of those years has ended and the economy is steadily improving (the annual average increase of GDP is about 4-5 %). The economic policy focuses on the competitiveness of the Hungarian economy in the European and World market

In this context innovation and technology transfer have an important role as determining factors of international competitiveness. In these fields the national economy and the individual actors (national and local governments, businesses, higher education institutions, research centres, business support organisations) are lagging behind the developed countries. Concerning businesses we have well-established national and multinational larger companies, which have already been active in innovation and technology transfer in the past years, while the majority of businesses are SMEs, which are much less developed and mainly-under capitalized and have no access to information. The academic institutions have the old structure and have management and human resource problems. The government policy has improved a lot in recent years, but it still does not draw up clear priorities or innovation and technology transfer support schemes. Business support organizations cannot provide services in this field.

In this paper we shall give a brief review of the actors of the Hungarian innovation market and we shall outline the problems and causes through the eyes of a private consultant.

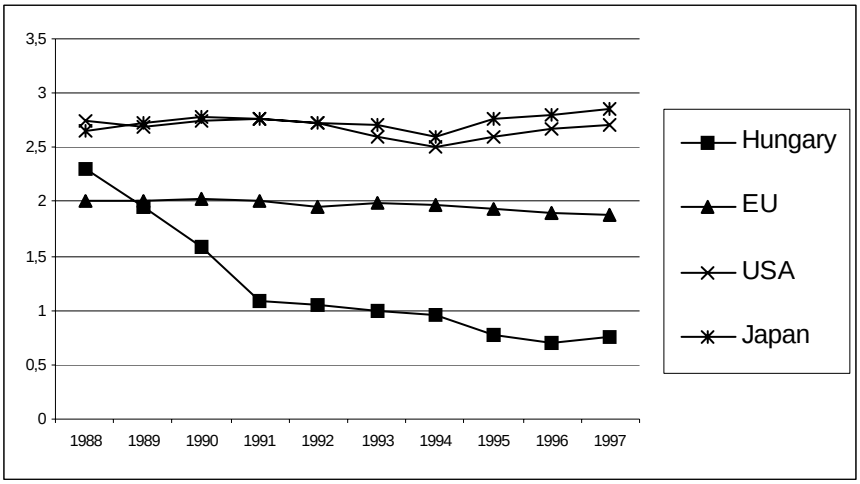
4.2 Barriers of local businesses

The structure of the Hungarian economy was dramatically changed by the political changes in the early 1990s (Török 1991). The large socialist companies

*This chapter draws on Mogyorósi, Vilmányi and Révész (2002).

were replaced by SMEs and major multinationals. Concerning economic and employment potential, SMEs have a determining role in the Hungarian economic development, therefore their innovation awareness and potential must be improved (Figure 4.1).

Figure 4.1 The R&D expenditure of the Hungarian economy



Source: HCSO (1998)

According to this figure the Hungarian economy is lagging behind the developed countries (Table 4.1). The picture would be even worse if we take into account that SMEs have only 10-12 % share of the total R&D expenditure. The government is aiming increase R&D expenditure slightly above 1 %, which will then reach the lowest value of EU member states.

Table 4.1 Changes in the competitiveness rankings of Hungary

	1995		**1999**
Macro economy	41	⇒	17
Financial condition	43	⇒	28
Human resources	32	⇒	28
Government policies	42	⇒	26
Infrastructure	32	⇒	26
Science and technology	39	⇒	27
Internationalisation	37	⇒	17

Source: IMD (1995, 1999)

The reason for the low R&D expenditure of Hungarian SMEs is very complex, we shall provide some brief analysis:

(a) *Size and structure of enterprises*. The majority of Hungarian enterprises are micro-, and small enterprises, which are undercapitalised, their prime interest is only survival and they are unable to invest in any development. The ratio of middle-sized companies is small, though they have the largest innovation potential. This was the initial picture of the transitional economy. An SME development policy is needed, which would provide capital for development and a beneficial economic environment for innovation.

(b) *Activities of enterprises*. The ratio of enterprises in the service sector is much higher than in OECD countries. Those, which are in the production sector, can hardly get involved in the innovation chain or in subcontractor chains, and can produce only low added value, therefore their profitability is rather low. The geographical structure is also a barrier as we have innovative regions (Budapest and its agglomeration, major cities with knowledge centres and the Budapest-Vienna axis) but the other regions are lagging behind (Lengyel 2000a).

(c) *Mentality of enterprises*. The mental barriers can be listed as follows:
   - Local businesses are very individualistic, not ready for co-operation and have a low level of communication abilities and weak marketing activities.
   - Because of high taxes and the social security load they are not always ready to receive state funding.
   - Lacking language skills, low level of international communication and low level of internationalisation

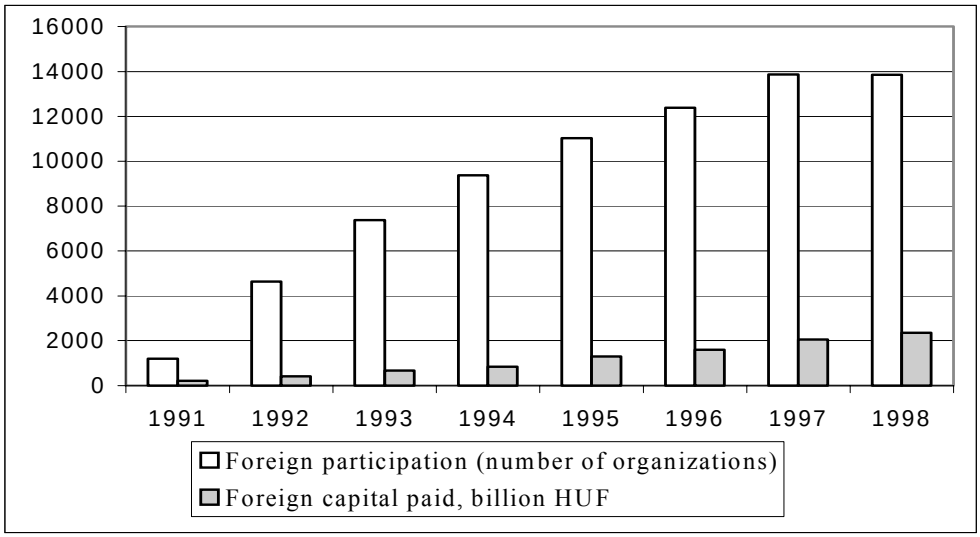
(d) *Financing of innovation related investments*. The financing institution system is segmented and information dissemination is not efficient. Innovation related loan systems have not been developed, there is a low level of investor activities, and mediators are lacking. Recent tax incentives encourage investments, especially innovation related investments.

(e) *Innovation strategies and implementing organisations*. The innovation support system has not been developed yet, so those organizations, which would be able to collect, process and disseminate innovation related information and to provide services are lacking (Buzás 2002). The development of regional innovation strategies started in 3 regions of Hungary in 2002, as they are beneficiary regions of the EU RIS/RITTS program.

4.3 Innovation behaviour of foreign investors

As a result of political and economic changes, interest of foreign investors rose in various sectors in CEE countries. In the 1990s altogether almost USD 20 billion foreign capital was invested in Hungary, which is very high among CEE countries and the highest per capita (Figure 4.2).

Figure 4.2 Direct foreign capital investment in Hungary



Source: HCSO (1998)

The volume of foreign investment is a result of availability of production conditions (physical, human and financial), of opening up new export markets and of governmental investment encouraging policy. We can group the investors according to different selection rules; we shall group them according to their motivation and as they gradually appeared in the Hungarian economy.

Adventure capital. In the years before and after the changes, the legal system was different compared to market economy and the rules changed as the system was gradually adjusted to the new regulations. In this period there appeared a special group of investors, who took the advantage of the transitional period and wanted to get very high return on investment and planned only for a short period. These investments were not interested in any form of technology transfer or innovation, only in high profits.

Commercial capital. In early 1990s one of the fastest developing sector was commerce, which expended rapidly after the shortage economy of the previous regime. Multinational chains[1] reacted rapidly to the new market opportunities and invested in new strategic positions. In the past years more and more supermarkets, hypermarkets and shopping malls were opened in Hungary. In the first years this

[1] The German Metro chain opened its first store in Budapest, later in most of the major cities in Hungary. Szeged (160,000 inhabitants) is located in South-East of Hungary and was one of the first target cities. The reason for this was that the size of its market is larger than expected as cross-border trading plays an important role in the region (Yugoslavian and Romanian commercial tourism).

were very profitable for the first-comers, but in recent years serious competition cut the profit rate. Changing consumption patterns provided favourable conditions for investors, though the size of the markets will limit the expansion. Commercial activities do not require regular and technology-intensive developments; technologies from developed countries were adopted.

Service capital. Besides the commercial sector, the service sector was the other major target of foreign investors even in earlier years. The investments were substantial in bank and financial services, business services (marketing, management, quality, etc.) and public utilities. The major motivation of these investments was access to the markets. The innovation demand of these services was rather low as technologies from the mother company were adopted.

Production capital. One of the major motivations of foreign investments in production was low labour cost and low raw material cost. These production companies of all sizes appeared gradually in Hungary, peaking between 1995 and 1998. They invested in earlier years in Hungary, but recently a migration of these companies eastwards can be observed, as labour cost in Hungary is not as low as in some other CEE or NIS countries. A great portion of these investments was in the framework of the privatisation process, though in recent years green field investments or additional investments have been dominant. In privatised companies former technologies were mainly used with some upgrading or technologies from the mother company were transferred to CEE. The innovation process remained at the mother company.

Technology capital. In recent years a new concept started to attract investors: low engineering cost. The trend shifted from low labour cost to low engineering cost, where the investor took the advantage of high-qualified engineer and technician resources; their cost is lower by a factor of 10 compared to the the same cost in developed countries. The other way was that Hungarian engineering SMEs became subcontractors of foreign companies providing high quality and inexpensive services. The third way was that long-term Hungarian subcontractors received R&D (product and technology development) tasks from a foreign main contractor after a few years, as a result of reliable subcontractor relationship in production. These last two processes have induced personnel development and investments in the Hungarian technology oriented companies.

Research capital. At the end of the 1990s a new form of investment appeared in Hungary: research based investments. Some of the multinationals realised that Hungarian research potential can be used in a very cost efficient way for their strategic research and applied research activities. Researchers of international standards provide excellent human base for these investments accompanied by the financing incentives of the government. As a result, General Electric, NOKIA, IBM and Knorr-Bremse installed research centres in Hungary. Most of the major software houses opened programmer centres in Hungary based upon the excellent and inexpensive human resources.

These different investment groups have different implications on the Hungarian economy. As commercial, service and production capital require developed market conditions, a well-established infrastructure, technology and research capital require solid human resource and a high quality educations system.

CEE countries have to position themselves according to which type of capital they can or want to attract to their country. They have to adjust their investment incentives and education system according to these directives (Sadowski 2001).

4.4 Problems of the academic circles

One of the major sectors in innovation and source of technology transfer is the academia (higher education institutions and research centres). Their potential in the economy is decisive, as they perform most of the basic and applied research. They provide potentially all the R&D capacities for the SMEs that do not have their own. Unfortunately knowledge centres cannot fulfil this expectation due to several reasons (Chataway 1999, Lengyel 2002b, Török 2001).

(a) *Mentality of the academia versus market expectations*. There is a mismatch between the mentality of this sector and market economy, which results in serious barriers in practical co-operation.
   - *Basic research versus applied research*. Researchers focus mainly on basic research and also professional and carreer expectations push them towards basic research. The business sector would expect applied research or even technology development or simply solutions for industrial problems.
   - *Perfection versus optimum*. Researchers are always looking for the optimal solution while enterprises expect the best cost effective solutions.
   - *Publication versus confidentiality*. The carreer of researchers strongly depends on the number of their publications so they aim to publish as much as they can. Enterprises would prefer confidentiality and/or protected intellectual properties.
   - *Scientific language versus business language*. The two circles use different languages, which is again a serious barrier in communication and co-operation. Even when they use a similar word they may mean something different (e.g. technology).

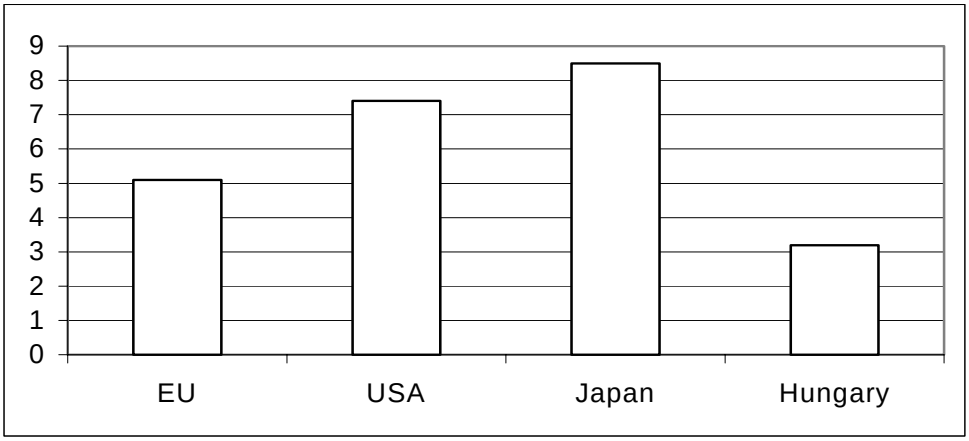
(b) *Financing.* The research sector is underfinanced. In previous times it was completely financed from the central budget, while today it is only partially financed from central sources, therefore it has to get additional funding from national and international grants and from the market. This fact would force it to open to the business sector, which is a very slow process.
   - *Missing IP management, unclear IP ownership*. In many institutions it is unclear who has IP ownership rights (researcher or institute) and who has

the right to sell them or use them. There are no offices that could assist researchers to decide if their research result has a business potential and can be protected or published. Innovation assessment is an unknown concept.

- *Timescale of co-operation*. Hungarian SMEs are mainly interested in short-term projects, which will not require larger or longer financial obligations. Research institutions prefer long-term co-operation, as they have to calculate with an annual budget and plan for longer terms.
- *Informal collaboration*. There is a special phenomenon, when one or few researchers work on the industrial task as private people at a low cost, using university facilities. In this case the researchers can earn direct money and there will be less expenses to the business partner, but the university will not benefit at all and even the overhead cost will be paid by the university.

(c) *Human resources.* The Hungarian research community faces serious generation problems. Due to local and international brain-drain the older age group (50-60) is dominant and there is a new wave of researchers (25-30) as PhD students. At the time of changes many of the researchers and faculty members left university and found a new job in the business sector or directly in industry. A large group of researcher had already worked in developed countries under much better financial and infrastructural conditions. The attraction of the business sector and foreign laboratories is still a serious problem, as mainly the most flexible middle aged people are ready to move, so the future leader persons are lacking from the system. The number of researchers is very low compared to that of developed countries' (Figure 4.3).

Figure 4.3 Number of researchers per 1000 labour force in 1997



Source: HCSO (1998).

(d) *Marketing.* The institutions usually have no marketing concept. They just do not think about "selling" their knowledge. The institutions or the researchers do not even know the potential business partners or the value of their intellectual property. There are no marketing, PR or promotion activities.
(e) *Management.* The management structure is based upon scientific merits. In research institutions a career is based upon publications, titles, international experience and awards. These scientific abilities are usually not accompanied by management skills. These leaders have experience in management, communication, financing, law, etc. The proposed scheme, that the academic and business management of these institutions should be separated is not accepted by the community. An additional problem is that certain business oriented operative units are lacking from the system. (Farkas 2001)

The current problems of the Hungarian (and most probably overall CEE) research sector are very similar to the problems of that of developed countries' in early 1980s. Therefore their solutions or the models can be very useful for solving the problems in CEE countries (Sedaitis 2000, Balázs and Török 1996).

4.5 Institutional support system in Hungary

In CEE countries the institutionalised business support system must play a decisive role in innovation and in business development. The Hungarian system has many different elements including governmental bodies, NGOs, chambers, professional bodies, etc. (Papanek et al 1999). The system is still under development, as it is not really ready to provide innovation and TT services, only general business support services (financial, legal, training, …). Activities are not concerted, they mainly work individually therefore in a parallel fashion. The human resources have no professional knowledge in innovation.

The *governmental institutions* have only an indirect role in TT or innovation. The main actors are the Ministry of Economy and the R&D directorate of the Ministry of Education. They are responsible for developing technology and innovation[2] policy, for strategies, allocation of funding, and national participation in international programs.

The two major *professional organisations* are the Hungarian Association of Innovation and the Federation of Technical and Scientific Societies. The main goals

[2] The national development plan – Széchenyi Plan – had various priorities for the national economy, one of them was the R&D and innovation program. One of the main goals of this program was to foster collaboration between research and business sectors. Other priorities (Business development program and the Regional economic development program) also emphasised development of innovative economy.

of the *Hungarian Association of Innovation* (approx. 500 members, businesses, research institutes, NGOs) are to foster creation and the application of intellectual properties and to develop economy through innovation. It operates an information system for the actors of the innovation chain, represents the interest of its members towards governmental organisations and has a thorough national and international contact network.

The *Federation of Technical and Scientific Societies* coordinates the activities of 42 national scientific associations. This affects almost 100,000 engineers, researchers, economists, and agrarians. The individual associations have contact with several thousand businesses. They play an active role in the innovation of the national industry.

Currently there are only very few organisations that can provide *services in innovation* and especially in TT. The first initiatives took place in the early 1990s, and as result, the International Technology Institute (NETI), and a BIC – INNOSTART – were established. These organisations may provide efficient services to businesses in the realisation of their innovation and technology development.

The goals of *NETI* (established in 1991) are to disseminate international high-tech, develop activities in the field of TT and to market Hungarian technologies. *INNOSTART* was established in 1994 for identification of the most promising innovative projects, supporting these projects in their realisation and providing innovation services and infrastructure for them.

4.6 Human resources and knowledge transfer

The major barrier in CEE countries is the lack of well-trained human resources. The *education system* is not prepared for these types of courses and cannot cover the newly emerging demands. According to a recent survey in Hungary, multinationals provide 6 months training to new employees to meet their expectation, which also applies to those with higher education degrees. This means that the education system must be modernised in these countries (in some countries this is already in progress).

Higher education does not provide courses, which will produce graduated people with the ability to work in the field of innovation or TT. The current system can produce engineers, scientists, economists, informaticians, lawyers but interdisciplinary courses are very rare, although innovation and TT require a mixture of all these disciplines. The innovation managers should be able to communicate with research and business circles, as well. It would be essential to develop new curricula[3], which will break up the traditional structures. The higher education sector

[3] Hungarian technical HEIs launched a new course, "technical manager", which was a success as its graduates were very popular among the industries. But as industry will absorb

must understand that socio-economic demand has radically changed and that the employers do not look for graduates with traditional knowledge but with directly applicable knowledge. Unfortunately the reaction time of higher education is slow compared to that of business life and legal regulations'. The preparation of a new course (curriculum development, accreditation, launching) would take 2 years and it would take 3-5 years to have the first graduate and the labour market.

An additional problem is that even in the new courses we do not have lecturers, who have the expertise to provide relevant knowledge. The lecturers we have are specialists in old disciplines, so currently the courses comprise different "old" disciplines (engineering, sciences, economy, informatics) in a good mixture. Specialisation covers immediate industrial needs, such as quality and logistics. It will take years to refine these courses towards innovation and TT.

The developed countries can play an important role in knowledge transfer. Numerous international or transnational (e.g. PHARE, NATO Science for Peace, EU FP5) programs can provide opportunities and funding for different knowledge transfer means. Study tours, internships from CEE to developed countries or technical assistance (experts visiting and assisting local partners and giving lectures at local HEIs) from developed countries can provide efficient ways to improve the knowledge base in CEE. The target groups of these actions are the NGOs, HEIs, private consultants and business support organisations (Balthasar et al 2000, Rappai et al 2003).

The above chapters drew up the picture of a transitional innovation system in a transitional economy. It is obvious that there are broad business opportunities for private consultants in the field of innovation and TT services. The market has three major target groups: (a) the (local) governmental sector; (b) universities and research centres; (c) businesses.

(a) *Local governments and the government*. These include national, regional, county and local governmental bodies, decision makers and their operative bodies (regional development agencies, local enterprise agencies, etc.). This market segment mainly requests consulting services, the elaboration of innovation models or strategies, operative programs, feasibility studies of organisations, and definition and implementation of projects.

(b) *Universities and research centres*. They have two major demands:
   - *Organisation development*. There is a recognised need for development and establishment of organisations to handle and manage IPs and research results. The form of these organisations can be either an ILO (providing services in writing project proposals, TT, industrial co-operation, licensing, etc.) or an incubator, which can handle longer-term business interests. The

all these graduates, it will take years to see these experts in the non-profit sector (business support organisations, ILOs/TLOs, etc.).

role of the consultant is to plan these organisations (feasibility study, business plan), or even pilot operation.

- *Technology transfer service*. As these institutions are major sources of research results and IPs there is a tremendous need for commercialisation of these results (Bray and Lee 2000). In most places there is no ILO/TLO, so these tasks are out-sourced to private consultants. The private consultants cannot afford to work on all these topics, as the probability of a business being profitable is very low.
- *Businesses, especially SMEs*. This market has the greatest potential. This sector has a partially recognised but mainly latent demand for innovation and technology The most frequent problem is the identification of financing resources, which practically means writing project proposals for technology development (which also may mean simply purchase of technology). Another expanding need is technology request (TT). Businesses also have different other needs, such as co-operation partner search, information, training, etc.

Private consultants play an intermediary role among the governmental, academic and business sectors, as well as between different regions even on an international scale. They bridge different interests, information, products and services to the relevant actors, they follow the market needs and react to different needs with a flexible service spectrum. They also have an important role in networking, information dissemination, and communication with international partners. These businesses are for-profit organisations, therefore they cannot take on many tasks that are important but not profitable, and which therefore should be performed by NGOs or other non-profit organisations. Some of the profit making activities are also provided by non-profit organisations, which may lead to conflicts, but this phenomenon has been discussed in the developed countries already for decades.

4.7 Conclusions

The different actors of innovation and technology transfer are facing barriers in Hungary. The innovation awareness of local businesses is low, we can say that technology needs are in some cases unrecognised, and the financing schemes aiming to support the spreading of innovation are underdeveloped (most of the companies are under-capitalised). The low level of national R&D expenditure and share of business sector is an other problem.

As a result of the political and economic changes, interest of foreign investors rose in various sectors in Hungary. These investors can be grouped according to their innovation behaviour, and thisway we may speak of “adventure capital” (in the pre-change era, no need of TT), “commercial capital” (early times after the changes,

no need of TT), "production capital" (based on low labour costs, TT and innovation on home grounds), "technology capital" (based on low engineering costs, TT and innovation is partially in CEE), "research capital" (based on low research and engineering costs, establishment of local research institutes).

As we have pointed out earlier, the major problem on the academic side is the attitude, the low level of business awareness of researchers. While financing is still expected from the state, the intellectual property right situation is unclear in most cases. Researchers and the institutes are not able to communicate with business circles.

The institutionalised business and SME support system is under development in the CEE countries. These NGOs are not prepared for innovation and technology transfer services, only for general business support. There are only a few organisations, which are specialised for innovation and technology transfer.

One of the major barriers of missing services is the lack of trained innovation and technology transfer experts. Knowledge transfer from developed countries through international programmes could partially provide a solution. Training of CEE experts can be done efficiently by internships in well-functioning organisations.

The missing institutional support system gives the opportunity to the private companies to provide services on commercial bases to companies and research units. These services may cover technology transfer, innovation consultancy, writing project proposals and grant application, project management. The private consultants have the necessary knowledge and relationships to provide these services, and to help the technology transfer process, but the governmental support is very inportant in the spreading of innovations.

References

Balázs, K. and Török, Á. 1996: *Tudás és technológiatranszfer-szervezetek és mechanizmusok a fejlett országokban és Magyarországon*. OMFB, Budapest

Balthasar, A., Bättig, C., Thierstein, A. and Wilhelm, B. 2000: "Developers": key actors of the innovation process. *Technovation*, 10: 523-538

Bray, M. and Lee, J. N. 2000: University revenues from technology transfer: Licensing fees vs. equity positions. *Journal of Business Venturing*, 5-6: 385-392

Buzás, N. 2002: Technológiatranszfer-szervezetek és szerepük az innovációs eredmények terjedésében. In Buzás, N. and Lengyel, I. (eds): *Ipari parkok fejlődési lehetőségei: regionális gazdaságfejlesztés, innovációs folyamatok és klaszterek*. JATEPress, Szeged: 93-108

Chataway, J. 1999: Technology transfer and the restructuring of science and technology in Central and Eastern Europe. *Technovation*, 6-7: 355-364

Farkas F. 2001: Változások menedzselése nonprofit szervezetekben. *Vezetéstudomány*, 6: 2–8

HCSO 1998: *Statistical Yearbook of Hungary*. Hungarian Central Statistical Office, Budapest.

IMD 1995: *The World Competitiveness Yearbook*. International Institute for Management Development, Lausanne.

IMD 1999: *The World Competitiveness Yearbook*. International Institute for Management Development, Lausanne.

Lengyel, I. 2002a: The Competitiveness of Hungarian Regions. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 235-246.

Lengyel, I. 2002b: A regionális gazdaság- és vállalkozásfejlesztés alapvető szempontjai (Theoretical backgrounds of regional economic and enterprise development). In Buzás, N. and Lengyel, I. (eds): *Ipari parkok fejlődési lehetőségei: regionális gazdaságfejlesztés, innovációs folyamatok és klaszterek*. JATEPress, Szeged: 24-54

Mogyorósi, P., Vilmányi, M. and Révész, B. 2002: Experiences, barriers, and successes in Hungary. In *Overcoming Barriers to Technology Transfer and Business Commercialization in Central and Eastern Europe: Solutions and Opportunities*. NATO Science Series.

Papanek, G., Tamás, P., Török, Á., Ványai, J. and Viszt, E. 1999: *National innovation system in Hungary.* GKI Economic Research Co., Budapest.

Rappai G., Kühnel, S. and Farkas, F. 2003: A tudástranszfer módozatainak nemzetközi összehasonlítása. *Statisztikai Szemle*, 3: 237-251

Sadowski, B.M. 2001: Towards market repositioning in Central and Eastern Europe: international cooperative ventures in Hungary, Poland and the Czech Republic. *Research Policy*, 5: 711-724

Sedaitis, J. 2000: Technology transfer in transitional economies: a test of market, state and organizational models. *Research Policy*, 2: 135-147

Török, Á. 1991: Enterprise crisis, privatization and international challanges: The case of a major Hungarian electronics company. *Ipargazdasági Szemle,* 2: 126-134

Török, Á. 2002: Hungarian Science and Technology in the Top Twenty? In Varga, A. and Szerb, l. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges*. University of Pécs, Pécs: 11-26

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 60-78

5 On the Notion of Public Goods

Ferenc Mozsár

5.1 Introduction

One of the primary arguments for assuming an economic role by the state is that the market either fails to provide certain goods, or provides them in quantities considered socially not optimal. We denote a group of such goods by the term 'public goods'. According to the most widely used definition, public goods are goods whose consumption is free from rivalry, and non-payers cannot be excluded from consumption. Several authors find compliance with one of the above criteria a sufficient condition. Other researchers consider other factors, for example, externality or group supply, to be the crucial items in defining public goods. In this paper, I will argue that public goods are suitably defined by simply considering lack of competition, while other implications, first of all, the role of non-excludability and effects external to consumption, should be treated separately

In general, addressing terminological issues is a rewarding topic in terms of writing "studies". Nearly everything can be named, defined, interpreted, or termed in a way other than the traditional way. It is a matter of convention how one defines — to cite examples bearing on the subject at hand — externalities, public goods, pure public goods etc. The establishment of these conventions is indispensable to turn a phenomenon into a suitable subject of some scientific discussion therefore the mutual exploration of the reasons and consequences os its exsistence and the identification of the solutions to the problems arising we necessary.

We have concluded that this "common language" is not quite unambiguous as far as the term "public goods" is concerned, even though the literature on this topic includes authoritative experts like the Nobel-Prize winner R. A. Samuelson or J. M. Buchanan. It appears that the attempts at defining public goods represent a mixture of goods and the activities dedicated at the efforts to provide a supply for them, as well as various features pertaining to opportunities of market allocation, type of consumption, and also other factors. For example, while „public goods" (social goods, öffentliche Güter, Kollektivgüter) and externalities (spillover, externer Effekte, Externalitäten) are individual entries in lexicons (Eatwell et al 1991, Gabler 1993, Pearce 1993 etc.), in most works on economics their definitions overlap either partly or completely. In the definition of "public goods", differential criteria include terms such as *non-rival consumption, non-excludability, externalities, indivisibility,*

.

and, occasionally, governmental supply of goods. Those sources of loss in efficiency derived from some specific attribute of the goods or activities however, will persist even if some other features turn out to lose their validity. On the other hand, economic literature often defines the notion of public goods too broadly. There are authors who even go so far as to include bread and shoes in the scope of public goods.

These actions are, of course, more indicative of their imagination than assisting in straightforward communication. What makes the situation even worse is that they appear to legitimatize the otherwise hardly unjustifiable extent of the role assumed by the state. Less than 10% of the EU governmental expenditure is spent on the supply of „real public goods" (even if this category is *interpreted broadly*). It is worth noting that the proportion of group consumption against total consumption of the population increases nominally while there is a decrease in real value. The prices of the goods and services financed by the government grow more rapidly than those of the marketable goods (Fiorito and Kollintzas 2002:5). Those on the supply side are clearly interested in having „the public state of goods" recognized, and it appears that price increasing can be realized against the state more readily than against individual buyers.

5.2 Interpretations of public goods

Theoretical discussions of the issue of public goods usually begin by paying a tribute to David Hume and Adam Smith (Cornes and Sandler 1996: 3, Johnson 1999: 83, Olson 1997: 65). Indeed, in his dissertation published in 1739, Hume tried to justify the existence of a government by emphasizing its role in providing goods (drainage of marshes, construction of dams, canals, ports, etc.), when the expenses and hardships associated with their provision can be relegated to others easily, without those evading them being excluded from their benefit (Hume 1976: 728-729). Similarly, Smith, the apostle of "laissez faire", considered the provision of supply of national defense and other public goods as duties of the government.

What does the term public goods refer to in general? Put another way, *who refers to what* when using the term "public goods"? In his frequently cited dissertation, Samuelson *never used* the term at hand (Samuelson 1954). He writes about public consumption goods, and the same term is used in his widely known dissertation published in 1955 (Samuelson 1955). He uses the term public goods as a kind of "abbreviation" in this latter work. According to his earlier writing, „collective consumption goods .... which all enjoy in common in the sense that each individual's consumption of a good leads to no subtraction from any other individual's consumption of that good..." (Samuelson 1954). Using the familiar term, this means there is no rivalry among consumers of such goods (*non-rivalrous/*

non-diminishable consumption.)[1] In their Economics issued in 1985, Samuelson and Nordhaus differentiated between „collective goods" and „public goods". The former term is reserved for goods provided collectively (i.e., by the government), while the latter indicates the extent of spillover (Samuelson and Nordhaus 1985: 714).

Spillover is better known in the literature as externalities or external effect. Also here, the question of *excluding non-paying individuals* is addressed in connection with what is called *pure public goods*: "*... a pure public good is one where the consumption is non-rival and non-excludable*". At present, some economists are clearly inclined to characterize public goods by the lack of rivalry in consumption: „Goods that do not have the second characteristic —„rivalry" in consumption – are called public goods" (Mansfield 1975: 497). Or: „public good: A good or service whose consumption by one person does not exclude consumption by others" (Schiller 1986: 65). „[Public goods are goods]... whose consumption does not include rivalry" (Blomquist and Christiansen 2002: 3). Other authors stress the non-excludability of non-paying individuals: [public] "Goods that are not excludable and, therefore, are available to everyone free charge" (Fisher 2000: 3). The principle of excludability ...„ is the criterion of differentiation between public and non-public goods" (Pearce 1993: 196). Stiglitz also considers non-excludability („undivisibility") as a main criterion, which appears to contradict his later formulation according to which „in case of some *public goods* excludability can be achieved" (Stiglitz 2000: 143, my italics).

In some other definitions the two criteria seem to be *of the same level of importance*: „Pure public goods ...are goods whose consumption is not restricted and does not reduce the quantity available for consumption, thus there is no rivalry among consumers..." (Kopányi 1993: 516). Samuelson puts this in a similar way: „...a pure public good is one where the consumption is non-rival and non-excludable" (Samuelson and Nordhaus 1985: 714). Yet there are authors who *mix* the two criteria: „A pure public good is that can be enjoyed by the individuals independently of whether they have paid for it or not" (Hyman 1989: 665). „...Public goods could not be divided among individuals, owing to non-rivalry of benefits and non-excludability problems" (Cornes 1996: 3). „The essence of the (pure) public good is that no one within the relevant group can be excluded from receiving benefits if the good is provided" (McKenzie and Tullock 1978: 24). Varian seems to point at the *external effect* as the essence of public goods: „ Public goods are a special kind of external economic effects of consumption: everyone is supposed to consume the same amount" (Varian 2001: 647). This opinion is shared by Buchanan: "a public good is an activity of significant external economic effects..."

[1] Samuelson considered it important to stress that the subject of consumption is not some kind of a mystic 'community' existing above 'individuals', rather, members in a community represent real members with consumption corresponding to their individual preferences.

(Buchanan 1992: 118). Varian includes a further attribute here: „ *supposed* to consume the same amount" (ibid. my italics).

Cornes and Sandler consider *externalities* to be not simply a source, rather, a „family of the market failures", which includes public goods as well (Cornes and Sandler 1996: 6). Musgrave defines externalities as a set of circumstances whose availability prevents market actors from providing an optimum result, while, in his opinion, public goods represent a case where in the market there is a *complete* failure (Musgrave 1959). Others formulate this as a case whereby the benefits associated with public goods completely manifest themselves as external effects. The lack of rivalry is described by some authors as a synonym of "non-exhaustibility" or "non-depletability" (Mas-Collel et al 1995: 359). Kaul has found that the majority of authors agreed on three points: first, "publicness" is not an inherent characteristic of a good, rather, it is a matter of political choice. Second, a public good is not necessarily beneficial to all members of a community. Third, public goods do not necessarily have to be provided by the state (Kaul 2001: 259).

According to the most widely accepted current position, goods can be classified into different qualitative and quantitative *groups* of publicness (Hjerppe 1997: 14-15):

(a) *private goods* and, - at least, theoretically -
(b) *pure public goods* (characterized by non-rivalry and non-excludability of non-payers),
(c) *quasi-public goods* (semipublic goods or mixed goods (whose excludability is possible but *not reasonable* due to positive external effects, as the benefits associated with the good are not equally divided among consumers,
(d) *merit goods* (of which the consumers consume less than their needs would justify, owing to their lack of information or „inappropriate" preferences).

Thus, the definition of „quasi-public goods" or „mixed goods" is also done using the categories of rivalry and excludability: non-payers can be excluded despite a lack of rivalry. According to a different definition „mixed good" is one where „consumption is not completely competitive" (Pearce 1993: 457). According to a third approach, partly competitive and partly „excludable" goods belong to this category (Smart 2002). A fourth approach claims that external effect is exerted by goods that are neither purely private, nor purely public (Hallgren and McAdams 1995: 1). Sometimes, on the basis of collective *supply*, merit goods are classified as a group of public goods. In an extreme „supply-side" approach, „publicness" itself can be traced back to collective (governmental) supply. A clearer but nevertheless problematic classification considers categories of rivalry and excludability only (Table 5.1).

From the public goods mentioned in the table, national defense and (for example, scientific) information are usually referred to as „pure public goods", while congested and uncongested roads that can, in theory, be provided also by the market,

belong to the category of „quasi public goods". Scientific literature interprets natural monopolies in a different way.[2] Although the supply of public goods (that is to say, the technology applied in the course of their production) can be characterized by natural monopoly (economies of scale), the two are in fact different. The goods mentioned in the table are often referred to as public enterprise goods [3].

Table 5.1 Categories of rivalry and excludability

	Rivalry exists	**Rivalry is missing**
Excludability is possible	Private goods • ice-cream • clothing • congested toll roads	Natural monopolies • fire-service • cable TV • uncongested toll roads
Excludability not possible	Common resources • fish in the ocean • natural environment • congested non-toll roads	Public goods • national defense • information • uncongested non-toll roads

While admitting a certain freedom in assigning names to goods and groups of goods, it appears useful to differentiate the implications concerned for each, namely:
(a) non-rivalry,
(b) non-excludability of the non-payers,
(c) externalities,
(d) indivisibility[4],
(e) natural monopoly,
(f) collective supply due to „inappropriate" preferences,
(g) collective supply due to other reasons.

We find these distinctions to be of utmost importance, on the one hand, for the identification of possible losses in allocation-related efficiency and, on the other hand, for choosing the appropriate method of treating the given inadequacy of the market. Thirdly, it is important in order to make *sure we know what we are talking about*.

[2] It is usually taken to mean the monopoly position created by satisfiable demand coupled with decreasing general expenses (Samuelson and Nordhaus 1985: 506); it also refers to cases when monopoly position is connected with the monopoly possession of some natural resource (for example, a mine or a spring) (Gabler 1993: 23-65).
[3] It should be noted that despite the repeated accusations of the market in connection with insufficient supply of this group of goods this group of goods, there is ample evidence indicating that their public supply — adjusting itself to particular interests, is *excessive*, as a rule.
[4] Cornes means „non-rivalry" when speaking about „indivisibility": „..the expressions *non-rivalry of consumption and indivisibility of benefits* are used interchangeably" (Cornes and Sandler 1996: 8).

5.3 The definition of public goods

„Public goods" are first of all *products* or *services* (hereinafter referred to as 'goods'). They are goods whose „consumption" does not decrease the quantity of the good available to others. Differently put, consuming one unit of the good does not prevent others from consuming the same unit of the good (non-rivalry). Let us mark the supplied quantity of some good by X, then the consumption probability for any n will be $X_i = X$ (i = 1, ..., n) for the i^{th} consumer. Supposing we have a utility function differentiable twice *U=f(X,Y)*, it is obvious that a relation $\partial U_i/\partial X > 0$ will hold before a satiation point. Of course, this would entail a zero *production* marginal cost.[5] While we will maintain the above assumptions, we must stress the importance of the results according to which the most frequently cited "public goods" — occasionally „pure public goods" — like national defense or legislation do not *meet* this requirement perfectly must be stressed. The expenditures connected to the above-mentioned „public goods" are simply proportionate with the population, providing that similar incomes are earned (Holcombe 1998). Although the marginal cost of a new consumer is low (similarly to that of providing bread for another citizen), but *not zero*. Thus, the optimum condition -ΣMRS = MRT formulated by Samuelson does not hold any longer.

According to Varian: „everybody *must* consume the same quantity". In fact, the same of amount of public goods, in the extreme, is *at anyone's disposal*, but it rarely means obligatory or real consumption. In the case of public supply, one of the most frequent sources of allocation failure is related to the assumption of identity of consumption and supply. The government is inclined to mix up input and output anyway (for example, the responsibility for education being mixed up with the budget of the sector). In addition, the supply of public goods may be "assisted" by the fact that the beneficiaries of the orders placed by the government are interested in exaggerating the number of those consuming the goods and services, or the benefit derived therefrom. There are goods consumed by individuals under compulsion (these are mostly „public bads" like air pollution). The consumption level of most of the public goods can, however, differ from one individual to another. A possible distinction may be drawn on the basis of differentiating between goods whose benefit comes from their use, and those whose benefit originates from their *existence* (that is, use and non-use benefits). The existence of a church-clock allows any passer-by to learn the time, and that is a kind of benefit coming from the *existence* of this object. Actually watching how time goes by means realizing *different* kind of benefit. Similarly, one does not need to visit tropical forests regularly in order to enjoy the benefit originating from their existence, whereas visiting them on a regular basis may result in a different kind of benefit.

[5] The marginal social cost related to the inclusion of a new individual into consumption may nevertheless be positive, as a result of occasional negative external effects.

The fact that the consumption of some public good does not decrease the stock at others' disposal does not mean that the marginal utility of the given good is zero for all the consumers on the socially optimal consumption level, that is, public goods must not be confused with "free goods" either!

Further, the fact that the consumption of a good does not decrease the stock at others' disposal does not exclude the chances of increasing or decreasing the profit earning possibilities of the others. Anyone's consumption can result in externalities, which does not, in our view, affect the essence of public goods. This question will be discussed later on anyway because, as noted earlier, public goods — according to some researchers — are extreme cases of (positive) externalities, while (negative) externalities, others say, diminish the public character of goods.

5.4 Non-excludability

It appears that unnecessary, restricting and misleading criteria should be eliminated from definitions of public goods. In addition to presuming an external effect, reference to the non-excludability of non-payers should also be considered as a "restricting criterion". We have a totally different dimension here. There is perhaps no point in referring to the vagueness of the assumption that „*no one* can be excluded from consumption" (Kopányi 1993: 516; my italics), since a significant portion of individuals are, or can be, excluded from the consumption of a high number of goods which does not in itself change the very character of the goods concerned. The deaf are „excluded" from enjoying a piece of music to an extent comparable to that of the (more or less) uninitiated. The group that is relevant in terms of excludability is obviously just that of the non-payers. And even that group is relevant only if supply of the goods concerned is expected to be realized by the market.

Excludability of non-payers is an indispensable precondition for the *market* supply of goods and services, but it is not this condition that is to turn some of the goods into public goods. Non-excludability of non-payers would damage the market supply of not just the public goods but also that of those private goods and services that are considered classical. On the other hand, while there is practically no good from whose consumption non-payers could be completely excluded, there are actually no goods whose consumption could be *technically* excluded from access by non-payers. When allocating market goods, the problem of excluding non-payers (also) arises.

Exclusion is (also) expensive in the case of any market good (just think of computer software that is considered, on the basis of non-rivalry, a kind of public good, yet it is offered to us by the market, notwithstanding the fact that preventing their illegal copying is extremely difficult). The "costs of exclusion" are sometimes very low in comparison with the value of some good, therefore they do not

(significantly) affect the allocation of production resources, at other times, however, they may be significant. *These latter goods are called „non-excludable" goods*. That is, it "simply" means that the expenses of exclusion would entail *too high* a sacrifice in some cases. If we take into account the costs of exclusion, the supply costs of the good at hand might even exceed the profit expected from future consumption (such as „consumption" of the network of public roads or that of the traditional bell chime at midday). These costs move the supply curve of the good upwards (to the left), thereby setting the quantity needed for market balance at a lower level. In such an event, we must consider alternative allocation mechanisms as well: whether the potential „profit" between the reservation price (more precisely, the marginal evaluation) and the par excellence production costs could be attained by way of some coordination that would not entail the exclusion of non-payers and thus not incur the costs of exclusion.

Those who tend to view the market economy as a single possible (relevant) allocation mechanism may be inclined to regard the costs of exclusion as a kind of „production" price, as those are in fact the operating costs of a market economy, thus, in essence, they do not differ from the costs of employing a salary accountant at a company or a movie-cashier. This reasoning however, fails when one considers the alternative coordination mechanisms. As far as the alternative coordination mechanisms (for example, the role of state) are concerned, other related transaction costs should also be included, for example, those connected to tax collection, inefficient budget allocation, or the effect of taxes slowing down production or distorting allocation (Stiglitz 2000: 164).[6] On the other hand, it is important to separate the costs of exclusion from those of production in the strict sense, even if one adopts the „almightiness" of market allocation. The procedures of exclusion (from the field-guard through the electronic signal systems applied in stores to the satellite encoding of television broadcasts) represent, or should represent, an *independent area* of the attempts aimed at cost reduction.

The issue of excluding non-payers is in fact connected to a number of public goods as well. The exclusion of non-payers *does not solve* the „issue of public goods", as it has not been caused by its unfeasibility or high expenses: non-rivalry and non-excludability are not necessarily concomitant. If non-payers can be excluded from consumption (it should be evident from what has been said before that their non-excludability is not regarded as an attribute of public goods), then the market is capable of supplying the public goods concerned (see, for example, the software market). In this case, the problem of allocation is associated with *pricing* that regulates access. This pricing *canno*t, in Pareto terms, be efficient, since any positive price excludes potential buyers with lower reserve prices from

[6] Stiglitz suggests to change Samuelson's optimum-condition "marginal physical rate of transformation = marginal rate of substitution" to „marginal economic rate of transformation = marginal rate of substitution", as the latter also includes the extra costs of financing obtained from taxes (Stiglitz 2000: 164).

consumption, while the marginal cost of their supply with the given good – in absence of externalities – would be zero.[7] The exclusion of the latter from the benefit of public goods would result in a loss of social efficiency. If unrestricted numbers of new individuals can join the consumption of some good (light-house, tower-clock, information, etc.) with a zero marginal cost, then all demands with a positive marginal estimation have to be met at an efficient level of consumption. That is why it is "dangerous" to expect that the development of excludability technologies will eliminate the problem of public goods.

Non-excludability is not a property of the good at hand, rather, it is a problem associated with the allocation system. This problem does not occur at all in non-market coordinating mechanisms, while the Samuelson condition of optimal production volume is independent from the mechanism of allocation. Identifying marginal estimations is an important *task* in all coordination mechanisms, including bureaucracy! The market mechanism is however, not the only means of identification. For example, household activities are subject to cost-profit calculations similar to shopping on the market.

Samuelson's original definition was allegedly "improved upon" by Buchanan introducing the criterion of non-excludability (Eloranta 2001: 2); however, Buchanan did not argue for the non-excludability of non-payers (op. cit.), rather, he points out the irrationality of their exclusion: „Once produced, it will not be efficient to exclude any person from the enjoyment... of its availability. (...) Additional consumers may be added at zero marginal cost" (Buchanan 1968). That is, once the good has been made available, exclusion of anyone from consumption would be inefficient since a new individual can join earlier customers at zero cost. „...No one *need* be excluded from consuming it", as repeated elsewhere (Albert and Hahnel 2002, my italics).

Of course, a distinction must be drawn here between two things. The par excellence production costs of a good may be lower than the increase in well-being expected from the good. At the same time, this relation may turn out to the opposite if the costs of exclusion are considered. Yet, this will *not turn the good in question into a public good* (cf. Kaul 2001: 257). In this case, the primary task is to create a more efficient "technique of exclusion" in order to allow the low cost of exclusion to provide for market supply, on the one hand, and to decrease the cost of market coordination, on the other. If such a technique is not available at the moment then, of course, resorting to an allocation mechanism that does not exclude non-payers may be considered. In the case of public goods however, there may be inexpensive and applicable techniques of exclusion, *nevertheless*, deploying exclusion would result in losses.

[7] It should be noted that market pricing would only be socially optimal even in the case of „pure private goods" if the system of proprietary rights worked smoothly and free of costs.

5.5 Externalities

As mentioned above, many view „public goods" (Buchanan, Varian, Cornes and Sandler) as a special or common form of externality. I argue that the phenomena mentioned should be distinguished from each other. Consumption of a person *j* can, of course, affect the well-being of person *i* ($j \neq i$) in various ways: $\partial U_i/\partial X_j$ can be zero, a negative or a positive number. $\partial U_i/\partial X_j < 0$ means that the consumption of the given good has a negative external effect. This is a typical feature of goods that are *likely to have congestion effects*. While drivers joining early morning traffic do not actually decrease the increase in well-being of other individuals using the roads, that is not the case during the „morning rush hour". A newly joining driver can increase the overall driving time of the others by hours.

The well-known snob-effect can have similar consequences: the increase in the number of consumers at a once-famous holiday resort does not necessarily entail crowdedness, but it certainly does decrease the „exclusivity-value" of that place. The $\partial U_i/\partial X_j > 0$ case also appears realistic: the enjoyment value of some goods, (say, a football) will increase in parallel with the number of consumers up to a certain number. A „bandwagon effect" may also result in a positive external effect: a (different) resort, say, becomes fashionable and more attractive. The term positive congestion externality may not be the best one to denote a case whereby a good or service is more valuable if a higher number of individuals buy it (telephone, e-mail network, match-making service, etc.). I have already stressed that it is not the external effect that makes some good a public one. The *consumption* or *production* of a (public or private) good may have an external effect, while "publicness" is an attribute of the good itself. A match-making service is a public good, its consumption has a positive external effect. Externalities and public goods are *two types* of market failure (Mas-Collel et al 1995: 350). Whether the private *supply* of public goods has occasional positive external effects on the other consumers of the given good is a different issue.

In my interpretation, an external effect is a well-being effect of some economic (production or consumption) *activity* which the decision-maker ignores in making his decision about the given activity (Mozsár 2000). Contrary to definitions commonly found in the literature, „taking into consideration" does not necessarily pre-suppose a *market* transaction. Likewise, Buchanan excludes from the group of externalities those activities which „affect the utility of the individuals within their direct (family) environment" (Buchanan 1992: 118). Market set-off is but *one of the possible ways* to make a decision-maker take the change in others' well-being into consideration. An external effect is not the result of the effect of some individual's activities on others' well-being (as this is one of the most common phenomena of living in a society), rather, it results from mediation of the change in well-being to a decision-maker, in particular, its inclusion in the parameters of decision-making.

That is why Buchanan's definition fails: „Externalities occur if the definition of $u^A = u^A (X_1, X_2, ...X_m, Y_1)$ is valid. This means that the utility of an individual A depends on the „activities" of ($X_1, X_2 ..., X_m$) under his exclusive control, and also on a different activity Y_1 that is, by definition, within the scope of control of individual B" (Buchanan 1992: 102). Providing that everyone revealed his or her margin estimation function related to some public good in an exact manner, all the (social) expenses of its production were known, and the decision concerning the supply of the good were made by taking all this into consideration, then there would be *no externalities,* no matter what medium (compensation, penalty, empathy, compulsion, etc.) would mediate the changes in well-being to the decision-maker. Here, the point is rather related to the fact that the focus is on *activity* in the case of externalities (or, maybe, on the *decision* pertaining to the activity), whereas the characteristics of public good (service) relate to the *public good itself*. Meade identifies an „event" as the source of externalities. Yet, in his specification, Meade focuses on the effects not included in the *decision* triggering the event (Cornes and Sandler 1996: 39). The consumption of any private good may involve (positive and/or negative) externalities, and the consumption of some public good may take place with no externalities at all.

Let X denote the *available quantity* (supply) of public goods (with Y_i , Z_i , etc. marking the quantity of private goods consumed by the *i*-th individual, then the relation $U_i = f_i (X, Y_i, Z_i ....)$ holds, whereas $U_j = f_j(X, Y_j, Z_j \ldots)$, and $i \neq j$. This means that the total amount of public goods are present in the utility function of all the community members *involved* : $X = X_1 = X_2 = ... = X_n$. The utility of the public goods is evaluated by the community members depending on their preferences, which can of course produce a zero or even a negative result in some cases. An external effect, on the other hand, means that the *production* or, in our case, the *consumption* of the good (i.e., some *activity*) also influences the well-being of some individual other than the *private* consumer (producer), but without any feedback! Remaining within the area of consumption presuming that the consumption of some public good X involves (mutual) externalities, the utility function of the *i*–th individual will be $U_i = f_i(X_i , X_j, Y_i , Z_i ....)$, then that of the *j*-th individual will be $U_j = f_j (X_j , X_i , Y_j , Z_j ...)$, where $i \neq j$. In the case of $\partial U_j / \partial X_i > 0$, the externalities of the consumption of a public good are positive, while in the event of $\partial U_j / \partial X_i < 0$, they are negative. Of course, $\partial U_j / \partial Y_i > 0$ or $\partial U_j / \partial Y_i < 0$ are also possible, that is, consumption of some private good can also have negative or positive externalities.

Buchanan defined X_i of utility function U_j as the „uncontrolled" *activity* of the *j*-th individual. His examples – *eating* bread, *drinking* milk and *emitting* smoke, (my italics) — refer to the same entity (Buchanan 1992: 102). It is more surprising that the same study uses a good (a fence) to illustrate the source of externalities. The contradictory nature of this fence as a public good (which, in our example, at some height is „public wrong") is obvious from the fact that Buchanan replaces it on

several occasions with the fence-building *activity* of individual B constructing the fence, in speaking about the „scope of *activity*". In one of his main works, the action of mosquito repelling is used as a public good (Buchanan 1968). The high-standard microeconomic theory expressly and consistently identifies *action* as the source of externalities, warning against the danger of efficiency loss associated with the replacement of action with its product or means in the course of internalization (Mas-Collel at al 1995: 352-359).

Our examples, similarly to those cited in the literature, suggest that externalities are *exceptional* concomitant phenomena related to *individual* actions of production or consumption and, as such, can be handled with *exceptional procedures* (direct state regulation of the level of source actions of externalities, Pigou-type taxes and subsidies, etc.). This appears to be a fatal misunderstanding. In fact, it is hard to mention a production or consumption action to which no — I would even go as far as to say, either positive or negative — externalities can be assigned. The phenomenon of externality is *as frequent as economic activity itself* (Albert and Hahnel 2002: 4). Quoting Hayek: „... the totality of the resources that can be.... utilized in a project *simply cannot be known by anyone*, therefore it can be hardly regulated centrally" (Hayek 1992: 93). The only way to handle externalities globally is, therefore, possible within a decentralized mechanism; that is, the *market* must be enabled to do away with the externalities.[8] The same is probably true for public goods as well. It is not the aim of the present paper to examine alternative opportunities of the supply of public goods. It should be nevertheless added that if the state could provide the supply of public goods at an efficient level, we would have no grounds whatever to state it could not do the same in the case of private goods. And that is what the example of „planned economies" clearly suggests!

5.6 „Pure" public goods

Although in defining public goods there is often only reference to non-rivalry, „pure public goods" are nearly always defined in terms of two criteria: non-rivalry *and* non-excludability of non-payers. However, similar to reserving „pure monopoly" to refer to *monopolistic position* or „pure competition" to describe an extreme type of competition (non-replaceable goods, an endless number of similar participants), the expression of „pure public goods" should likewise be used to describe extreme types of public goods, rather than apply it to goods *also* having some other property (like, for example, non-excludability of non-payers). And if public goods are simply goods whose consumption is not linked to any rivalry (Mansfield 1975: 497), then a polar case may obviously refer to goods whose consumption is *not linked to rivalry*

[8] Not excluding, of course, the possibility of extremely important or urgent cases where direct interference by the state may be justified.

at all — any number of consumers can join in their consumption. „...Goods for which there is no depletability whatsoever are sometimes referred to as *pure* public goods." (Mas-Collel et al 1995: 360). [A pure public good is…] a good or a service that is (1) consumed by multiple people and (2) whose use by anyone does not decrease the amount left available to others" (Hackett 1998).

This does not mean that individual consumption of some pure public good cannot decrease the potential (that is, not the amount available) of profit-making oppurtinities relating to the given good. In other words, $\partial U_j / \partial X_i \geq 0$ is not arbitrary for any number of consumers.[9] Over a critical number of consumers, a congestion phenomenon would naturally occur. This, however, has to do with the problem of externalities. Perhaps we should return to Samuelson's original definition: „goods of collective consumption". In my view, the exclusion of the negative externalities from the „pure case" would render the idea of „pure public good" practically useless and empty the set of pure public goods. I wonder whether I will drift apart from the ideal type of public good if (being envious) I am disturbed by the fact that people I do not like can also enjoy world peace? This would not make much sense.

There are several arguments that can be mentioned in support of the double definition of pure public goods, although neither of them is sufficiently significant to justify its adoption. The fact that Samuelson defined pure public goods (*also*) using the double criterion is obviously not a satisfactory argument, nor is concomitance of the two characteristics, or the fact that either can support the idea of a governmental role? (Bucovetsky 2001: 3). The „problem of public goods" indicates that the market is incapable of providing an efficient supply of the goods, even if the supply is profitable. Excludability, on the other hand, means that either the market is completely incapable of providing the supply of the goods, or the cost of coordination is „unpleasantly high". The problem of externalities and monopolies can be treated separately from both, although the latter results again in a socially non-efficient level of supply.

A number of researchers share the opinion that there are no pure public goods at all. While there are so-called club goods, local public goods, the externalities accompanying the local supply of public goods, etc., but the existence of „pure public goods" is only a theoretical consideration. A lot of papers define public goods, and even *pure public goods,* as goods accessible to the *relevant group*. This appears a reasonable restriction. A „relevant group" can be expanded without limitation (mankind itself could be mentioned here in its relation to rainforests or world peace), on the other hand, it helps us to avoid the nearly complete emptying of the category of public goods. Thirdly, the negative externality of congestion increase can be separated from the problem of public goods. There is no point in studying a

[9] We will disregard the distinction between Buchanan's marginal and infra-marginal externalities for the time being. In our present approach, only *marginal* externalities are considered (Buchanan 1992: 103, Pearce 1993: 457).

group of goods which cannot include any existing good. In addition, this reasoning diverts attention from studying the nature and supply conditions of the goods that are far from being "theoretically pure" cases but are fully suitable *in practical terms*. McKenzie and Tullock also write about a „relevant group": „The essence of the (pure) public good is that no one within the relevant group can be excluded from receiving benefits if the good is provided" (McKenzie and Tullock 1978: 24). Of course, we do not agree with the formulation „can be excluded", as mentioned above. Excludability from consumption, in our opinion, does not eliminate the public-good feature of the goods.

Nearly all researchers mention *national defense* as the ideal type of public goods. However, it is evident that the benefits of "national defense services" can only be enjoyed by members of the nation ("the relevant group"), thus the criterion of non-rivalry plays but a limited role here. Furthermore, the defense of a nation (country) as such is a highly complex and heterogeneous service. Supposedly, the capital is always better defended than most of the countryside, „high ranking" people are better protected than the others, the ones provided with chemical equipment enjoy a better protection compared to those lacking it, etc.

5.7 The problem of public good

An entrepreneur has a double function in market economy: he is an *innovator* and also a *producer* (*service provider*). As an innovator, he has to identify the needs whose satisfaction requires less social sacrifice compared to the increase in well-being, (that is: the net welfare change – (the figure of profit + consumer surplus) = is positive). In addition, he is required to find increasingly efficient ways of meeting the needs. A further innovative function of his is to find the way of organizing consumers and getting his activity financed in such a way as to provide compensation for the sacrifices he makes in order to meet market demand and, occasionally, produce economic profit. Lastly, as a producer, he has to organize the process as a whole. „Identification" and „supply" are tasks of equal importance. The same is true for private goods: both represent part of an entrepreneur's function, and failure to meet either of them entails a loss in efficiency. The problem of public goods is not a market failure, rather it has to do with the momentary inability of an entrepreneur to identify and supply the public goods concerned. Members of the society will either (a) have to improve their entrepreneurial activity so that it includes public goods, or (b) replace it with a new allocation mechanism, for example, the government.

Yet, all Pareto-inefficiencies boil down to potential profit. If indivisibility of goods, asymmetric information, externalities, attributes of public good or anything else prevent market allocation of resources in a the Pareto-efficient way, then it is the entrepreneur who can realize profits from solving the problem. He provides

temporary lending opportunities to overcome the problem of indivisibility, pays the expenses connected to obtaining information, initiates legal actions to realize compensation for the individually low yield obtained through negative externalities, etc. The problem of public goods, as stated above, is not a failure of the market. Similar to a lack of a really efficient method to treat cancer.

A future producer of some public good can exclude all consumers from consumption by not producing anything. He can receive advance payments from consumers prior to commencing production, but there will be at least a few potential consumers who will conceal their preferences (free riding). The same is the situation with private goods. The only difference is that there is a *large number* of consumers involved when an entrepreneur is engaged in public goods. He is interested in promoting consumers to get organized, assisting them in solving problems pertaining to concealing their preferences, effecting complicated and expensive bargaining (hard bargaining), and resolving problems connected to financial control.

If a government (an agent, a politician or a bureaucrat) supplies the public good, his action is also considered a public good. The selection of an „agent", making him work for the public, and controlling him are also public goods, therefore the number of problems does not necessarily decrease as a result of this „solution". It is always easier to organize a smaller group to tap the tax collected than to have the tax-payers or consumers to prevent this. This is the reason why particular interests so often receive legal support.

Radio broadcast is a public good as there is non-rivalry in its consumption. *In addition*, non-payers are not excluded from its consumption either. Whichever way we define pure public goods, radio broadcast will always be assigned to them. And it is the market that supplies this kind of good. Of course, there is no evidence confirming the efficiency (high level) of this supply, as is also the case in "state-run" (i.e., financed from tax paying) public channels. The public ownership of a channel, in my opinion, is simply a manifestation of the enforcement of the interests of some group(s) in the society. Undoubtedly, there is a demand for „high culture" and „deep ideas". Why are they not (necessarily) supplied by commercial channels? *Because they are too expensive for the consumers!* Of course, this statement requires an explanation. As pointed out in another context, consumers almost never consume some good in itself; rather, they consume *combinations of goods*. Consumption of „high level culture" requires prior educational „investments", more or less mental effort, and usually more time. In the event of some radio broadcast, this also involves a receiver, some electric energy, although these latter items may be seen as insignificant factors.

5.8 Summary

We propose to simply define public goods as goods whose consumption by some individual *does not entail a reduction in the set left available to the other individuals*. In other words, inclusion of further individuals in the consumption of the good at hand incurs zero *production* marginal costs. Extra production costs are pointed out here deliberately. Of course, negative external effects can entail additional social costs. This definition – in the strict sense – also entails ”pure” public goods. The related problem may relate – in case of market coordination – to a positive price of the goods as required by the market.

The possible tendency to develop congestion can be handled as an externalities issue, it does not have to do with the public good status of the goods concerned. It may, at the same time, justify positive prices. Inclusion in consumption, in the optimum case, may be identical, in this case and given the currently available demand, with the *sum* of the loss in utility deriving from the congestion increase pertaining to earlier consumers, while a supply optimum can be established on the basis of an equation determined using production marginal costs and, conversely, the decrease in congestion, and the extra profit attained by additional consumers. A possible positive external effect associated with consumption can be handled – mutatis mutandis – in an identical manner.

The „problem of exclusion” is a *technical (and costs-related) issue* that relates to all the goods offered by the market. Perhaps more intuition is needed in the case of public goods in order to identify the appropriate (cost-effective, market supply friendly) techniques of exclusion (such as, for example, the encoding of satellite television broadcasting), nevertheless, this should not affect the public good versus private good status of goods.

The state (communities) may perhaps have four reasons to interfere with spontaneous economic processes (allocation of resources) by reference to public goods:

(a) If consumption of some public good does not entail a negative external effect, its optimum price will be zero. Obviously, the market will not be able to produce the good concerned at a zero price if that would increase social well-being. In such a case, the state can function as a principal.
(b) If the state supplies (orders, procures) the public good, and the consumption thereof has a *negative* external effect, then a pricing system is to be established (or the market is to be assisted in establishing such a price) that takes into consideration both the increase in the well-being of the additional consumers and the aggregated decrease in the well-being of the earlier consumers.
(c) If the state supplies the public good and the consumption thereof has a *positive* external effect, then it has to implement a *support* system (the market is to be assisted in establishing such a system) that takes into consideration both the

increase in the well-being of the additional consumers and the aggregated increase in the well-being of the earlier consumers.

(d) Finally, in the event that the costs of exclusion of non-payers would lead to market dysfunction, the state can play the role of principal and — what appears to be the more favourable path — support the implementation of more cost-saving exclusion techniques.

In my opinion, partial study may not merely contribute to understanding multi-variate functions, a typical feature in economics. It may be equally suitable for the exploration of issues related to the *individual* properties of goods and identifying the opportunities available to the solution of these issues. This paper is intended to draw attention to this aspect of research into economics.

References

Albert, M. and Hahnel, R. 2002: *A Quiet Revolution in Welfare Economics. Externalities and Public Goods.* http://www.zmag.org/books/3./3.htm

Blomquist, S and Christiansen, V. 2002: *The Role of Prices on Excludable Public Goods.* http://www.nek.uu.se/Pdf/2001wp14.pdf

Buchanan, J. M. 1968: *The Demand and Supply of Public Goods.* http://www.econlib.org/library/Buchanan/buchCv5c0.html

Buchanan, J. M. 1992: *Piac, állam, alkotmányosság.* Közgazdasági és Jogi Könyvkiadó, Budapest.

Bucovetsky, S. 2001: *Pure Public Goods: Definitions and Examples.* http://dept.econ.yorku.ca/~sam/4080/pubgoods1.html

Coase, R. 1974: The Lighthouse in Economics. *Journal of Law and Economics,* 17 (October): 357-376

Cornes, R. and Sandler, T. 1996: *The Theory of Externalities, Public Goods and Club Goods.* Cambridge University Press, Cambridge.

Cremer, H. and Laffont, J-J. 2002: Public goods with costly access. *Journal of Public Economics* (forthcoming)

Eatwell, J., Milgate, M. and Newman, P. 1991: *The New Palgrave: A Dictionary of Economics.* The Macmillan Press Limited, London.

Eloranta, J. 2001: *Opportunities and Constraints int the Game for Public Goods.* http://www.cc.jyu.fi/~pete/SWEFINCOMPARISON.pdf

Fiorito, R. and Kollintzas, T. 2002: *Public goods, merit goods, and the relation between private and government consumption.* http://www/econ-pol.unisi.it/quaderni/363.pdf

Fisher, E. 2000: *Public Good and Common Resources.* http://economics.sbsohio-state.edu/efisher/econ200/Chapter11_files/frame.htm

Gabler 1993: *Gabler Wirtschafts Lexikon.* Gabler Verlag, Wiesbaden.

Hackett, S.C. 1998: *Enviromental and Natural Resources Economics (Chapter 5).* Published by M. E Sharp http://dwp.bigplanet.com/dickallen/glossaryofterms2/

Hallgren, M. and McAdams, A. 1995: *A Model for Efficient Aggregation of Resources for Economic Public Goods on the Internet* http://www.press.umich.edu/jep/works/HallgModel.html

Hayek, F. A. 1992: *Végzetes önhittség. A szocializmus tévedései.* Tankönyvkiadó, Budapest.

Hjerppe, R. 1997: *Provision of Public and Merit Goods: Towards an Optimal Political Mix?* Research in Progress 10. UNU/World Institute for Development Economic Research, Helsinki, February.

Holcombe, R. 1998: Markets of the Quality of Life. An Interview With Randall G. Holcombe. *The Austrian Economics Newsletter*, Summer.

Hyman, D. N. 1989: *Modern Microeconomics. Analysis and Applications.* Irwin, Neww York.

Hume, D. 1976: *Értekezés az emberi természetről.* Gondolat Kiadó, Budapest.

Johnson, D. B. 1999: *A közösségi döntések elmélete.* Osiris Kiadó, Budapest.

Kaul, I. 2001: Public Goods: Taking the concept to the twenty-first century. In Drache, D. (ed): *The Market of the Public Domain.* Routledge, London: 255-273

Kopányi, M. (szerk.) 1993: *Mikroökonómia.* Műszaki Könyvkiadó, Budapest.

Mansfield, E. 1975: *Microeconomics. Theory and Applications.* W. W. Norton & Company Inc., New York.

Mas-Collel, A., Whinston, M. D. and Green, J. R. 1995: *Microeconomic Theory.* Oxford University Press, Oxford.

McKenzie, R. and Tullock, G. 1978: *Modern Political Economy: An Introduction to Economics.* McGraw-Hill, New York.

Mozsár, F. 2000: *Az extern hatások szerepe a regionális gazdasági teljesítmény magyarázatában és növelésében.* In Farkas, B. and Lengyel, I. (eds): Versenyképesség – regionális versenyképesség (Competitiveness – regional competitiveness). SZTE GTK Közlemények, JATEPress, Szeged: 100-114

Musgrave, R. 1959: *The Theory of Public Finance.* McGraw-Hill, New York.

Olson, M. 1997: *A kollektív cselekvés logikája.* Osiris Kiadó, Budapest.

Parkin, M. 1990: *Economics.* Addison-Wesley Publishing, USA.

Pearce, D. W. 1993: *A modern közgazdaságtan ismerettára.* Közgazdasági és Jogi Könyvkiadó, Budapest.

Samuelson, P. A. 1954: The Pure Theory of Public Expenditure. *The Review of Economics and Statistics*, 36: 387-389

Samuelson, P. A. 1955: Diagrammatic Exposition of a Theory of Public Expenditure. *The Review of Economics and Statistics*, 37: 350-356

Samuelson, P. A. and Nordhaus , W. D. 1985: *Economics.* McGraw-Hill, New York.

Samuelson, P. A. and Nordhaus, W. D. 1988: *Közgazdaságtan*. Közgazdasági és Jogi Könyvkiadó, Budapest.

Smart, M. 2002: *Private provision of public goods.* University of Toronto Department of Economics, Toronto. www.economics.utoronto.ca/msmart
Stigler, G. 1989: *Piac, állam, szabályozás*. Közgazdasági és Jogi Könyvkiadó, Budapest.
Stiglitz, J. 2000: *A kormányzati szektor gazdaságtana.* KJK-Kerszöv, Budapest.
Schiller, B. R. 1986: *The micro economy today.* Random House, New York
Varian, H. A. 2001: *Mikroökonómia középfokon. Egy modern megközelítés.* KJK-Kerszöv, Budapest.

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 81-95

6 The Changing Role of Entrepreneur and Entrepreneurship in Network Organisations

László Szerb

6.1 Introduction

Over the last two decades, entrepreneurship has been amongst the fastest growing area of economic and business interest and research all over the world. If entrepreneurhip is defined as a process of creating new and valuable things (Hisrich and Peters 1989) and if entrepreneur is someone who perceives and exploits opportunities (Drucker 1985) then entrepreneurial process is a major factor of economic development and the entrepreneur is the key figure of economic growth in the sense of Schumpeter.

The growing interest in the area of entrepreneurship has developed alongside interest in the changing role of small businesses. Statistical data and analyses of several countries show that small ventures grow faster than large firms (Evans 1987), and over the last decades large firms lost jobs while small firms created new workplaces (Drucker 1985). In addition, small firms are found to be the major source of new innovations (Ács and Audretsch 1987, Drucker 1985).

This increasing importance is also due to some major changes in the business environment such as harsh global as well as local competition, sudden and unexpected alteration of the demand, the acceleration of the technological development, and consequently, the increase of risk. Innovation, immediate adoption and reply to changes, and entrepreneurial behaviour have become vital not only for development but also for survival of the businesses.

Besides the increased importance of the market forces, co-operation between firms, collaboration for research and development, subcontracting, outsourcing, and strategic alliances have been emerging as new phenomena. The phrase, network summarises these terms and networking refers to various forms of business co-operation in recent literature (Aldrich and Zimmer 1986, Aldrich et al 1997, Birley and Crimie 1991, Snow et al 1992, Szarka 1990, Tjosvold and Weicker 1993).

In association with networking, new managerial tasks and roles are identified by a large number of literatures (Ghoshal and Barlett 1995, Merz et al 1994, Merz and Sauber 1995, Miles and Snow 1992, Paché 1989, Toni et al 1995). In this context,

.

the meaning and content of entrepreneurship, in the sense of the creation of something new have also changed. Intrapreneuring, making and developing entrepreneurship within organisations is viewed as one of the key strategic tools of large companies to meet today's challenges (Carrier 1994, Kuratko 1995).

However, entrepreneurship in the case of networks means quite a different thing than classical entrepreneurship and intrapreneurship. My view, that is the main topic of this paper, is that networking has changed the nature of entrepreneurship. I define entrepreneurship in the case of network interpreneurship and interpreneuring means making and developing entrepreneurship in network organisations. There is a question, however, do we need another or one more definition to describe already known phenomena? I would like to prove that interpreneurship is quite different from other concepts and definitions and has important methodological as well as practical and even political implications.

In the following, I discuss entrepreneurship and the entrepreneurial process, then I analyse networks and networking phenomena. In the following, new managerial and entrepreneurial roles are identified, then the concept of interpreneurship is developed. Finally, some practical as well as political consequences are investigated.

6.2 Entrepreneurship and entrepreneurial theories

Talking or writing about entrepreneurs and entrepreneurship is not easy because even the definition of the entrepreneur and entrepreneurship are highly debated (Chell et al 1991). The most important characteristics of a successful entrepreneur are questioned. It is not clear how the entrepreneur can be distinguished from successful managers, other small business owners, and innovators (Amit et al 1993, Birley 1989, Gibb 1996, Kuratko and Hodgets 1992). Generally, entrepreneurs are identified as profit and growth oriented persons who have innovative vein and can bear calculated risk. Small business owners' primary aim is just to provide income for themselves and their family and/or to fulfil personal goals (Birley 1989). So, small business owners are not growth and profit maximisation oriented people. Managers do not bear own risk and just look for recognition for managerial excellence (Stanworth and Curran 1976). Innovation is vital for the entrepreneurial process, but, an innovator becomes entrepreneur only if the innovation is carried into production to sell in the market (Siropolis 1994).

Although, the above distinction raises several practical problems. First, what do we mean under *innovative behaviour* or what should be considered as *innovation*? While very profitable businesses such as McDonald's, Federal Express, Apple Computers, Dell Computers, etc. were based on very simple ideas, original innovations such as the steam engine, telephone, radio etc. yield much less money for the creators (Hisrich and Peters 1991). Opening a new restaurant or a barber

shop does not mean innovation, but it may involve new concept. So, where is the border line?

Second, while the entrepreneur launches the venture and it starts growing, the business idea loses its originality and the innovator-entrepreneur becomes a manager and bureaucrat. The question is the same: where is *the border line between an entrepreneur and a manager* and where is the point or growth rate when the venture is just viewed as a non-entrepreneurial business?

Third, what are the distinctive characteristics of an entrepreneur? The social development and the entrepreneurial trait theories examine the main characteristics of the entrepreneur. The major focus of the entrepreneurial trait theory is to identify the distinguished attributes of the entrepreneur. The successful entrepreneur possesses *entrepreneurial* skills – innovativeness, risk taking, commitment, self-confidence, goal setting, decision making etc.-, and *business* – operational, managerial, organisational, financial, etc. - *skills* (Bygrave 1997, Gnyawali and Fogel 1994, Timmons 1985). However, as Chell et al (1991) indicate, these characteristics are applicable to an ideal rather than to a real person. Moreover, as de Vries (1977) writes in a seminal paper, entrepreneurs are not necessarily positive innovators or pioneers, they can be troublesome, deviant persons whose managerial style is autocratic, impulsive, egocentric and essentially unpredictable.

Fourth, are *entrepreneurs born or made*? There is a general agreement that business skills can be learned and developed, but no agreement on entrepreneurial skills (Chell et. al1991). If entrepreneurs can be made then the question continues: what environmental, conditions, political steps help to increase the number of successful entrepreneurs? The social development theory focuses on the external social factors of entrepreneurship such as family, local community, enterprise culture (Gibb 1987). The main statement of this theory is that entrepreneurs are mainly made, not born and almost everyone can run a small business. Amongst others, Casson (1995) and Gnyawali and Fogel (1994) claim that favourable environmental factors such as culture, family and social networks can foster entrepreneurial activity. The policy implication of this statement is that should the government engage in educating and training potential entrepreneurs? Then the question goes back how to select the participants for this kind of government sponsored programmes.

The major problem with the social development and entrepreneurial trait theories are that they focus on the establishment of the business and neglect other major factors of the entrepreneurial process. The entrepreneurial process, by definition, includes all the functions, activities and actions associated with perceiving opportunities and creating organisations to pursue them (Bygrave 1997). Not only the internal, but also external, environmental factors play a determinant role in the process of entrepreneurship. The environment of the firm includes socioeconomic conditions, entrepreneurial skills, government policies and procedures, financial assistance, and nonfinancial assistance (Gnyawaly and Fogel 1994). Today, one of

the most examined topic in the entrepreneuship literature is the investigation of the combination of the external factors, i.e. networking. There is disagreement, however, which are the most important elements of this process and what are the major factors that determine the success of the business.

The recently developed *Global Entrepreneurship Monitor (GEM)* conceptual model views new business creation and growth as a process that is influenced by entrepreneurial opportunities and entrepreneurial capacities (skills and motivation). These two factors are affected by the so-called entrepreneurial framework conditions, namely financial opportunities, government policies, government programs, education and training, R&D transfer, commercial infrastructure, internal market openness, access to physical infrastructure, and cultural and social norms (Reynold et al 2002). Therefore, the GEM model aims to synthetize the internal factors of entrepreneurship – including some entrepreneurial traits – with the external factors, but pays relatively less attention to network formulation.

These points are just examples of a long list about the debated topics in the area of entrepreneurship. My view is that behind the veil of disagreements and debates there has been the *historically changing nature of the entrepreneur and entrepreneurial process*. Launching business a hundred years ego was a completely different task than today. Now, starting a successful new venture needs much more knowledge about market conditions, rules, regulations, rights, finance and management. Probably everybody can show some entrepreneurs who initiated successful business without possessing these characteristics. Although the entrepreneurial team together with outsourcing the missing features must have these features to be prosperous. A successful entrepreneur a hundred years back possessed different skills than today. He was probably a low educated technical innovator with a very limited knowledge about the management of the business contrasted the today's generally highly educated entrepreneur with much better managerial and co-operative characteristics.

The traditional idea of entrepreneurship concerns on launching new ventures. Most of the newly founded firms however, even if they survive the first critical years, do not innovate more and after the product reaches maturity and often disappear from the market. Large firms with bureaucratic organisational structures also struggle to renew themselves and to improve competitiveness. One way of bringing entrepreneurship in already existing business is acquisition that is buying another businesses that have good growth potential. Another way is to create a specific environment and/or groups, units within the corporation, for developing entrepreneurial ideas to exploit new business opportunities. The literature refers to the entrepreneurial process within existing corporations as intrapreneurship (Kuratko 1995, Pinchot 1985).

In this case of intrapreneurship organisation of the company remains basically unchanged and the intrapreneurial unit works as a separated independent business. The success depends largely on the creation of freedom and independence of the

group of intrapreneurs from the other parts of the company. Managers of large companies, however, tend to emphasise stability and efficiency rather than risky innovations (Carrier 1994). Intrepreneurs frequently have to fight for resources within the company and even their existence can be questioned if the business or innovation fails to work. It is also very difficult to give enough independence and create individual responsibility and proper reward systems at the same time. This is the main reason why some companies like ABB, GE, Toyota and others changed their whole organisational structure and formed new strategic business units where the main responsibility lies with the front line entrepreneuers who have a very high level of freedom and independence (Ghoshal and Bartlett 1995). These types of network entrepreneurship are completely different processes and require other entrepreneurial skills than intrapreneurship.

6.3 Networking and network organisations

Over the last two decades, networking has become widespread phenomena all around the world. Similar to the problems of entrepreneurship, defining networks and network types is not an easy task. Szarka (1990) views networks as a specific type of relation linking a set of persons, objects or events. In the context of small business two other conditions have to be fulfilled namely membership and the rules and conventions that determine members' behaviour. Paché (1989) defines networks as specific long-lasting exchange relationship between two or more companies that is based on the mutual interest of the members.

According to Miles and Snow (1992) network organisations are different from other previous organisational forms. The distinctive characteristics are:

- Unlike other organisations that prefer to keep all the assets within the company, network firms use other assets and resources owned by other members of the network.
- The management of the resources is determined by market mechanisms and not by administrative processes.
- Besides of fulfilling contractual obligations network members frequently take a proactive role and voluntary contribution to improve the product or service.
- Networks tend to evolve similar to the Japanese kerietsu system where mutual shareholding amongst the members strengthens the network connection.

Birley et al (1991) think of networks as abstract concepts with fuzzy boundaries associated with the uniqueness and casualness of the interconnection, while Curran et al (1992) define networks as cultural phenomena, a set of meanings, norms and expectations linked with behavioural correlates. Borch and Arthur (1995) describe strategic networks as co-operative relations among firms in order to exchange or share information or resources.

Based on the above definitions, networks can be divided into two major groups. In one type of networks, partner and member connections are loose, sometimes it is even difficult to distinguish them from the environment. In the other type of networks that can be described by formal membership, long term, frequently strategic connections between the members that are based on market connections. The most developed network types are called strategic networks (Hinterhuber and Levin 1994). For our purpose, i.e. to develop the concept of interpreneurship, the second definition is more applicable than the first. So I define networks as that they are characterised by long term relationships based on the market connections of the participants. Even if formal membership (contracts) does not exist, participants are in close connection to each other.

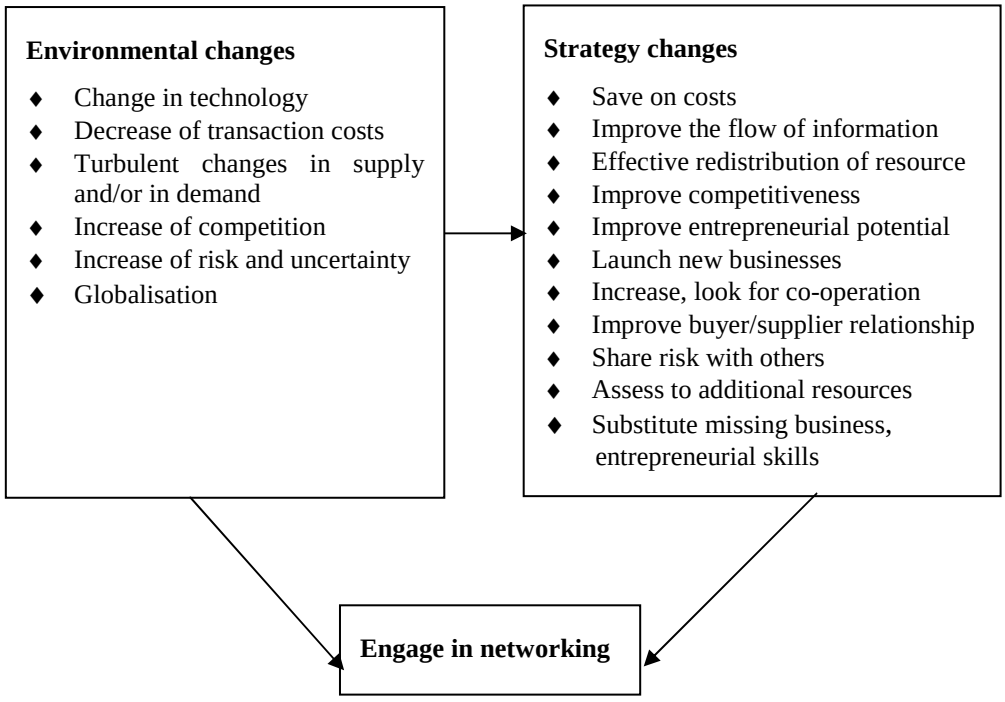
It is worth mentioning that the connection building among members is voluntary. The question is: why do they engage in a network type of relationship? As it has been noted earlier, various types of environmental, demand, supply, market and technological changes forced firms to form networks, namely:

- Accelerated change in technology: based on Ács and Audretsch (1987) we are on the upward part of the Kondratyev cycle. This part is characterised by rapid innovations and favours small size companies that are more innovative than bigger corporations. Consequently, larger organisations should be broken down to smaller, flexible units that are able to react to environmental changes.
- Due to other technical changes, especially the widespread use of computer technology, the cost of using the market system (transaction costs) decreased considerably. At the same time, internal organisational costs increased or remained unchanged. Therefore firms try to rely more on market connection by outsourcing or subcontracting. Along the vertical chain of production, the supplier-buyer connections changed (value-added chains).
- Competition, especially, in high technology sectors, but also in general increases. The world has become global, local and world market competition forced firms to look for strategic partners to be able to compete with rival firms.
- Over decades, the developed part of the world has become richer and wealthier. That changed the structure of the demand. Moreover, consumers' preferences also changed. That raised the element of risk. To decrease uncertainty, and to react to the changes on the demand side, co-operation with other firms is necessary.
- Other changes, such as changes in government policies, regulations, world economy events also increase uncertainty of businesses, so common actions and agreements are required to decrease this type of risk.

Up to now, the implication has been that networks are formed from and by large companies. However, it should be noted that there are several factors pushing smaller companies (SME) to take part in networking. Information gathering and the response from the external environment help the more vulnerable small firms to

respond to changes in the environment. It is very difficult to raise money for launching a new venture or growing even if the idea is brilliant and the market potential is high. Moreover, a general problem in small business is inadequate management. Entrepreneurs have a lack of knowledge of various types of business skills in the areas of regulation, organisation, accounting, finance, marketing, strategic thinking that increase the chance of failure and bankruptcy. SMEs are more vulnerable because most of the time they produce only one or a few products in low quantity. Via networking most, or some, of these problems can be diminished. Smaller companies tend to participate in less formalised network connections than larger firms. Socio-economic conditions, social and cultural background, interpersonal connections are also more important in the network formulation of small businesses than that of large firms.

Figure 6.1 Environmental and strategy changes and their effect on network formulation



From the behalf of large companies there are requirements of the redistribution of the resources associated with the new conditions, the most effective use of existing resources especially in the case of research, the acceleration of the stream of information, and the decrease and share of the risk. From the behalf of the small

companies it is important to reach the optimum size of production, to have long term, reliable partners on the supply as well as on the demand side, to supply the missing functions and business skills, and to provide the capital necessary for development. In both cases, however, it is vital to bring entrepreneurship into existing businesses and to launch new ventures (Figure 6.1). Entrepreneurial networking is a core element of the long run existence of the independent business units (Birley et al 1991, Johannisson 1995).

6.4 New entrepreneurial and managerial tasks and roles in network organisations

Networking reforms the traditional entrepreneurial process, and requires different roles and tasks. The effective operation of the network, the success of ventures, and the personal achievement of the participants largely depend on how network members can reconcile their own interest with the needs of other partners and the network as a whole. Sometimes partners have to rely on each other without knowing the benefits and cost of exchange. Mutual trust, shared values, and respect are found to be the most important factors (Borch and Arthur 1995). In a paper, Tjosvold and Weicker (1993) consider that corporate goal setting is the key element in networking. If network participants believe that their goals are negatively related to others, then competition dominates and the network will not work properly.

Even successful networks are nor exempt from problems that call for specific inter-firm reconciliation. The person who is engaged in making the network operate smoothly and enhancing efficiency and in maintaining trust between network members is called caretaker (Boyle 1994, Snow et al 1992). Caretakers are continuously looking for possible situations that might cause the network to break down. By informing others about new opportunities, successes or failures the caretaker helps the network to learn and avoid the same mistakes.

In general, managers who operate “across hierarchies” are called brokers. Besides the most challenging role of the caretaker, there are two other roles identified: the architect and the lead operator (Snow et al 1992). Architects “facilitate the emergence of specific operating networks”. The architect organises a grid of firms along the operation chain, helps to create new groups, or finds distributors, retailers. The lead operator brings new firms into the operating network. Looking for the proper partner and negotiating with them, fitting the new partner into the existing network are the basic roles of the lead operator. Frequently, the lead operator negotiates with subcontractors and helps to find partners in the case of outsourcing. It is very difficult to practice these brokerage roles without having control and ownership over the resources.

Besides the new roles, networking changes the nature of usual management. It is expected that classical managers and entrepreneurs should change their focus.

Besides the capabilities of leadership, quick decision making, strategy formulation, controlling and initiative behaviour, they have to be able to co-operate with other network members, to trust each other, to share valuable information and experience. It also means that network managers spend more time making and maintaining connections with others. In this respect, communicational and interpersonal skills are very important.

Networking also reshapes the entrepreneurial process and entrepreneurial roles. Bringing entrepreneurship into a large company changes the whole organisational structure and a network of entrepreneurs has to be created. As Ghoshal and Bartlett (1995) describe how the entrepreneurial process is broken down within large companies. The leaders of the strategic business units are the front line entrepreneurs whose basic role is to create and pursue new opportunities. These entrepreneurs act as heads of companies. The role of the senior level managers called coaches is to review, develop and support the front line initiatives. Top level corporate leaders focus on the overall strategic mission of the company and establish performance standards that initiatives have to meet.

Small business entrepreneurial networking raises controversial issues. Comparing independent entrepreneurs and entrepreneurs with co-operative goals, Tjosvold and Weicker (1993) reports that the latter proved to be more successful than egoistic, non-collaborating associates. On the contrary, Curran et al (1992) finds that small business entrepreneurs and owner-managers are strongly influenced by the need for independence and do not rely on network connections. However, Johannisson (1995) reinforces that growing, entrepreneurial firms and entrepreneurs distinguish themselves by building external personalised ties and networks. In order to be successful, network entrepreneurs must have different skills and abilities than classical individual entrepreneurs. Social and good communication skills, the ability to co-operate and deal with other network members are the most important factors of success.

It has to be emphasised that due to networking not just the entrepreneurial roles but also the entrepreneurial process is broken. Launching a new business is a collaborative work of various entrepreneurs and firms. No one can control the whole process, the expertise and resources that are necessary for success. On the one hand, network entrepreneurs lose independence but on the other hand they gain by specialising to a certain part of the entrepreneurial process, decrease risk and increase the probability of success. It is important for small business owners that they do not need to possess all of the required skills and abilities that are necessary for an independent entrepreneur, because they can rely on other network members who specialise in different tasks and have different skills. Other common problems of small businesses such as scarcity of the resources, the lack of money and proper business partners can also be eased, at least partially.

6.5 The characteristic of the intrapreneur and concept of interpreneurship

The type of entrepreneurship and entrepreneurial process described in the previous section is quite different from the classical entrepreneurship and even from intrapreneurship. I name the entrepreneurial process within the network interpreneurship, and the person who accomplishes entrepreneurship in a network organisation is called the interpreneur.

The intrapreneur possesses distinguished features as compared to classical entrepreneur and intrapreneur. The basic goal for all three types of entrepreneurs is the same to maximise profit, however the constraints are different. The intrepreneur has to consider the aims and goals of the company in which he works and the interpreneur should consider other network members' interest. All three types of entrepreneurs are closely associated in innovation, they want to create something new. While innovation can be occasional in the case of classical entrepreneur it is a continuous renewal in the case of interpreneur. The interpreneur is actively seeking of new opportunities together with other network participants. While the classical entrepreneur takes all risk by himself the interpreneur shares the risk but also the profit with others. Since the intrapreneur uses the company's resources does not bear financial risk but bears other risks like loosing it job (carrier risk).

The possession and control of the resources necessary to run the business can be vital for the classical entrepreneur but the interpreneur can control the resources of the network without owning them. In this respect, the intrapreneur is in difficult position since does not own and only partially controls the resources. Authority plays an important role in the classical entrepreneurial and intrapreneurial organisations, while collaboration and association is vital for the interpreneur. The same can be said about the personal attributes: classical entrepreneurs are frequently labelled as individualistic (sometimes troublesome) persons, intrepreneurs are more willing to work in teams, but interpreneurs inevitable has to be more socialised and collaborate with others in the network. Moreover, coopertation and collaboration requires excellent communicational skills. At the same time, interpreneurs probably possess less entrepreneurial and business skills then classical entrepreneurs. Most of the times, the classical entrepreneur is driven by the desire to internalise not only the necessary resources but also business and entrepreneurial skills. The classical entrepreneur is a generalist who knows at least a little about every aspect of the business. However, the interpreneur can be viewed as specialist who is more willing to outsource the missing skills then the classical entrepreneur. Of course, traditional entrepreneurial skills like opportunity recognition, creativity, risk taking capability, stress resistance etc. are also very important for all types of entrepreneurs (Table 6.1).

Table 6.1 The distinguished features of classical entrepreneur, intrapreneur and interpreneur

	Classical entrepreneur	**Intrapreneur**	**Interpreneur**
Basic role	To create something new and/or to make the business grow	To launch new business in an existing organisation	Continuous development and launch of new ventures, exploiting new opportunities
Basic goal	Own profit maximisation	Profit maximisation, other goals of the company should also be considered	Profit maximisation but considering other network member goals
Nature of risk and responsibility	Takes own risk, bears all consequences	The risk lies on the owner of the company, responsibility is limited	Shared risk and responsibility amongst network members
Ownership and control of resources	Owns or rents and controls all the resources necessary for the business	Does not own the resources for the business just uses them, partial control	Owns and controls only partially the resources necessary for the business
Connection within the organisation/ network	Frequently informal and vague, authority based	Authority based, formal, largely independent from other organisational units	Mixed, within the business hierarchical, amongst the network members associative
Personal attribute	An individual person works alone	A team person, works in a small group within a large company	A network person, works in collaboration with other network members
Entrepreneurial and business skills possession	Should possess all entrepreneurial and business skills	Possesses basically entrepreneurial skills, should be able to fight for resources within the company	Specialised, possesses only part of the entrepreneurial and business skills, strong emphasis on social and communication skills, the ability to co-operate with other network members

Now, the question who is more successful, the classical entrepreneur, the intrapreneur, or the interpreneur? As different types of network formulation becoming more and more widespread all around the word, interpreneurship is becoming dominant form of the entrepreneurial activities. The sectors of the so-called new economy are dominated by thousands of small and large business units. Biotechnology or information technology ventures can hardly survive without networking and interpreneurial activity. At the same time along with the development of new technologies and the Internet classical entrepreneurial ventures

are also changing. Outsourcing and the search for strategic partners are probably the first steps that entrepreneurs think of. As it is presented in the previous part of this paper, the change of intrapreneurship activities to interpreneurship has already started at large corporations like IBM and ABB.

However, networks can be fuzzy and vulnerable. The success of the interpreneur depends largely on partner communication and information sharing. If the trust among partners is broken then the network can collapse. In that respect, brokers who operate across hierarchies and help developing and maintaining partner connections play a crucial role.

There are some examples of the various types of intrepreneurial activities within networks. Firms, that formulate strategic business units (ABB, GE, Toyota) and delegate the main authority to front line managers are good examples. The aim of strategic alliances is frequently interpreneuring. Subcontracting is also a form of interpreneurship, if the basic aim is to launch new business or to make the firm grow. Franchising also meets the definitional requirements of interpreneurship. Technological, enterpreneurial, innovation parks, and incubators also serve to supply some missing elements of the entrepreneurial process, entrepreneurial and business skills. Small firms form frequently strategic alliances for organised common actions (resource provision at bulk prices, export, R&D etc) that can involve at least partially interpreneurial activities. Interpreneurship is an essential factor of larger but looser entrepreneurial or regional organisations like Silicon Valley or the Italian "Mezzoreggio".

6.6 Summary and implications

Looking for entrepreneurial traits, analysing the entrepreneurial process, selecting the winners, and identifying key governmental policies to support entrepreneurship have been the major areas of the entrepreneurship research agenda. As it has been presented in the first part of this paper, disagreement exists between different scholars and schools. The reason of the debated points, at least partially, is due to the historically changing nature of entrepreneurship and the entrepreneurial process. This fact calls for definitional clarification in a historical perspective.

This paper has attempted to prove that launching new businesses and creating something new in networks, i.e. interpreneuring, are different from classical entrepreneursip and intrapreneurship. Interpreneurial roles and tasks are described along with the change of the classical managerial and entrepreneurial roles in a network organisation. In the last section, the main differences amongst entrepreneurship, intrapreneurship and interpreneurship have been discussed and presented in a table format.

If the phenomenon of interpreneurship can be accepted then it has some theoretical as well as political-practical consequences. It does not mean, however,

that classical entrepreneurs and intrepreneurs do not exist today, but I claim that today *interpreneurs are more successful persons than classical entrepreneurs*. Forming alliances or participating in network organisation is more effective than relying only on own resources and skills.

Moreover, the theory of entrepreneurial traits should to be rethought because the success of the new venture mostly depends on other than business or entrepreneurial skills. No one can possess all of the skills required for business creation, however, *interpreneurs can substitute missing characteristics by relying on other network members*. In addition, *interpreneurs have good communication, negotiation as well as co-operation skills* vital for the long run existence and efficient operation of the network.

Based on the theory of interpreneurship, the entrepreneurial process is broken down, and different ventures specialise on different part of the entrepreneurial process. Therefore I claim that *interpreneurs are more specialised persons than classical entrepreneurs*.

The concept of interpreneurship calls for reconsideration of certain political priorities. Helping the organisation of networks should be one of the priorities instead of supporting individuals and classical type of entrepreneurs. Developing networks, however, takes a long time, in the cases of entrepreneurial networks sometimes decades as examples show (Silicon Valley, Route 127 in Boston, the Italian "Mezzoreggio"). Other environmental factors such as socio-economic conditions, social and cultural background and infrastructure that affect the formulation of networks should also be supported.

References

Ács, Z. and Audretsch, D. 1987: Innovation, Market Structure, and Firm Size. *The Review of Economics and Statistics*, 4: 657-675

Aldrich, H. and Zimmer, C. 1986: Entrepreneurship Through Social Networks. In Sexton, D. and Smilor, R. (eds): *The Art and Science of Entrepreneurship.* Cambridge (MA), Ballinger: 3-23

Aldrich, H., Brinckman, A. and Reese, P. 1997: Strong Ties, Weak Ties and Strangers: Do Women Differ From Men in Their Use of Networking to Obtain Assistance. In Birley, S. and MacMillan, I. (eds): *Entrepreneurship in a Global Context.* Routledge, London: 1-25

Amit, R., Golstein, L. and Muller, E. 1993: Challenges to Theory Development in Entrepreneurship Research. *Journal of Management Studies*, 5: 815-834

Birley, S. 1989: The Start-up. In Burns, P. and Dewhurst, J. (eds): *Small Business and Entrepreneurship*. Macmillan, London*:* 107-117

Birley, S., Cromie, S. and Myers, A. 1991: Entrepreneurial Networks: Their Emergence in Ireland and Overseas. *International Small Business Journal,* 4: 56-74

Boyle, E. 1994: Managing Organizational Networks in Britain: The Role of the Caretaker. *Journal of General Management,* 4: 157-168

Borch, O. and Arthur, M. 1995: Strategic Networks Among Small Firms: Implications For Strategy Research Methodology. *Journal of Management Studies*, 4: 419-441

Burns, P. and Dewhurst, J. (eds) 1989: *Small Business and Entrepreneurship*. Macmillan, London.

Bygrave, W (ed) 1997: *The Portable MBA in Entrepreneurship* (second ed). Wiley, New York

Carrier, C. 1994: Intrapreneurship in Large Firms and SMEs: A Comparative Study. *International Small Business Journal*, 3: 53-61

Casson, M. 1995: *Entrepreneurship and Business Culture*. Edward Elgar, London.

Chell, E., Haworth, J. and Brearley, S. 1991: *Entrepreneurial Personality*. Routledge, London and New York.

Curran, J., Jarvis, J., Blackburn, R. and Black, S. 1995: Networks and Small Firms: Construct, Methodological Strategies and Some Findings. *International Small Business Journal*, 2: 13-26

De Toni, A., Nassimbeni, G. and Tonchia, S. 1995: Small Local Firms Inside the Supply Chain: Challenges and Perspectives. *Small Business Economics*, 7: 241-249

De Vries, K. 1977: The Entrepreneurial Personality: A Person at the Crossroad. *Journal of Management Studies*, 1: 34-57

Drucker, P. 1985: *Innovation and Entrepreneurship*. Pen Books, London.

Evans, D. 1987: Tests of Alternative Theories of Firm Growth. *Journal of Political Economy*, 4: 657-674

Ghoshal, S. and Bartlett, C. 1995: Building the Entrepreneurial Corporation: New Organizational Processes, new Managerial Tasks. *European Management Journal*, 6: 139-155

Gnyawali, D. and Fogel, D. 1994: Environments for Entrepreneurship Development: Key Dimensions and Research Implications. *Entrepreneurship Theory and Practice*, Summer: 43-62

Hinterhuber, H. and Levin, B. 1994: Strategic Networks – The Organization of the Future. *Long Range Planning*, 3: 43-53

Hisrich, R. and Peters, M. 1989: *Entrepreneurship*. Irwin, Homewood (Illinois*).*

Johannisson, B. 1995: Paradigms and Entrepreneurial Networks – Some Methodological Challenges. *Entrepreneurship and Regional Development*, 7: 215-232

Kuratko, D. 1995: Developing Entrepreneurship Within Organisations is Today's Challenge. *Entrepreneurship, Innovation, and Change*, 2: 23-32

Kuratko, D. and Hodgetts, R. 1992: *Entrepreneurship*. The Dryden Press.

Merz, R. and Sauber, M. 1995: Profiles of Managerial Activities in Small Firms. *Strategic Management Journal*, 16: 551-564

Merz, R. and Weber, P. and Laetz, V. 1994: Linking Small Business Management with Entrepreneurial Growth. *Journal of Small Business Management*, October: 48-60

Miles, R. and Snow, C. 1992: Causes of Failure in Network Organizations. *California Management Review*, Summer: 53-72

Paché, G. 1989: The Role of Small Business in the Development of Network Organisation: The Case of France. *International Small Business Journal*, 4: 71-76

Pinchot, G. 1985: *Intrapreneuring*. Harper & Row, New York.

Reynolds, P., Bygrave, W., Autio, E., Cox, L. and Hay, M. 2002*: Global Entrepreneurship Monitor 2002 Executive Report*. Babson College, London Business School, Ewing Marion Kauffman Foundation.

Sirolopis, N. 1994: *Small Business Management.* Houghton Mifflin Co., Boston.

Snow, C., Miles, R. and Coleman, H. 1992: Managing 21st Century Network Organizations. *Organizational Dynamics*, Winter: 5-20

Stanworth, M. and Curran, J. 1976: Growth and the Small Firm - An Alternative View. *Journal of Management Studies*, 2: 95-110

Stevenson, H., Roberts, M. and Grousbeck, I. 1985: *New Business Ventures and the Entrepreneurship.* Irwin, Homewood (Illinois).

Szarka, J. 1990: Networking and Small Firms. *International Small Business Journal*, 2: 10-22

Tjosvold, D. and Weicker, D. 1993: Cooperative and Competetive Networking by Entrepreneurs: A Critical Incident Study. *Journal of Small Business Management*, January: 11-21

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 96-110

7 Microfinance in Hungary: Opportunities and Impediments

László Kállay

7.1 Introduction

Micro-credits have a history of 11 years in Hungary and their practice developed at a time when a large number of very small enterprises were formed with little experience and even less equity. The experts both planning and implementing the programmes launched micro credits with little practical experience.

The issue of micro-financing has been included in the SME development strategy of every Government. The question is what changes would best serve the achievement of the original goals of micro-credits, better utilisation of funds available for this purpose (accumulated and new funds) and, finally, more effective enterprise promotion. This article attempts to raise the basic issues involved in micro-financing, without finding answers to which it would be almost impossible to plan the future changes.

For the purpose of development, growth, or often for the purpose of simple operation one of the important issues is whether they can have access to, and if so, under what conditions, to external funding. In the life of viable enterprises it is a typical situation that the enterprise is unable to finance its business opportunities with its own funds. In developed market economies the main rule is that a financial inter-mediary system, the money market, takes care of channelling the savings to the players in the economy who need loans and can use the funds most effectively.

At the same time, it happens in all countries of the world that part of the enterprises cannot have access to external funds. For both the business and financial sectors the ratio of businesses, not financed by banks, is a very important indicator. In developed market economies this ratio can be as low as 10%, while in the majority of developing countries, including transition economies, it exceeds even 90%.

The special (partly small enterprise oriented) credit schemes play an important role where, due to some reasons, the money market does not perform this inter-mediary role or if this role is incomplete. Such cases might involve discrimination by the banks against some minority or women entrepreneurs without good reasons by, e.g., classifying them as a high risk group despite the actual experience. One of

.

the typical cases for a disadvantageous position is the lack of chance of small enterprises to have access to external financing.

In many countries the white patches left out by the money markets also involve re-allocation of funds if there are some areas and groups from which banks collect funds but are unwilling to make loans to (which is often justified for their considerations). This practice makes the problem of unequal economic chances even more severe.[1]

In Hungary nearly 90% of the enterprises have not taken a bank loan yet, which number if practically identical with those who do not even have a chance to obtain a loan from the money market. Although some enterprises do not even wish to use loans or external funding, the number of those for whom micro-credits could really contribute to the development of the business is relatively large. Therefore there is a definite need for a micro-credit scheme in Hungary. But what kind of a scheme is needed?

7.2 Potential answers to the problem

The issue is how to promote financing for those who are „financially underserved"?[2] The potential answers differ from each other in many aspects, since micro-financing schemes operate in many countries from the United States, which is one of the most developed countries of the world with a very sophisticated money market, to Pakistan, which is a country with very low income.

The development of the principles and „architecture" of the programmes is a disputed issue and during the recent times the choice between the various approaches has come up in more and more studies and for a in Hungary too (KHF 1998, Csaba, Bara et al 1998, Csaba, Laczkó et al 1998, Laky 1994, Lengyel 2000, OECD 1996, Vajda and Czakó 1998).

In my views the main issue if whether in micro-financing stress is put on giving cheap fund or increasing profitability. Part of the technical literature describes the two programmes with attributes of „subsidised" and „sustainable". The selection between the two types of programmes also determines almost all further features and, finally, also the impact of the programmes. The philosophy behind the placement of cheap funds is that since money markets do not serve part of the enterprise sector, lending should take place applying a logic, which is in contrast

[1] In the USA the Community Reinvestment Act is trying to find an answer to this problem to a certain extent (Buttari 1995). This Act in fact invites and encourages banks to make loans to the same community from which they also collect funds. The evaluation of the Act is controversial (mainly bankers reject the influence on their placement practices), but many people think that this Act helps a lot to improve the situation of many communities and also brings new customers to some of the banks.

[2] In the USA this group is described as „financially underserved".

with the laws of the money market. The sustainable programmes also rely on the same principle, but reach a contrary conclusion as they try to extend the money markets to the white patches too. The basic elements of the two types of programmes differ from each other.

(a) Interest rate policy

One of the important differences between the two approaches is the interest rate policy. The subsidised schemes use very low (sometimes negative in real terms) interest based on the assumption that only this can mean real support to the enterprises. Another frequently expressed argument in addition to the low interest rates is that the enterprises to be supported are in a difficult situation, with low profitability, and therefore they are unable to pay high interest rates.

The approach adopted by the sustainable programmes is that excess income generation should be supported in the enterprises and therefore, if the placement of funds is successful, the payment of high interest rates does not cause a problem. In fact, it guarantees that the executors of the programme actually promote the economy.

The use of relatively high interest rates follows from the view that the borrower must pay for the higher risks and higher operating expenses of the loan, which is also a core rule in bank loans. Therefore the sustainable programmes involve the extension of money markets to areas where it did not operate before or operated only to retain the principles of the money market.

One of the most important differences between the two programmes is also related to the interest rate. The subsidised programmes require on-going financing even if the real interest rate is not negative, since the operating expenses are not covered by the interest margin. The sustainable programmes do not require on-going financing, since the interest income covers the operating expenses and losses (if the programme management is adequate).

It is also important to mention that the real interest rates applied in the developed and developing countries are higher than the money market rates, with both low and high inflation, which indicates that this issue is not primarily subject to the level of development or macro-economic conditions of the country.

(b) Opportunities to attract additional funding

The chances of subsidised micro-financing programmes to attract additional funding are very bad, because they can only be financed as donations and on the whole (considering also the operating expenses) their assets are declining in real terms. In the case of subsidised programmes „donor dependence” always develops since the

method of their operation and existence depends almost exclusively on the decisions of the organisation providing the funds. One of the consequences of that is that for the organisation managing the loans the donor becomes the really important customer, and primarily his requirements must be put into focus and not those of the borrowing businesses.

The sustainable programmes have much better chances to attract additional funds, since they can increase the invested funds. It is also an important factor that, in the case of programmes of larger volumes even the interest of traditional credit market players may be aroused since these programmes can take larger loans and can extend their funding with bank loans and perhaps subordinated loan capital, which in the end improves the financing position of small enterprises.

(c) Loan conditions

The different type programmes determine the rules of lending differently. If the programme distributes cheap funds, it is necessary to determine the terms and conditions of the loans in an administrative manner since in such cases the market conform instruments of allocation do not work. Therefore the organisation providing the funds is forced to centrally regulate those who are eligible for the programme, the conditions of disbursement of the loans and often even the organisation performing the programme. In the case of the sustainable programmes it is enough to determine the guiding principles and some major parameters, the majority of decisions is adopted by the implementing organisations. For example, there is no point in restricting the purpose of use (purchase of assets or current assets), the exact interest rate, the age of the enterprise, its assets, number of employees since the right selection is assured through automatic processes. It could also be left to the executing organisations to take into account the local features in their own lending policy.

The interest rate plays a crucial role in the fact finding the right target groups, because enterprises which have access to loans from the banks will not apply for micro-credit at a higher interest rate. It is also obvious that even without any administrative regulations it is a basic interest of both creditors and borrowers to make sure that a business promotion effect is achieved. This is the basic task in business promotion, since a failure necessarily involves financial losses for both of them.

(d) Lending methods, staged loans

Although they comply with the principles of prudent lending, the sustainable micro-credit schemes cannot follow the banking practices in all aspects, because their objective is to disburse loans to companies, financing of which is not profitable even

for banks operating well. The expenses may be kept low and collateral may be provided using the following non-traditional instruments.

The loan amount disbursed for the first time is usually very low (in the USA USD 500, in developing countries perhaps a few dozens of dollars only) and, following the first successful repayment, the available loan amount increases in several steps (usually five to seven). The entrepreneur can only receive the maximum loan amount at the end of the process. This method involves several advantages. In lending and using external funds an entrepreneur can learn about capital investment, business calculations, payment discipline and all conditions required for the successful use of loans with a relatively small amount and with low risks. The creditor organisation also begins to teach and test its customer with low risks since it turns out in every stage how well the funds are used.

Banking practices put a lot of stress on the evaluation of the history of a business because creditworthiness is partly based on history. It is one of the reasons why very small enterprises hardly have a chance to have access to loans. *Cash-flow based lending* considers the future abilities of the enterprise and the estimated revenues are considered as the collateral of the loan. It also gives a solution to the problem of collateral, since in general micro-businesses do not have collateral that would be acceptable for banks. However, if a loan is disbursed on the basis of their future revenues, the problem can be solved.

Group lending is a kind of guarantee substitute. In the loan groups a rule is applied whereby none of the members of the group may receive the next stage of the loan if any of the members fails to pay. The other function of the group is that its members discuss with each other their business problems and they form a real community, which also increases responsibility. This kind of relationship is recorded only in contracts under private law. It has no legal background or involves undertaking of payment liabilities.

According to the technical literature one of the clearest and most important differences between the two types of loans is in the impact on the economy. The subsidised loans almost always „miss" the target group and their stimulation on the economy is very weak. It hardly ever happens that a large volume project can be implemented since the available funds are restricted.[3] A significant number of enterprises can only be pushed to the path of growth through successful and sustainable programmes.

The choice between the two types is not defined clearly by the development, size of the country, the rate of inflation or the size of the potential target group. International experience indicates that the sustainable micro-financing scheme can be used in developed and developing, large and small countries even if it aims at a

[3] Germany is a strong exception. The western part of the country finances the east German small enterprises with cheap loans and also uses a lot of other instruments (Welter 1997). At the same time, the impacts of the programme are considered very weak (Csaba, Laczkó et al 1998.

relatively small number of businesses. The use of a high real interest rate is not subject to the rate of inflation, or the equity position of the companies before lending.

7.3 Where does the Hungarian micro-credit scheme belong?

The micro-credit scheme in Hungary[4], run by HFEP (Hungarian Foundation for Enterprise Promotion) and its network and financed by the PHARE and the Government[5], clearly falls into the category of subsidised micro-credits. In certain periods the interest rate was the average of other preferential interest rates or, at other times, the prime rate of the National Bank of Hungary, but interest rates has always been below the interest rate on loans to enterprises. Consequently, the micro-credit scheme provided cheap funds to the businesses.

Although during the majority of the scheme, the real interest rate was not negative, the scheme had to be financed continuously and the invested capital did not increase. By the middle of 1998 the disbursed funds exceeded HUF 5.7 billion at the current HUF rates while the actual size of the fund remained below HUF 4.4 billion. (The applied calculation method estimated the value of disbursed funds from below, while the actual size of the fund is estimates from above.) Since part of the funds are in the accounts of the Local Enterprise Agencies (LEAs), in the middle of 1998 HUF 3.4 billion was placed to businesses, which also contained part of the non-performing loan portfolio, therefore part of this total figure has most probably been lost. A more realistic assumption for the same figure would be HUF 3.1 billion. The calculations may also be interpreted assuming that in the middle of 1998 only 54% of the total funds contributed to the micro-credit scheme were „working" in the Hungarian small business sector. It is also important to mention that the funds used were provided to the LEAs free of charges, i.e. no interest was charged on the scheme and that nearly one third of the interest income was banking interest i.e., originated from funds kept on the account (not lent at the time). It should definitely be noted that the loss of capital and the relatively low return on the funds does not reflect the activities and efforts of HFEP and LEAs, but was primarily the result of the structure of the scheme.

As a consequence of the above, donor dependence has remained. The most striking indication of this fact is that the delay in the annual necessary financing slows down the scheme and sometimes even leads to a halt in the programme. It is

[4] The Hungarian-American Enterprise Fund also had a micro-credit scheme, but it was stopped after a few years and the scheme lent to much fewer businesses than the scheme run by.

[5] There were also examples for funding from other sources. E.g. the Budapest Chamber of Commerce and Industry and Budapest Municipality also contributed some funds to micro-credits, but for the entire scheme these were not of major importance and some funds did not prove to be long-term funds.

also clear that part of the funds contributed year by year was used to replace the lost capital, so not the whole amount could be used for loans to enterprises. It is also clear that the micro-credit scheme was unable to attract funds from the money markets.

The real interest rate on micro-credits calculated at the time of disbursement has also changed significantly. During the period to date the fluctuation was close to nine percent, it was over 5% and below –4%. During the last three years, because of falling inflation, the real interest rate exceeded the starting figure by several percentage points, calculated for the entire term of the loan. At the same time, there is no sign that the increase of real interest would have reduced the volume of loans available for placement. For such aspects it is possible that micro-credits have always remained within its potential framework.

7.4 What are the chances for a sustainable micro-credit scheme in Hungary?

Many people argue that in Hungary the conditions do not exist for a sustainable micro-credit scheme. This issue should be reviewed briefly to see what the most important conditions are.

The number one issue is that there is *demand for loans* of small amounts with relatively high interest rates. For the purpose of money markets, the chances of a sustainable micro-credit scheme are the better the more enterprises are not financed by the money market. In this respect the chances are good in Hungary, because approximately 90% of the businesses fall into the category that they practically have no chance of having access to bank loans. A significant portion of these business (40-45%) plan some development, which means that altogether there are approximately 270,000-300,000 businesses in Hungary which, at first sight, could form the target group of a micro-financing scheme aimed at generating some excess income. Naturally, it does not mean that, based on the underwriting criteria, so many businesses would be eligible for loans, but it is a fair statement that there would be enough companies to choose from.

Although there are no exact statistical data, it still may be argued that there are segments in the formal and informal credit market which already finance development projects with high interest rates among micro-enterprises. For example, it is well known practice that if someone cannot obtain a loan from the increasing choice of banks he will take a personal loan worth even several millions of Hungarian Forints and will finance his enterprise from that. It is also well known that some enterprises often take loans from the informal credit market for a very

short term, with very high interest rates.[6] It is clear that these examples indicate problems in the credit market and also show that under certain circumstances the businesses are also willing to sue relatively expensive funds, if they expect to be able to pay them back too.

Another requirement for a sustainable programme is to have the required *human resources*: those running the scheme must possess adequate technical and professional knowledge, management skills and should be able to select the businesses which are capable of growing and can apply sound lending techniques. Since this a special area, it is difficult to state anything definite before it is tested. However, the LEA officers and micro-credit committees have gained some experience during the last nearly six years even if they have done so during the implementation of a different scheme, working with a different logic. Similarly, a large number of experts gained experience in other enterprise promotion agencies, commercial bank and savings co-operative networks and therefore it may be assumed that the human resources, required for a sustainable micro-credit scheme, exist and they could be found.

Micro-credits also have an *infrastructure*. There is a nation-wide network used by the enterprise promotion organisations, executing banks and savings co-operatives which are already involved in such activities and now they are already close to businesses.

In the micro-credit contracts several aspects may also be observed which indicate that the conditions for developing a sustainable scheme exist. These include e.g., that the collateral on the loans and the equity required from businesses often exceed the minimum amount required in the loan agreements and that those implementing the programme and the entrepreneurs have always been able to react fast to the changes in conditions and requirements (practically immediately). The development of micro-credits will accelerate a lot if the size of funds and ownership of funds, accumulated in the programme, can be identified and determined in the near future, as this would make the current situation clearer too and it is an absolute basic requirement to use the funds of the programme as capital in the future.

There are several *regulatory problems* to be solved too. The Hungarian money market is over-regulated in a sense that it restricts, or sets very strict requirements for, not only collection of deposits but also lending even if lending does not use funds raised from deposits.[7] This is why the practice whereby non-profit organisations directly lend to micro-enterprises cannot be used in Hungary. One of the possible solutions is the liberalisation of money market regulations in these aspects but it is not sure that this would be a success and, on the other hand, it would

[6] On the basis of the review of the impacts of micro-credit, such cases are described in Vajda and Czakó (1998).

[7] In many countries non-profit organisations are also allowed to extend loans, but they may not collect deposits. Such organisations can only use their equity for such purposes.

also take a long time. However, the liberalisation and deregulation opportunities should be duly considered and the issue should remain on the agenda.[8]

Another possible solution would be to involve the banks and savings co-operatives to manage the lending (this is the practice in the current micro-credit scheme too). Naturally, banks would not apply their own lending policies in this case but would follow the principles of the scheme. Experience from many countries shows, that such co-operation may be formed successfully between banks and non-profit organisations, even in the case of sustainable micro-credit schemes.

Experience also shows that the *interests* of the executing agencies play a very important role in deciding the conditions according to which the enterprise promotion schemes operate. In the current situation there is a fair chance that the HFEP and LEAs should support (not dramatic, but major) changes in the conditions for micro-credit. The main reason for that is that the financing conditions of the LEA network will change if they need to cover more and more of their operating expenses with funds outside the national budget. A sustainable financing scheme could form the most important element among the activities of an at least partly self-sustaining enterprise promotion agency and the other services could be provided in connection to that scheme.

In my views the 2003 is ideal, for almost all aspects, to change micro-credits in order to develop the backbone of a more effective enterprise promotion activity. The changes in the micro-credit scheme are on the agenda, development of small enterprises is a prime political aspect and many years of experience has been collected by the implementing organisations. The ownership title of the existing funds has been decided on, and inflation is low.

In the new micro-credit scheme small enterprises would not be financed with cheap funds, but the scheme would concentrate on promoting the generation of excess income. The funds of the programme would be considered and treated as equity by the implementing organisations, with their own responsibility and at their own risks. The new funds originating from the budget also reach the implementing organisations in the form or equity or loan. The development of a lending policy would be less restricted, in other words the executing organisations would be able to decide on the policy applied by them in many cases (naturally complying with the requirements of the funding organisations in the meantime). Further funds could be attracted partly from money markets and the principle could be applied that more effective organisations gain more funds and therefore can place out more too. The primary purpose of the consultation and training programmes would be to reduce the risks of loans and promote successful lending. Micro-financing would be a kind of financial incubation, which would also mean that a significant part of the financed enterprises would become creditworthy for banks (which is rarely the case) and this

[8] There are several proposals for the deregulation for the money market for the purpose of promoting the financing of micro-enterprises (Bannock 1998).

way the gap in the credit market, which is the essence of the problem, could also be reduced.

7.5 How to reform micro lending?

In the course of the transition process several hundreds of micro businesses have been established, and currently there are 800 thousand micro and small firms operating in Hungary. They became an important part of the Hungarian economy being the only sector where there has been net job creation since 1990. About 90% of this sector is financially underserved; they do not have access to either credit or equity finance.

The politically inspired attempts to issue loans to SMEs in the early nineties failed. The commercial banks at that time did not have the adequate risk management capacity nor clear understanding of the new market segment of micro and small enterprises. After the initial failures they withdrew from this market.

After a long lull, commercial banks start to turn their attention towards smaller firms, and this time by applying newly developed risk management methods, start to down-scale their loan sizes. This resulted in an increasing credit volume to SMEs. However downscaling did not reach low enough to serve the needs of the businesses needing micro (less than HUF 3-5 million) loans (Table 7.1). Hundreds of thousand of micro businesses in Hungary still remain financially underserved or completely excluded from the financial services market.

Table 7.1 Outstanding loans at the end of the year (billion Hungarian forint and %)

	1999	**2000**	**2001**	**2000/ 1999**	**2001/ 2000**	**2001/ 1999**
Micro	112.7	210.7	416.8	187.0	197.8	369.9
Small	110.6	264.9	300.5	239.5	113.4	271.7
Medium	237.7	428.5	563.3	180.3	131.5	237.0
Total	461.0	904.1	1 280.7	196.1	141.7	277.8

Source: Supervising Authority of Financial Institutions in Hungary

The currently operating micro credit program financed by the EU PHARE program and the Hungarian government failed to reach the critical mass providing only 17 thousand loans in 11 years, having an outstanding loan portfolio of HUF 9 billion ($35 million). Interest rates are subsidized; the operational costs and losses coming from bad loans are continuously covered by the donors. After the latest modifications of loan conditions, the loan sizes tend to be above what traditionally is

considered a micro loan to be able to meet the needs of micro-enterprises in Hungary.

The attempts of independent NGOs to run micro credit programs resulted in limited success. This is because they have to follow the same procedures as regulated financial institutions, thus their costs are too high and the requirements too stringent to operate profitably on the low end market segment which requires operational flexibility and simplicity of procedures.

Direct and indirect evidence shows that there are hundreds of thousands of financially underserved micro businesses in Hungary expressing interest in accessing credit and other financial services. It is estimated that the potential market for micro credit is 15-20 times larger than the current volume of outstanding micro loans. Due to the lack of appropriate services for the micro-entrepreneurs, the borrowers turn to substitute loan products like high interest rate personal loans, mortgage loans, and even informal loans. Even though these products may not be the right vehicles to finance micro and small businesses, such substitutes reach a large scale of operation indicating that there is a need for flexible lending practices specifically tailored to the needs of the sector.

The newly developed risk management methods can also provide solution to the problem of lack of sufficient collateral which is very frequent among micro businesses in Hungary. Applying moral guarantee, personal contacts with the borrowers and the technique of step-up gradually increasing loans are good examples of innovative risk management methods successfully used by several new type micro credit programs worldwide to help to build up the credit history of micro firms. These methods supported by the relatively developed financial infrastructure in Hungary could be used for the benefit of micro-lending.

7.6 Major impediments for microfinance development in Hungary

The major reason why commercial banks' downsizing efforts do not reach the micro credit segment is that their (relative) transaction costs are too high since they have to meet complicated reporting, recording, and risk evaluation requirements, as well, as personnel and organizational criteria. Savings cooperatives also serve clients who need small loans, but their risk management capacity is limited, and the quality of their loan portfolio is not particularly good, again most likely due to application of credit review procedures that do not apply to micro-enterprises. (Savings cooperatives were given temporary exemption from some elements of the regulation on credit institutions like minimum capital requirement, but with expiration of this exemption they will soon lose this flexibility.)

At the beginning of the transition period it was important to filter potential players of the financial market, but under the current circumstances there is no rational objective reason to maintain such rigorous regulation which limits lending

activity to regulated financial institutions and leads to the overall credit contraction in the economy. It is clear that the supply side of the financial markets is over-regulated, and this limits the supply of lower end financial services. Maintaining the sanity of the financial system is an important point, but the regulation has to match and in fact catch up with the current market reality.

Introducing the carefully defined lending opportunity for organizations (including financial companies and NGOs) from their own capital, borrowed or donated funds, would create micro finance institutions that could serve this almost untouched potential markets. Lack of such regulatory options to provide credit limits the credit delivery to the lower end market, and leaves the regulated commercial banks in quasi monopolistic situation.

Officials in the Ministry of Finance expressed opinions in informal interviews that they are open to consider the necessary modifications to accommodate microfinance operations. Currently only the "official", government sponsored micro credit program is exempted from the general regulation on financial institutions.

A more liberal approach to financial markets regulation is in line with the policy of the European Commission, which recommends and encourages easing this aspect of the financial regulation in the member countries.

Another good reason of reforming micro finance is that Hungary must develop competitive structures that can absorb the EU funds after joining the Union. Micro credit institutions which can become parts of the financial markets are more efficient vehicles of both SME and local economic development than organizations that passively distribute subsidies.

The Hungarian governments, up to now, have preferred supporting subsidized micro credit which distorts the markets and creates unfair competition for the financial institutions. One reason for this is (we have to be frank here) poor understanding of the problem; accepting the old dogma: micro firms can be assisted by cheap services. This approach ignores the counter effectiveness of cheap loans and looks only at the few subsidized businesses as "evidence" of success. This policy attempts to substitute the missing market with a subsidized program instead of facilitating the proper development of microfinance market segment. This, consequently, does not lead to the necessary systemic changes in the financial sector long run.

7.7 Policy options to improve the state of microfinance in Hungary

The elements of a new policy that can facilitate the development of the micro credit market could be as follows:

(a) Amending the regulation on financial institutions (Act CXII, 1996 on Credit Institutions and Financial Companies) is necessary to allow the lending of regulated non-banking organizations (micro credit institutions) from their own capital and

donated funds without taking deposits. Micro credit institutions should be registered, and should meet only minimal requirements in terms of the scope of services for the clientele (micro enterprises) and professional qualification to ensure proper management of the institution. Their reporting obligations should be kept to a minimum and there should be no mandatory credit procedures that such institutions were required to follow. Introducing the notion of micro credit institution as a new non-banking entity would replace the monopoly of the "official" micro credit program run by the HFEP.

The new regulation would create the opportunity for existing and new organizations to qualify themselves as micro credit institutions and build up their market with reasonably low transaction costs. The activity of micro credit institutions would not disturb the activity of commercial banks, but it would aim at developing a complementary lower end market.

(b) Reorganizing the existing micro credit program aiming at financial sustainability in 3-4 years, opening its funds to other competitive micro credit institutions is needed. The current government sponsored largest micro credit program is completely donor dependent (it is not an asset it's a liability for the government). However it has accumulated substantial funds (in the excess of HUF 13 billion). These assets should be mobilized to fund the non-banking micro finance programs including reformed existing government sponsored program and the new ones initiated by independent organizations.

This concept is supported by the best NGOs currently involved in micro lending in Hungary. The best performing LEAs and independent organizations like the Autonomy Foundation, BB Foundation, and the 'Életpálya' Foundation are interested in operating in a new institutional environment in which the actual performance of their organizations is the major success criterion.

It is also important to amend the regulations in order to create an equal footing for the commercial banks and savings cooperatives to be involved in microfinance. Mandatory elements of risk assessment required by the Supervisory Authority of Financial Institutions are too stringent for micro credit operations. For example, commercial banks have to give at least 50% weight to objective criteria in their risk assessment system, while they would like to pay more attention to subjective issues.

A major benefit of the reformed regulation for commercial banks and savings cooperatives would be that they could build up new relations with micro finance institutions. For example they could outsource their lending activity, or buy micro loan portfolios creating a secondary market of the lower end financial products.

In summary there appear to be two major strategies for improving the microfinance sector in Hungary:

- In the *short run*: Changing the regulation to accommodate the non-banking microfinance institutions and reforming the government sponsored micro credit program.

- In the *longer term*: Facilitating the development of competitive, financially sustainable micro credit institutions alongside with the regular commercial banking institutions, which will explore and serve a new market segment.

The major elements of restructuring the government program should aim at abandoning direct subsidized credit that distorts the market towards developing a system of performance-based support for a broad number of institutions. These could involve abandoning heavy subsidies and replace them with orientation towards financial sustainability, adjusting loan conditions, and others to improve operational efficiency.

Enterprise promotion experts often mention it as a commonplace that if you wish to help someone who is starving *do not give him fish but teach him to fish*. In the context of financial schemes, in my views, there is a clear analogy with subsidised and sustainable loans. Subsidised loans are cheap loans and, irrespective of whether they finance development or not, they always provide easy finance and do not force the business into stressing financial return significantly. In other words, they create dependence and they hardly promote the establishment of a long-term stable and sustainable business. In sustainable programmes both the enterprises and the implementors of programmes get into a situation that their basic interests include to learn how to have a successful business and make loans, i.e. they learn to fish.

References

Bannock 1998: *Access to Credit for Small, Medium and Microenterprises*. Bannock Consulting Ltd., UK-Know How Fund-Hungary, National SME Policy Development, Budapest.

Buttari, J. J. 1995: *Subsidised Credit Schemes. Theory, Experience to Date and Alternatives*. Development Information and Evaluation Centre, United State Agency for International Development, No.75.

Csaba, L., Bara, Z., Bohota, M. and Brezinski, H. et al 1998: *The Hungarian SME Sector Development in Comparative Perspective*. Kopint-Datorg Foundation for Economic Research, CIPE-Center for International Private Enterprise.

Csaba, L., Laczkó, M., Semjén, A. and Tóth, I. J. 1998: *Enterprises in Transition. Impact of the taxation and market environment on the business activities and market position of small and medium-sized enterprises*. Kopint-Datorg Konjunktúra Research Foundation, Budapest.

Laky, T. 1994: *Small enterprises benefiting from Start credit*. Hungarian Foundation for Enterprise Promotion, Budapest.

Lengyel, I. 2002: Theoretical backgrounds of regional economic and enperprise development (in Hungarian). In Buzás, N. and Lengyel, I. (eds): *Ipari parkok*

fejlődési lehetőségei: regionális gazdaságfejlesztés, innovációs folyamatok és klaszterek. JATEPress, Szeged: 24-54

Lengyel, I. (ed) 2000: *Programming for SMEs Development of the Southern Great Plain Region* (in Hungarian). Department of Regional and Applied Economics, University of Szeged.

OECD 1996: *Microcredit in Transition Economies*. LEED Programme on Local Economic and Employment Development, OECD, Paris.

Vajda, Á. and Czakó, Á. 1998: *The micro- credit scheme and its impact*. Hungarian Foundation for Enterprise Promotion, Budapest.

Welter, F. 1997: *Promoting SMEs: reviewing the German experience*. Rhenish-Westfalisches Institut für Wirtschaftsforschung (RWI).

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 111-121

8 The Vision of Hungarian Small and Medium-Sized Enterprises

Tamás Mészáros and András Bálint

8.1 Introduction

In the second half of 1997, two researchers of INSEAD carried out research titled "The European Small Enterprise Information Technology Study" in order to investigate their vision concerning year 2000 (Dutta and Evrard 1999). The basic hypothesis of the study confirmed that small enterprises have to be organizationally and technologically renewed, and create strategic partnership to be able to face the future tendencies and challenges of globalisation and to exploit competitive advantages and opportunities offered by increased application of information technology.

Owing to the fact that tendencies of globalisation have already reached Hungary and due to recent rapid spread of information technology, the vision of Hungarian small and medium enterprises concerning the application of information technology seemed to be reasonable to be investigated in depth.

Within the framework of our research on "Application of Information Technology among Hungarian Small and Medium Enterprises", we took over five sets of questions from the INSEAD study focusing on entrepreneurial vision, relationship between entrepreneurs and information technology and opportunities to create strategic partnership. Among others, we were interested in how actively Hungarian SMEs prepare themselves for the new environment and how much opportunity they manage to seize.

In this article we will first present our experience of entrepreneurial vision, briefly comparing them with INSEAD results of year 2000, then three categories of enterprises will be described that have distinct vision about information technology.

8.2 The vision of Hungarian small and medium-sized enterprises

In the framework of the research we asked 406 owners or managers of micro, small and medium enterprises about their IT use, needs and future investment plans. The sample was selected from the database of VOSZ (National Alliance of Hungarian

.

Employers and Entrepreneurs) based on the so-called layered sampling method. Approx. 65% of the sample consisted of micro and small enterprises. Further interesting feature of the sample was that enterprises from manufacturing industry, trade and other services were overrepresented. They made up 70% of the sample altogether. The sample was representative by the regional location of enterprises and the enterprise form (Table 8.1).

Table 8.1 Sample characteristics by regions and enterprise form

Regions	Sample characteristics					
	Incorporation		Sole proprietorship		Total	
	Number	%	Number	%	Number	%
Budapest	65	16,0	47	11,6	112	27,6
Pest County	18	4,4	30	7,4	48	11,8
Central Hungary	83	20,4	77	19,0	160	39,4
Central Transdanubia	14	3,4	26	6,4	40	9,9
Western Transdanubia	15	3,7	26	6,4	41	10,1
Southern Transdanubia	13	3,2	23	5,7	36	8,9
Northern Hungary	12	3,0	23	5,7	35	8,6
Northern Great Plain	18	4,4	29	7,1	47	11,6
Southern Great Plain	16	3,9	31	7,6	47	11,6
Total	171	42,1	235	57,9	406	100,0

The five sets of questions concerning entrepreneurial vision were asked to be answered according to the attributed importance or probability of the given factors. Three answers could be given: low, average and high. The answers, represented by figures (low = 1, average = 2, high = 3), were then averaged, as a result of which it became clear how important and probable the given factor is regarded by Hungarian SMEs. The five sets of questions basically covered three topics:

- opportunities and challenges,
- threats and competitive advantages of information technology, and
- strategic partnership.

(a) Opportunities and challenges

According to the answers, external environment has been now and will be in 2003 characterised by the following opportunities and challenges (Figure 8.1 and 8.2). The Hungarian small and medium-sized enterprises, in accordance with European ones, expect intensifying competition which can be traced back to the appearance of new, foreign competitors and the increasing implementation of governmental and EU policies.

Figure 8.1 Assumed challenges of external environment

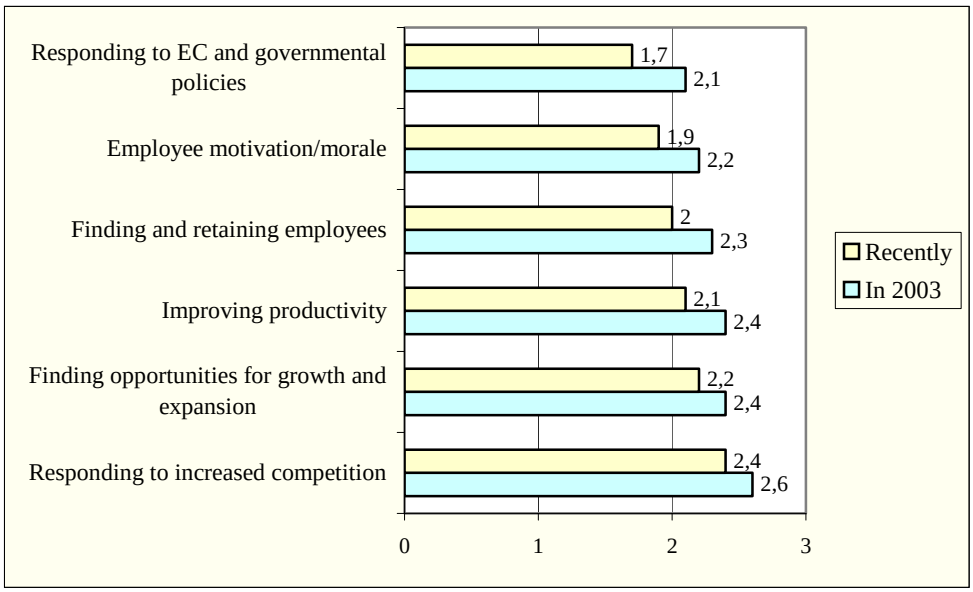
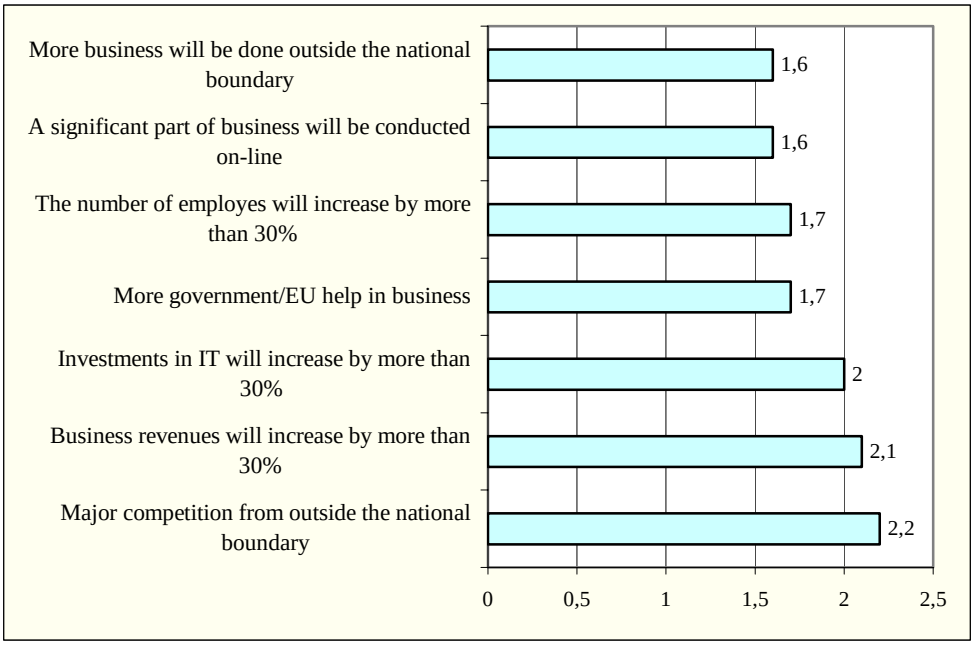


Figure 8.2 Assumed opportunities of external environment in 2003



In order to cope with intensifying competition, it is essential to both be aware of their opportunities of growth and improve their productivity. It is unfeasible, however, to improve productivity without maintaining existing workforce of increasing importance and without their proper motivation. On the other hand, Hungarian SMEs do not take intense expansion concerning the number of employees into consideration, which is bad news in respect of labour policy.

Unlike European small enterprises that consider the expansion abroad and e-commerce as the main source of growth, among Hungarian SMEs, the tool serving the same aim is regarded to be the increase of domestic activities. Moreover, European small enterprises, in comparison with Hungarian ones, take the growth of IT investment into greater account, which can probably be explained by their better supply of capital.

Hungarian small enterprises, just like European ones, do not count on governmental and EU sources, which can be attributed to the lack of knowledge about tenders, high indirect cost of handing them in, and slow administration.

(b) Information technology

In this section it was investigated what kind of competitive advantage and future threats Hungarian small and medium enterprises need to handle due to the application of information technology (IT) (Figure 8.3 and 8.4).

Figure 8.3 Competitive advantage offered by information technology

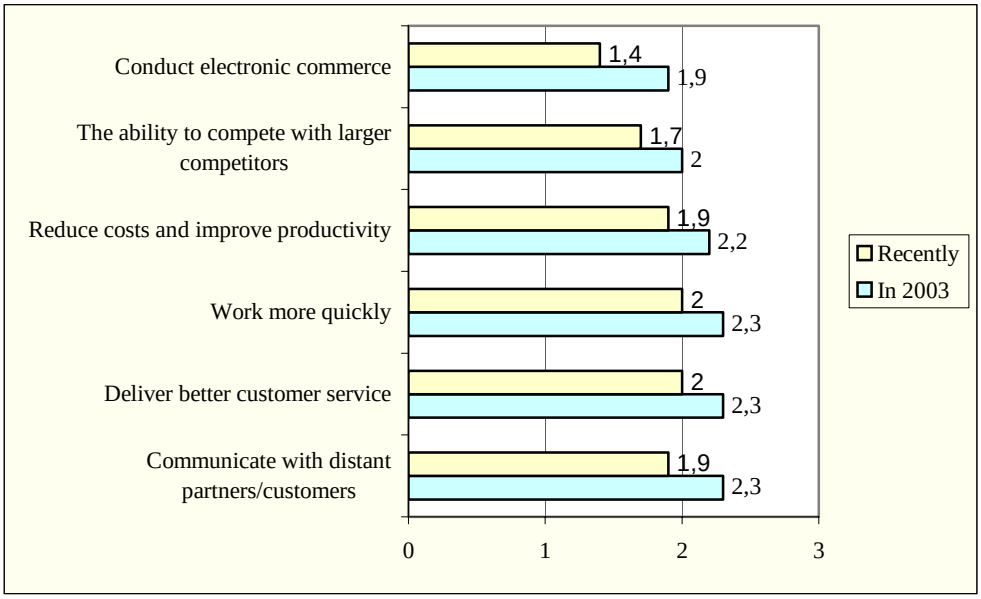
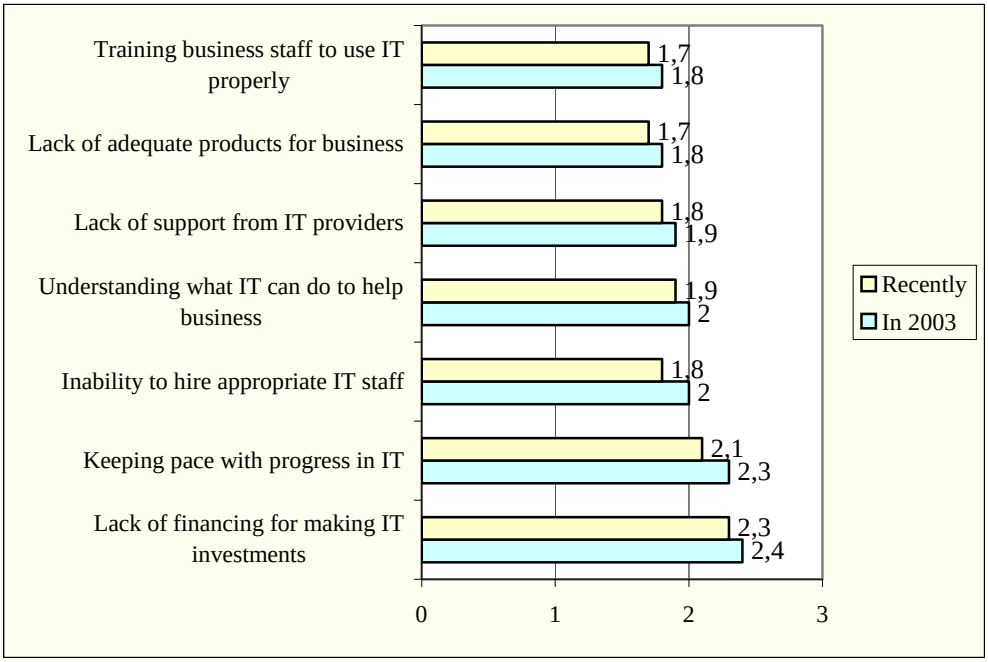


Figure 8.4 Challenges and threats of IT development



It is the customer who stands at the centre of IT application both among Hungarian and European small and medium enterprises. Keeping in contact with distant partners and customers, and the ability to provide better service quality are the two main competitive advantages that information technology offers to enterprises. These competitive advantages enable them to satisfy costumers' demands at a higher level. Competitive advantage concerning quicker workflow and decreasing costs has been of less importance although they still mean determining factors. On the other hand, participating in e-commerce has become an increasingly emphasized and distinctive element of competitive advantage.

The reason for the above mentioned restructuring in competitive advantages is the rapid spread of applying more developed Internet based technology among Hungarian small and medium enterprises. In the long run, disappearance of competitive advantage concerning cost reduction and productivity improvement is expected as they will be embodied in abilities that are actually needed for maintaining market position, but do not represent distinctive elements. It is the competitive advantage of e-commerce that has emerged as a distinctive characteristic, instead.

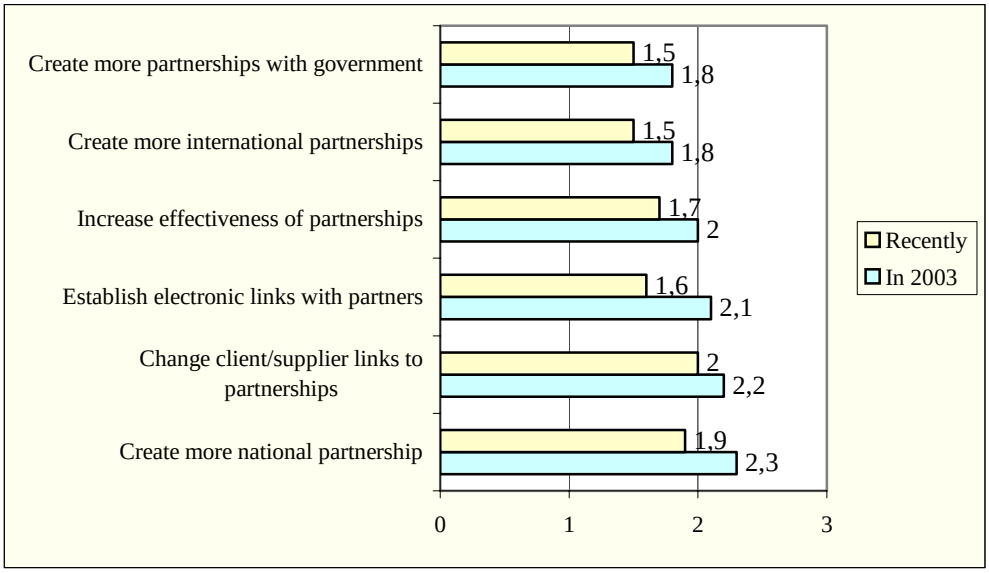
Contrary to the opinion of European small enterprises, according to which difficulties in understanding information technology are considered to be the main threat, the biggest challenge for Hungarian small and medium enterprises is to raise the necessary amount of capital needed to operate such technology. This is a fact worth considering.

It is important to draw attention to the fact that it has become more and more challenging for enterprises to find well-qualified information technologists. It is therefore advisable to start training employees in information technology right now as it is a really costly procedure.

(c) Strategic partnership

The research also involved investigation into the willingness of Hungarian small and medium enterprises to create strategic partnership with market actors around them (Figure 8.5).

Figure 8.5 The opinion of Hungarian SMEs on strategic partnership



Hungarian small and medium enterprises would be willing to create strategic partnership with domestic companies (especially with members of the supply chain so with their own suppliers and customers) in order to give a more efficient answer to intensifying competition and to expand their domestic activities. Increasing efficiency of existing partnership is also considered to be important. The difference

between Hungarian and European small enterprises is that the latter is more inclined to create strategic partnership with not only domestic but also with foreign enterprises.

In the way of creating partnership, it has become more and more frequent to build up electronic contact with business partners. This fact is in accordance with the rapid spread of modern information technology.

As it can be seen on the above figure, European and Hungarian enterprises are similar in respect of lower willingness to create partnership with governmental and EU organizations.

8.3 Vision categories and their characteristics

Based on the answers given to the five sets of questions, we defined three distinct categories with the help of cluster analysis. These are the following:

- the so called conservatives (25,9%),
- careful advancers (42,9%) and
- pioneers (31,2%).

(a) Conservatives

The category of conservatives is comprised of 105 enterprises. Conservative enterprises count on intensifying competition in the future which will seriously threaten their businesses. To cope with the situation, they have realised the necessity of product improvement and growth which they plan to implement exclusively by domestic expansion. Therefore they are inclined to create strategic partnership mainly with domestic enterprises of the supply chain (suppliers and customers).

They show a rather rejecting and pessimistic attitude towards developed Internet based information technology which manifests itself in their opinion that the two main competitive advantages that information technology, namely PC application, can offer are quicker workflow and cost reduction. The reason for this fact is that due to lack of IT knowledge they do not understand in what ways Internet based technology is able to support their businesses. A further obstacle is meant by the shortage of capital needed to invest in information technology.

(b) Careful advancers

The category of careful advancers is comprised of 174 enterprises. In some respects they are similar to conservatives as they also realise the necessity of product improvement and growth which they wish to achieve exclusively by domestic expansion. They are willing to create strategic partnership with domestic enterprises, not only with suppliers and customers, tough.

What makes them different from the conservative category is on the one hand the fact that they do not expect intensifying competition and new competitors and on the other hand the fact that they have already started to use modern Internet based information technology. However, IT application has been restricted to electronic contact with customers and distant partners. This is exactly what they consider the main competitive advantage of information technology as it enables them to provide better service quality. According to them, the most hindering factor is that it is impossible to keep pace with the development of information technology.

(c) Pioneers

The category of pioneers is comprised of 127 enterprises. Just like the other two groups they find product improvement and growth crucial factors. But there is a difference in their conception of realising them. Unlike the other two categories which think that the key to the problem is domestic expansion, pioneers attach great importance to external markets, e-commerce and regular participation in governmental and EU tenders, too. Therefore they plan to create strategic partnership not only with domestic but also with foreign enterprises, governmental and EU organizations.

They want to make significant use of developed Internet based information technology to obtain further competitive advantage. Besides electronic contact, IT is applied as a complementary, virtual room for business. Therefore it is not surprising that they mentioned e-commerce as the most important on-line competitive advantage as it enables enterprises to compete with companies bigger than themselves. Keeping pace with IT development was designated as the above-all threat, which was followed by the difficulty in finding well-qualified IT experts and by the lack of capital to invest in information technology.

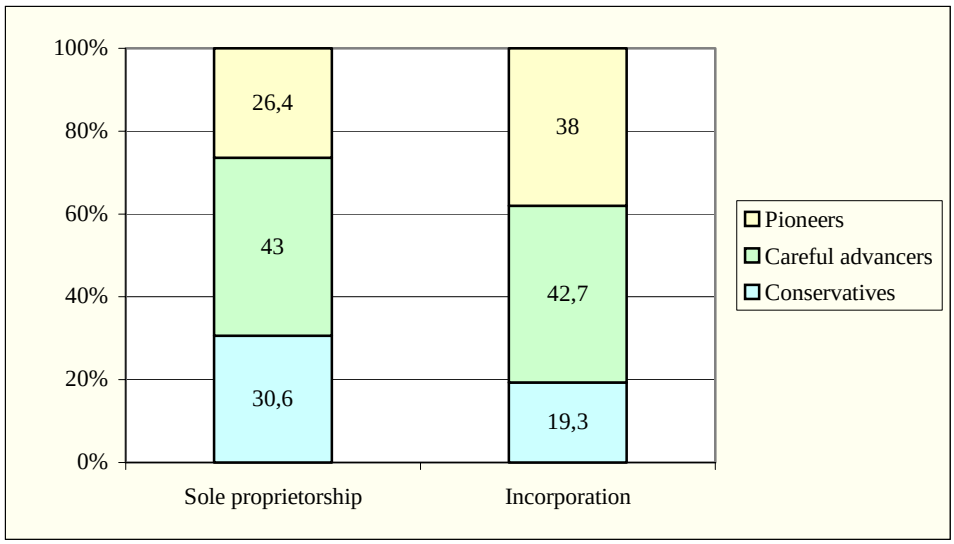
8.4. The characteristics of vision categories

Significant relationship could be discovered between vision categories and the legal form of enterprise, size and location, while there was a less meaningful connection in regard to fields of activity.

(a) Characteristics based on legal form of enterprise

On the basis of legal form of enterprise, vision categories are divided into two groups: sole enterprises and joint ventures (Figure 8.6).

Figure 8.6 Vision categories characterised by legal form of enterprise



As it is demonstrated on the above figure, pioneers are more typical to joint ventures while conservatives more frequently occur among sole entrepreneurs. It is therefore assumed that joint ventures have a more positive vision than sole entrepreneurs.

(b) Characteristics based on business size

In the research, size was measured by the number of employees and net sales (Figure 8.7). Both elements showed strong relationship with the different vision categories. This means that the bigger an enterprise is the more positive vision it has. This is due to the fact that bigger companies have better information technology and greater knowledge in the field than smaller enterprises.

(c) Characteristics based on location

There was a significant relationship between vision categories and the level of regional development measured by GDP contribution. It is remarkable that contrary to our preconception according to which the more developed a region is the more optimistic entrepreneurs there are, they are the underdeveloped regions such as Northern Hungary that have more positive vision.

Figure 8.7 Vision categories characterised by number of employees

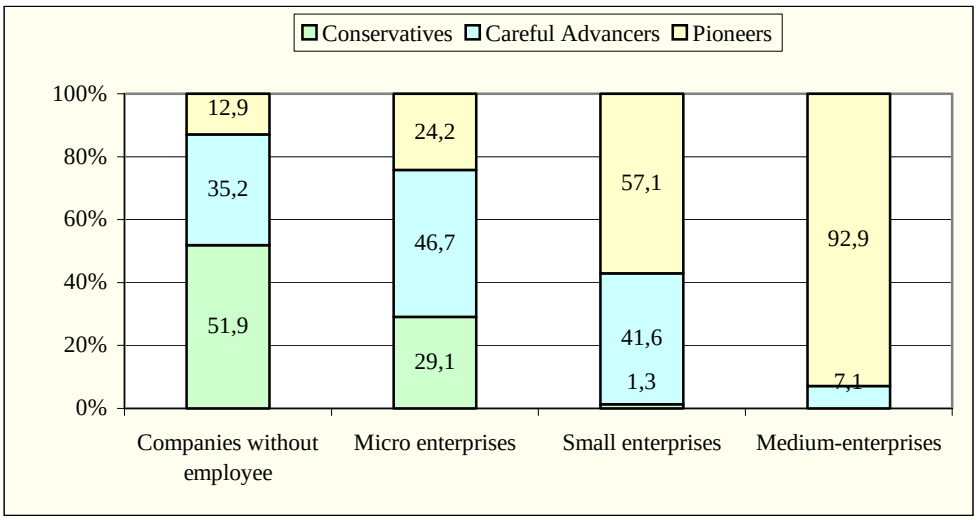
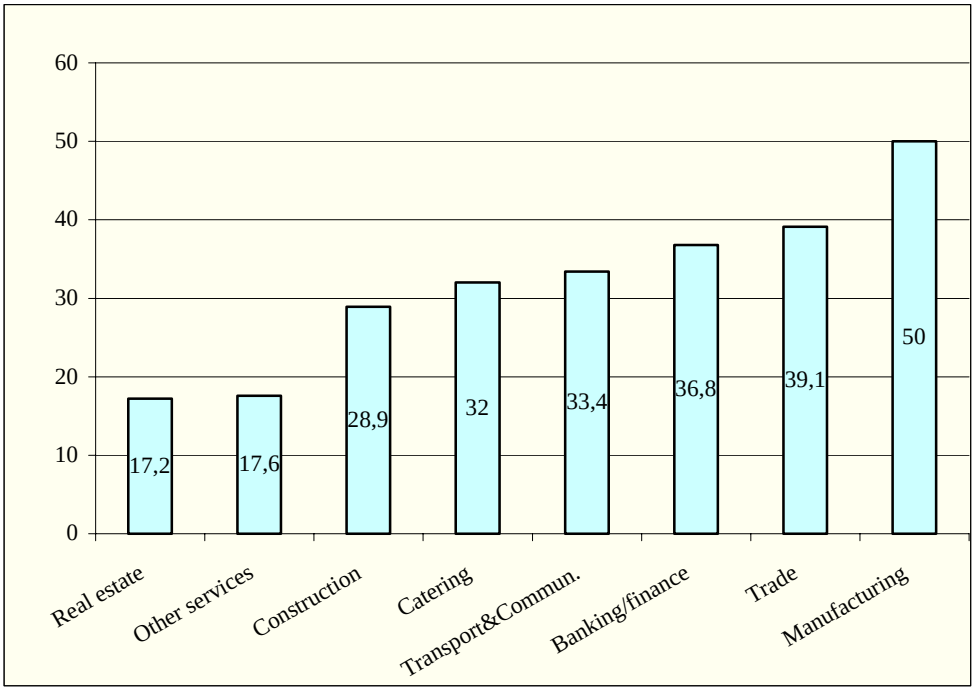


Figure 8.8 Proportion of pioneers in different sectors



(d) Characteristics based on fields of activity

It can be seen on the above Figure 8.8 that pioneers, characterised by positive vision, are present in the greatest proportion in manufacturing industry, commerce and financial services which are the leading sectors of the Hungarian economy. On the other hand, enterprises in the fields of real estates, economic and other services can be less featured by pioneers.

8.5 Summary

In the first part of this article we were focusing on the vision concerning the application of information technology among Hungarian small and medium-sized enterprises. It was pointed out that enterprises are expecting intensifying competition in the future. The question of growth has been a challenge of great importance, the key to which is considered to be domestic expansion. This is in contrast to European tendencies where small enterprises concentrate more on enlarging external relationship.

In the second part of this article three distinct vision categories of Hungarian small and medium-sized enterprises were described: the so called conservatives that are aware of the challenges of globalisation and the spread of information technology; however they are unwilling to use on-line technology. Careful advancers represent a segment that already uses the Internet but restricted to electronic contact, while pioneers are enterprises planning to participate in e-commerce in the short run.

At the end of this article we drew the conclusion that the bigger an enterprise is and the more important sector it works in, the more positive vision it possesses. It is essential to make mention of the fact that contrary to our expectations, results of the research suggest that the less developed a region is, the more positive vision enterprises there have. This fact has shed light on the necessity of further investigation.

References

Dutta, S. and Evrard, Ph. 1999: Information technology and organisation within European small enterprises. *European Management Journal*, 3: 239-251

OMIKK 1999: Információtechnológia az európai kisvállalkozásokban (in Hungarian). *OMIKK, Vállalati szervezés*, 11: 31-49

OMIKK 2001: Az Internet bevezetésének akadályai hollandiai kisvállalatoknál (in Hungarian). *OMIKK, Vállalati szervezés*, 13: 47-52

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 122-129

9 The Capital-less Capitalism: Review on Hungarian Small Enterprises

Péter Szirmai

9.1 Introduction

Although private enterprises began to emerge in Hungary prior to the political transformation at the end of the ‘80s, the structure of micro-and small enterprises did not develop in the organic way customary elsewhere in Europe (EC 2001). While the number of registered enterprises has surpassed one million for over five years, to date more than 96 percent of them are "micro-businesses", employing less than 10. So far the group of medium-sized companies have had a narrow and weak presence.

If we only consider the numerical data of the Statistical Office we might as well be proud of the results: in 13 years more than 1.1 million enterprises were registered in a post-socialist country with a population of 10 million out of which 5.5 million are at working age. However, if we look behind the data we realise that hardly more than three quarters of registered enterprises operate and according to the European statistics the majority belong rather to the category of self-employment or intellectual freelancers than to enterprise.

9.2 Historical roots

In Hungary, already as early as the 1970s, voluntarily created industrial and trade sectors operated extensively, although only on the margin of legality, that were originally organised within the framework of the state-run agricultural co-operatives, and the responsibilities, the direction, and a good deal of the earnings remained with the workers. At that time this sector was called "the second economy," which researchers pointed out was the "self protection of the civil society against a greedy political state." This was legalised by a package of laws in 1982, authorising and regulating the operation of some early enterprises (Szirmai 1984).

When in 1988 the bill on business organisations, on limited companies, joint-stock companies, and other private enterprises, was adopted, there were already 30,000 partnership companies in Hungary. This number is significant, although a considerable percentage of them were not real market-oriented enterprises. The

political transition in 1990 obviously gave impetus to the development of partnership enterprises, so their number doubled to 60,000, by 1991 (Hisrich and Szirmai 1993). The speed of development was unbroken until 1994, with 60,000 new enterprises every year, by which time the number of partnership enterprises grew to 240,000, while that of the single-owner enterprises grew to some 700,000.

The pace of development came to a standstill by the middle of the 1990s, which is understandable if we consider that the population of Hungary is only 10 million, the working population is five million, and nearly one million private enterprises had been registered. A large number of them, due to having been laid off their previous job have become "self-employed by necessity."

There was nothing surprising about the fact that the decisive majority of private enterprises established in these years of fast development were undercapitalised, as people were unable to accumulate capital to set up a company during the 40 years of socialism, and their companies were very small in size, and their founders lacked entrepreneurial skills and business knowledge. Nevertheless, in the middle of the 1990s, it seemed appropriate to optimistically suppose that tiny private enterprises would gradually gain strength, and that the market would select from among them. As a result, half to two-thirds of the new enterprises would go out of business within 4-5 years, as it was common experience in the USA and Western Europe, but the rest would gradually become stronger.

It seems this supposition has so far hardly proven true. Among the specific income and sociological circumstances, the market was not such a radically selecting factor as in the USA or Western Europe (Kállay 2001). Over half of these enterprises survived their eighth or tenth birthday, but the majority of them did not develop dynamically, and out of the 1,202,196 registered enterprises 1,156,854 remained micro-sized (96,2%), employing less than 10 people (Table 9.1).

Table 9.1 Distribution of economic organisations into size categories (September 2001)

Number of employees	**Number of companies**	**Proportion (%)**
> 500	640	-
250-499	803	-
Big concerns, total	1,443	0,1
50-249 (medium-size companies)	8,157	0,7
Medium and big companies, total	9,600	0,8
10-49 (small companies)	35,742	3,0
1-9	293,413	24,4
0 (and unknow)	862,441	71,8
Micro companies, total	1,155,854	96,2
Total	1,202,196	100,0

Source: HCSO (2001: 15)

(a) Definition of businesses

In Hungary in the definition of businesses by size we apply the staff limits defined in the *law on small- and medium-sized businesses* accepted in 1999. According to the law:

1. *Small-and medium-sized* are businesses, in which the total workforce is less than 250, and the net annual revenue is a maximum of 4,000 million Forint, or its balance sheet total is a maximum of 2,700 million Forint, furthermore it meets the conditions set in paragraph (4).
2. *Small enterprises* are businesses in which the total workforce is less than 50, and the annual net revenue is a maximum of 700 million Forint, or its balance sheet total is a maximum of 500 million Forint, furthermore it meets the conditions set in paragraph (4).
3. A *micro-business* is a small business, in which the total workforce is less than 10.
4. An enterprise is considered small-or-medium-sized, if all together the state's, local government's or any large enterprises' *share in the business*, either on the basis of capital or voting rights, does not exceed 25 percent.

(b) Market zoology: the good balance in the jungle of market

A Hungarian researcher, János Vecsenyi in a book that attempts to make useful analogies, differentiates four different animal species in the jungle of the market (Vecsenyi 2002). The smallest players are the *ants*, who are unable and unwilling to develop, for whom continuous survival and possible stability are the centre of their strategy (Figure 9.1). Their number is great, and naturally their fluctuation is also significant, as many ants are born each year, and many fall out of the market as they had incorrectly calculated their abilities and possibilities. This is a natural concomitant of a healthy economy.

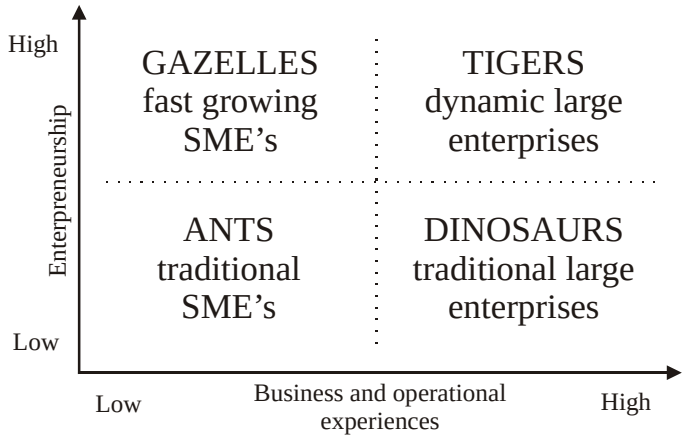
The *gazelles* are the dynamic, fast-growing, small-and medium-size businesses, which frequently achieve spectacular results, instantly utilising market possibilities, whose vulnerability is exactly that they grow too fast, but they are the ones who bring innovation and dynamism into a healthy economy.

The big game animals of the economy are the *tigers*, who often gobble up (buy up or incorporate) the gazelles, and either carelessly or deliberately crush the ants. The tigers mostly hunt on the international markets, with enormous strength and the necessary speed, with a willingness to change place or profile.

The *dinosaur* was big game for a long time, especially in the East-Central European economies, just emerging from the command economy. One of the most important positive feature of the economic growth in Hungary in the past decade is

the gradual extinction of dinosaurs, the immobile, less innovative, mostly state-owned big concerns, which operated with low productivity.

Figure 9.1 Four types of businesses



Source: Vecsenyi (2002: 54)

They went extinct either by having cut off and privatised their viable parts, which now operate as gazelles (obviously also giving room for ants to eat from them), or by going out of business by not finding their place on the market. Some of them were able to renew themselves, at enormous cost and effort, and today are trying to find their role in the market economy as tigers.

There's no overall recipe for a healthy ratio of different company types. One thing is for sure, though, that it is an unhealthy trend if one or another species is missing. It was unhealthy and blocked the development of the when there were no ants in the time of the command economy, and it is unhealthy these days that the gazelles are very rare, and in some lines of business, completely absent.

9.3 Ideas and circumstances

For a long time, small businesses have been at the focus of attention of Hungary's economic policy as, just like in the advanced European countries, small businesses create the most significant share of new jobs. In crises, as was in Hungary in the early and the mid-1990s, the big businesses were net losers of workforce, increasing unemployment. A significant part of that workforce was absorbed by small businesses. It seemed that the trends in Hungary's development, with certain

differences and time-lag, are similar to those of the European Union's, so in Hungary small enterprises will also achieve a leading role.

However, relatively few real small businesses, employing 10-49 workers, have been established, their number at present hardly surpasses that of 1988's 30,000 figure. The latest such statistical register put their number at 35,742, and the decisive portion of the growth is still micro-business. It is worth noting that 862,441 businesses have no employee at all, so they can fairly be called self-employed. The comparison with western Europe is already inappropriate at this point, as in Hungarian statistics such categories are also regarded businesses which e. g., in Germany are called freelance intellectual worker, or some other type of self-employment (Laky 2001).

In Hungarian practice, entrepreneurs by necessity are often talked about disdainfully, although, their majority should rather be regarded as heroic, as it means that the person does not accept being unemployed, does not want to live on welfare, but tries to get some income by doing some socially useful, accepted activity, mostly amongst severe difficulties.

Since the middle of the 1990s, positive trends have been observable, as the number of partnership enterprises have increased from 240,000 to 400,000. However, the majority of these businesses are still micro-size, as most of them, even if there are two or more owners, operate without employees, as self- employed.

(a) The missing middle

It is characteristic of most European economies that while having a relatively small number of big concerns there are a large number of small businesses, but these would be considered medium-sized businesses by Hungarian standards, on the basis of their size and turnover (SzirmaI 2002). But it is an unknown phenomenon in Europe that the number of real medium-size businesses is well under one percent (0.68 percent). A medium-size company sector is strikingly missing from the structure of the Hungarian economy. There are only 8,157 companies employing 50-249 workers.

Sailing boats are equipped with a keel so that they don't capsize even in harder winds. This keel secures stability, an ability to manoeuvre. Such a keel in a market economy is the medium-size companies sector, if such companies exist. In Hungary it is badly missing, and it is an obstacle to both the stable development of the economy and to its manoeuvring ability. Most German authors call the attention to the importance of the middle class, called *mittelstand* in German, and assert that this layer could be the token of political stability as well.

(b) Thirsty for financial sources

It is worth demonstrating the possible negative effects of the lack of medium-sized businesses on the economy. There were great expectations, some of them probably only illusions, concerning the increasing activities of risk capital companies in the prosperity of Hungarian small enterprises. One of the reasons for disappointment was that the risk capitalist, for whom gauging the situation of a business is highly costly, cannot deal with either a self-employed or a micro-enterprise, employing less than 10 people. Such a company, from an investor's point of view, has no capital-accumulating capacity. The risk caused by market powers is calculable and assumable in many cases for the investor. But the risk that a simple flu epidemic can reduce the output of a company to zero, as all three owners-employees are sick, is a non-assumable risk for an investor.

But we face similar problems looking at the oft-cited subcontractor relations, which the government's economic policy so desires. For a big company it is too big a risk to deal with a micro-enterprise in which there is no stable professional management, where the owners are the foremen and also the workforce, where the size of the company and their lack of capital do not allow for the creation of a structure necessary to secure the contracted quality, or the employment of the necessary technology. The ideal subcontractor for a big company is a stable, reliable medium-sized business, which has the necessary financial underpinnings to survive the liquidity crisis even if the buyer does not pay in time, which has the necessary machinery, which has reserve capacity if necessary, and reliable, well-trained workers and management. There are only some 8,000 such companies in Hungary.

The economic figures of the past two years show that a healthy strengthening process has started among micro-businesses, the majority of them have stabilised, and moreover, there is hope for further development. An ever growing number of micro- and small businesses take advantages of resources at their disposal for extension and modernisation investments. Over 100,000 enterprises have already signalled their intention to take those subsidies, and there will be tens of thousands of them who will actually do it as well. (GEM 2001, 2002)

Analysing the processes of the past two years, the government has found means to support and stimulate small enterprises. However, the means to strengthen medium-sized businesses have not been satisfactory thus far. As a report by the institute to support small businesses on the year 2001 stated: "A spectacular move in the restructuring of company revenue positions did not take place in 1998-1999, but among the micro- and medium-sized businesses in the year 2000 it did. The share of micro-businesses grew by five percent, and that of the medium-sized companies dropped by eight percent, as compared to the previous year" (Kállay 2001).

It is to be considered, though, that the processes within the economy have their "maturing time," which is difficult to make shorter (BDSSE 2001). This is likely that the business-boosting measures of the Széchenyi Plan, the government's national

economy development program, like credit supports, investment tax benefits, will be evident only in the statistical figures of the coming years. So it is probable that the development of the economy will be corrected and will bring into balance internal economy's presently still disproportionate and unhealthy structure, only one manifestation of which is the 82 percent share of big enterprises in the country' total exports (Csaba et al 1998).

9.4 Summary

As we can see, the recent challenge of the Hungarian economic policy, more precisely the enterprise-development policy, has not been financing the foundation of new enterprises but preparing operating companies for the intensifying competition due to our joining the EU. Hungarian enterprises and entrepreneurs do have the potential to turn the intensifying competition to their own advantage. In order to achieve it, the support of governmental issues and mergers and acquisition processes, infrastructural development, well-set priorities of economic policies and the help of taxation, fiscal policy and legal regulation are of great importance.

It is also pointed out in the article that contrary to the fact that financial matters and the lack of capital and sources are the most often blamed factors, in reality, market, human, organisational and subcontractor problems have to be handled in the course of the development into a medium-sized company.

References

BDSSE 2001: *Guiding Principles for Donor Intervention*. Business Development Services for Small Enterprises, Committee of Donor Agencies for Small Enterprise Development, Washington.

Csaba. L., Bara, Z., Bohatá, M. and Brezinski, H. et al 1998: *The Hungarian SME Sector Development in Comparative Respective*. Kopint-Datorg Foundation for Economic Research, CIPE-Center for International Private Enterprise, Budapest.

EC 2001: *Enterprises in Europe* (6th ed). European Commission, Luxembourg.

GEM 2001: Magyarország (Global Entrepreneurship Monitor). University of Pécs, Pécs.

HCSO 2001: *Periodical statistical publications (2003/3)*. Hungarian Central Statistical Office, Budapest.

Hisrich, R.D. and Szirmai, P. 1993: Developing a Market-Oriented Economy: A Hungarian Perspective. *Entrepreneurship and Regional Development*, 5: 61-71

Kállay, L. et al 2002: *State of Small and Medium-sized Businesses in Hungary*. Annual Report, Kisvállalkozás-fejlesztési Intézet, Budapest.

Laky, T et al 2001: *Main Trends in Labour Demand and Supply*. Labour Research Institute, Budapest.

Lengyel, I. 2002: The Competitiveness of Hungarian Regions. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 235-246

Lengyel, I. 2002: Theoretical backgrounds of regional economic and enterprise development (in Hungarian). In Buzás N. and Lengyel I. (eds): *Ipari parkok fejlődési lehetőségei: regionális gazdaságfejlesztés, innovációs folyamatok és klaszterek*. SZTE GTK, JATEPress, Szeged: 24-54

Szirmai, P. 1984: Az új vállalkozási formák és az ipar (The new ventures and the industry). *Iparpolitikai tájékoztató*, 10: 1-6

Szirmai, P. 2002: The Missing Keel: Thoughts on Hungarian Small Enterprises. *Hungarian Chamber Horizon*, 1: 53-55

Vecsenyi, J. 2002: *Entrepreneurship: From the idea to the restarting of a business* (in Hungarian). AULA Kiadó, Budapest.

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 130-142

10 Bottlenecks in B2B Quality Management and Their Impact on Marketing Research

Zoltán Veres and Erzsébet Hetesi

10.1 Introduction

While much is known about perceived quality in b2b transactions – and quality management standards can be considered well-founded from a transactional point of view – in the context of relationship dimension further elements of quality seem to be important moderators.

This paper discusses the issue of how to modulate the quality image by limiting the generalizability of the ordinary performance-importance map. Based upon extensive research among clients of different b2b services (such as packaging, IT system supply, project information center, utility services, market research, quality management consultancy, freight forwarding etc.) the paper identifies a set of moderating factors. In the study* the following concepts and their impact on research are discussed: time vs. complaint, hierarchy of actors, frontline episodes, relationism in loyalty and competence vs. loyalty.

10.2 Problem definition

The final aim of quality management in the company practice is to stabilize the quality level defined in the corporate quality policy and to assure the process of continuous improvement (Feigenbaum 1983). According to the TQM-modell those manifestations of quality can be considered as the marketing dimension of the quality management, which have to be taken into account on the basis of customer orientation. These are:

- client satisfaction and (especially in the case of services).
- internal marketing.

The importance of the topic has been underlined by the new ISO standards. Under these standards it is now compulsory – not simply recommended - to measure client satisfaction and staff satisfaction. The operational link to quality management is well

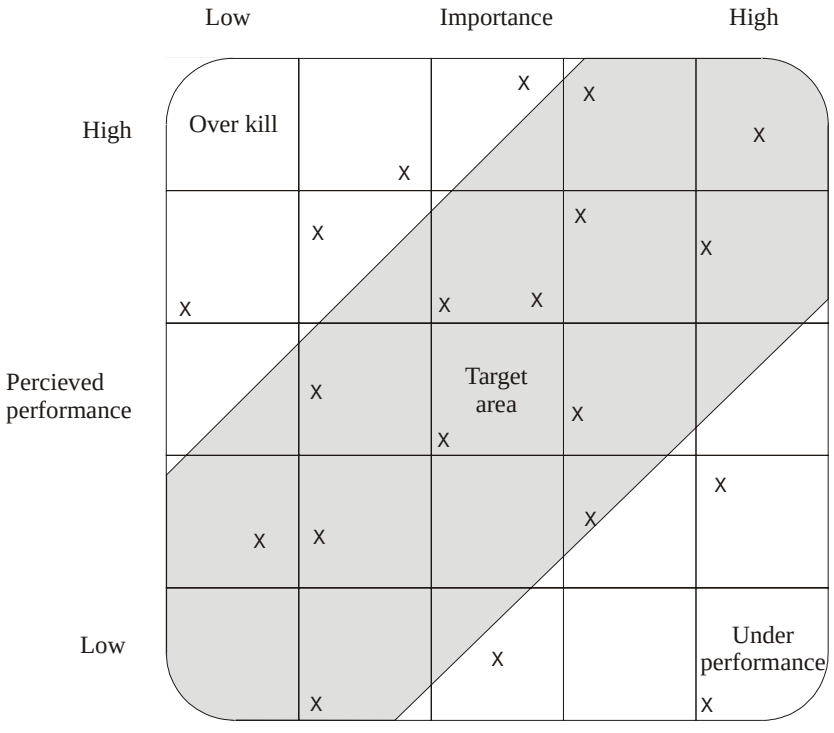
* This paper is based upon the authors' presentation at ISBM/CBIM B2B Academic Workshop held in Orlando (FL) in February 2003.

described by the Quality Function Deployment model, which also makes necessary to measure clients opinion with high precision.

In order to meet this new requirement the ISO-qualified firms – disregarding the „cost-saving" D-I-Y solutions – will give orders to an external quality consultant or to a market research agency to carry out a tracking type of satisfaction research. The task of the supplier in this case is „not more" than to deliver reliable and acceptable results for the client on an ordinarily low quality research budget. It is thus not surprising that it is the b2b market where client satisfaction research has reached real proficiency, since the personal supplier-buyer relationship could not be managed without such continuous monitoring (Grönroos 2000).

The usual way of exploring the client (and employee) satisfaction in practice is as follows. First, the analysis of quality dimensions has to map the scope of perceived quality dimension by dimension with an output of possible quality attributes (Garvin 1987). The parametrisation of quality attributes will translate the set of sometimes very abstract quality attributes into measurable quality parameters. After the questionnaire design and the data collection the data processing in the majority of cases leads to the creation of performance-importance map (Figure 10.1).

Figure 10.1 Performance-importance map

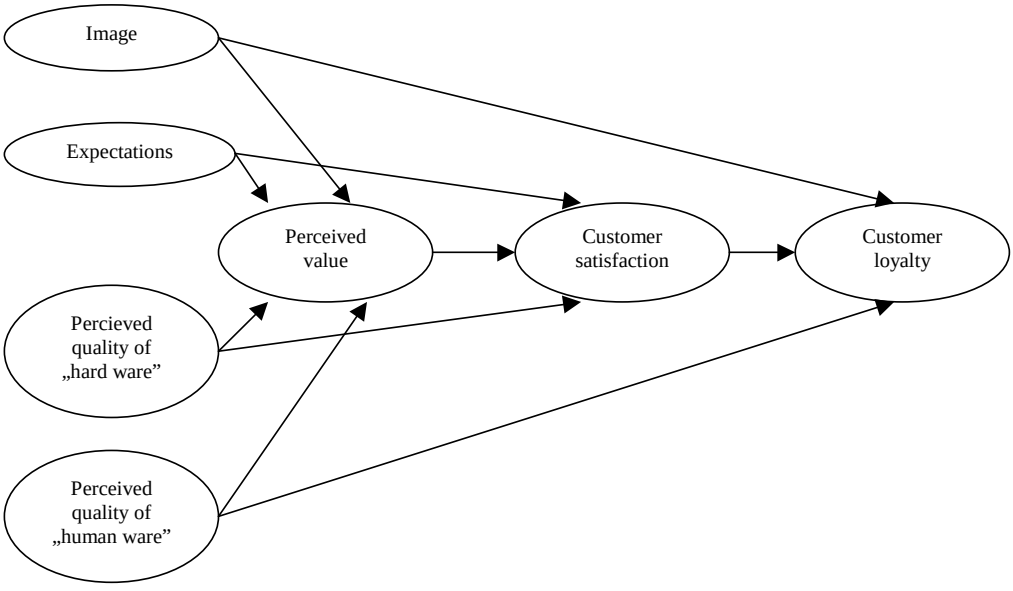


Source: based on Christopher and Yallop (1990)

For quality management this map is an input to quality development (Axelsson and Wynstra 2002). Most managerial research reports do not go beyond analysing the gaps between the perceived performance level and the explicit (at best implicit) importance of the related quality parameters. The methodological problem – and this is what this paper aims to discuss– lies in the generalizability of the performance-importance map. In this case since the result presented in such a way cannot be considered as one of general validity, it must not be applied to quality development decisions without reservations.

In the last one and a half decades in the business practice of quality management a new question emerged: is at all sufficient to apply the performance importance map to quality development? As a result, loyalty research – beside satisfaction research – has become more and more popular among decision makers. Many studies supported the evidence that the stronger the client-retention capability of a firm the more profitable the operation. We can still remember the slogan-like arguments: the net present value increase in profit that results from a 5% increase in customer retention varies betwen 25 and 95% over 14 industries (Reicheld and Sasser 1990). Moreover, others have noted that the relative costs of customer retention are substantially less than those of acquisition (Fornell and Wernerfelt, 1987).

Figure 10.2 The factors affecting customer satisfaction and loyalty



Source: Grönholdt et. al (2000: 510)

Some could later prove that the formerly purely hypothetical „quality-satisfaction-loyalty chain" really existed, that is the expected performance leads to satisfaction and finally to loyalty (Grönholdt et al 2000, Martensen et al 2000). In the interpretation of the quality – satisfaction – loyalty chain beside others (e.g. Parasuraman-Grewal) the model below can serve as a starting point for the quality manager. Our problem is however the same as it was in the previous case, namely, the generalizability of the measuring model of loyalty. Are there additional explanatory variables in the loyalty-function or are there not? From a managerial point of view the topic is of great importance because the precise methodology for the detection of client satisfaction and loyalty would make the firm capable of „keeping the clients in hand" and enable it to better plan the management of new clients (Figure 10.2).

10.3 Empirical evidence of some inconsistencies

In the last years we carried out numerous ad-hoc research projects focussed on b2b client satisfaction. The different areas of the projects included: the packaging industry, IT system supply, a project information center, utility services, market research, management consultancy, freight forwarding etc. The numerosity of the clientele ensured a sufficient sample size to keep the error within a margin of 5% on a 95% confidence level even in the worst case.

While presenting the results in the ordinary way we observed two typical phenomena which made the presentation more difficult. These two phenomena practically speaking could be considered as the statistical weakness of the results. One was the extremely high deviation behind the means, and the other one the phenomenon of the irregural distribution of the answers. The former one can be presented in the simplest way if we imagine dispersion ellipses around the coordinates representing the means on the ordinary performance-importance map. The managerial practice is apt to belittle – or even to ignore - this natural statistical phenomenon. The simplification can however result in very erroneous conclusions. The second phenomenon can be seen very well in Figure 10.3, which shows the results among the clientele of a freight forwarding company. The research project was carried out in 1997 on a sample of 127 companies. In the survey we investigated the components of the clients' satisfaction on five (5) degree scales. For the researcher the real interpretational difficulty lies in the duplication of the distribution peak and not so much in the distribution obliquity.

While preparing our survey with qualitative research in utility service industry also turned out that the loyalty model was very far from general validity. Consequently, there must be other dimensions apart from the already accepted ones in defining loyalty. In the in-depth interviews it frequently emerged that the self-consciousness of the clients may also influence loyalty and this new dimension appears first of all in the presumed competence of the client and in his ability to

assert his interest. By content-analysis of the interviews it has been found that the loyalty of the clients is highly influenced by the awareness of their rights and obligations and the possibility of managing complaints and problems.

The reasons behind the above mentioned results are diverse and they may occasionally exist simultaneously:

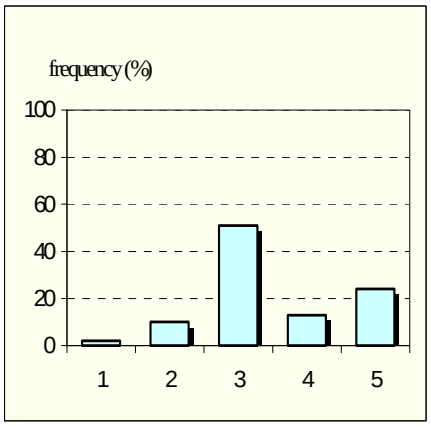
- buying center effect,
- time vs. complaint,
- frontline episodes,
- relationship quality,
- competence, and
- assertion of interest.

(a) Buying center effect

In a survey we were confronted to the fact that in many cases in the organizational market the perceived performance of the supplier can be interpreted and measured only on more levels. The research project was to explore the quality of internal services of a big manufacturer in the chemical industry. In the survey the "buyers" of the services of the IT system supply division have been interviewed about their needs and satisfaction.

The research confirmed that there is quality perception on the top and middle management levels and at the operative bottom (on the level of the real contact persons).The quality management of the company has to be aware of the client satisfaction on each level of the hierarchy. The managerial implications, however, are necessarily different. The answers being measured on a different level of hierarchy can naturally result in more significant deviation.

Figure 10.3 Perceived performance of the exceptional problem solution



Source: Veres (2003: 89)

(b) Time vs. complaint

The satisfaction originating from perceived quality is extremely sensitive to the complaint situations, and especially to the length of the period which has passed since the last complaint situation and its handling. This phenomenon can hypothetically be modeled as a stable and a transient phase of client satisfaction. The former stationary one is the result of the experience and perceived relationship of a long period. This stable satisfaction turns into a transient phase when the complaint situation emerges. This is the very beginning of the service recovery phase and it lasts until the satisfaction stabilizes again on the former or on another level. Consequently, the mixing of clients in a stable satisfaction phase and those of being in the service recovery phase in the sample might be a source of measuring error.

(c) Frontline episodes

In measuring satisfaction, the opinion of the frontline persons - who frequently take part in intensive interactions – can cause considerable deviation in the results. Especially the client relationship of key account managers can result in measuring difficulty since they personalize their relationship much more, therefore the client opinion says more about the contact person than about the supplier. The personality of the key account manager certainly shifts the result toward the uniqueness of the satisfaction level.

(d) Relationship quality

It is well known that relationship quality which can originate from the prehistory of the business relationship is based upon a very different client value than transactional quality (Cova and Salle 1999, Cova and Ghauri et al 2002). The numerosity of each perception preference depends on the complexity of the relationship portfolio. As a minimum, we have to distinguish four relationships: the newcomers, the loyals, the wilful deserters and the converted lambs, although the portfolio in reality is even more complex. An undoubtedly logical hypothesis can be that the different relationship statuses define significantly different satisfaction preferences thus the strengthening deviation of the opinions can originate also from this relationship dimension (Gadde and Hakansson 2001).

(e) Competence

The emerging of the competence dimension is probably the consequence of the strengthening self-consciousness of the clients. In the organizational market the more competent clients are to enjoy higher advantages in establishing and forming the business relationship. Although a partner with less awareness of his rights and

obligations can also think himself competent, the subjective conviction in competence can influence loyalty. Based upon our eventual surveys in the utility service industry we can suppose that in the case of b2b services the competence of the client plays a key role in loyalty.

(f) Assertion of interest

The assertion of interest as another dimension of client self-consciousness can influence loyalty. It can play a special role in forming the conditions of cooperation, and an even more important role in complaint situations. The reason for the emerging interest-assertion dimension is – similarly to competence – the strengthening client consciousness, since the increasing propensity and possibility to assert interests can improve the client bargaining position.

10.4 Interpretation

By secondary analyses of the survey results we have tried to verify the above mentioned hypotheses and suppositions. The most significant outputs of the analysis are as follows:

(a) Different levels of quality image

In the above mentioned survey at a chemical industry manufacturer we assessed the results of the division's performance as extremely inhomogeneous. Testing by ANOVA the opinion-deviations of the respondents belonging to different levels of hierarchy we have got significant differences. As previously anticipated not only the parameter means but also the importances proved to be different on different decision levels.

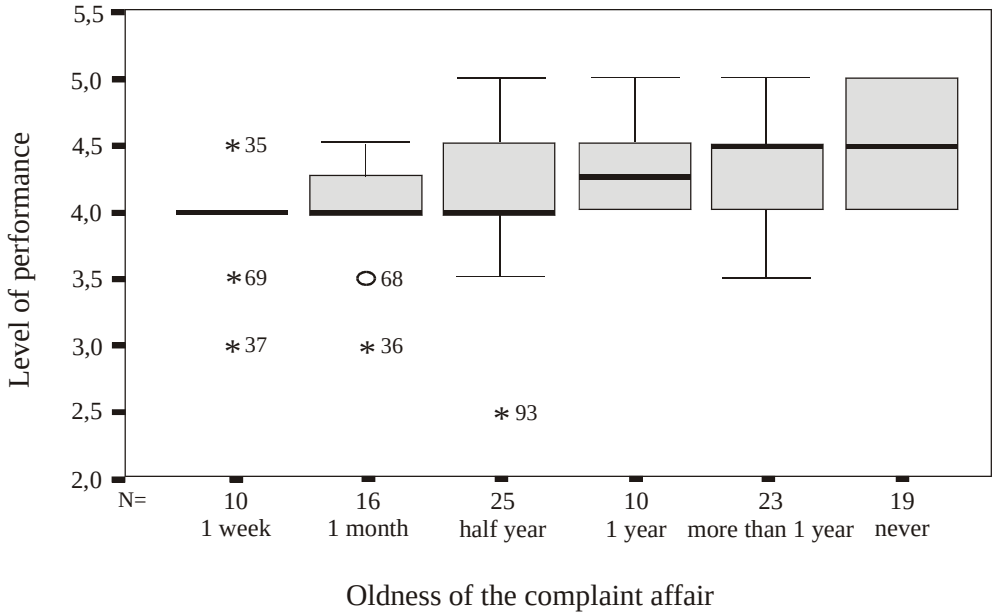
(b) Perceived performance and complaint times

When investigating the perceived performance of a supplier in the packaging industry we found unexceptedly high deviations. The survey has been carried out in the years 2000 and 2001 on a sample of 114 key accounts. In order to explore the complaint segments – by repeated questioning – we have completed the statistical variables with a question which detected the length of the time-period that had passed since the last significant complaint situation (net valid answers equal 103).

The aggregated satisfaction of the clients in function of the time variable defined in the above mentioned way proved to be in significant relationship with the time-period. It can be well followed in box-plot Figure 10.4 that in the case of

simultaneous answers the satisfaction level is proportionate to how long ago the complaint situation emerged (result tested by ANOVA), that is the longer time ago the complaint emerged the higher the perceived performance.

Figure 10.4 The box-plot of the level of performance plotted against the complaint times



Source: exclusive research (by permission of Consact)

(c) Frontline experiences

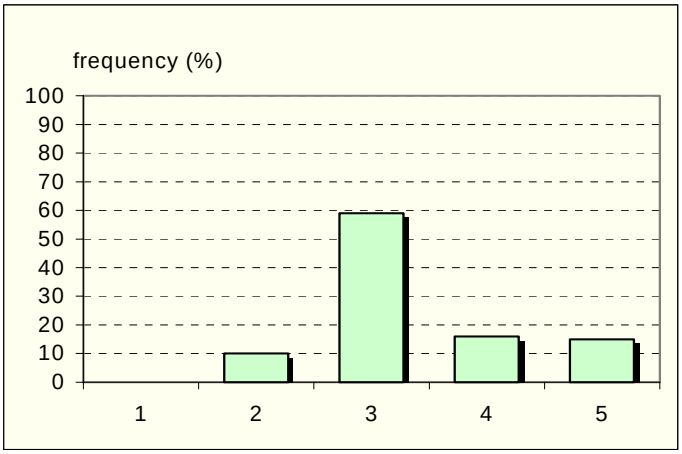
Due to non-parametric eventual experiences (critical incidents) and the frontline personnel-specific quality in certain projects the ordinary research design had to be completed with a frontline audit. This could explore the quality of the frontline by questioning the contact personnel on both sides, by observing the frontline activity and by studying the backoffice-frontline interactions in the backstage (internal service moments).

Important information for quality management was that the quality preferences of the frontline persons and of the contact client persons were significantly different. The differences coming from the uniqueness of the contact persons were also significant. The dependence of the client opinions on the contact person has also been verified by the critical incident analyses.

(d) Relationship segments

If we generate the results by relationship segments the distribution improves and the quality image becomes clearer. When we, for example, computed the perceived performance of the exceptional problem solution (as a key parameter of many services) for the four basic relationship groups the uneven answer-distribution of the total clientele became more regular. Especially in the case of separating the brand loyal clients (Figure 10.5).

Figure 10.5. Perceived performance of the exceptional problem solution (segment of brand-loyal clients)



Source: Veres (2003: 89)

(e) Client consciousness

The results of our survey carried out in Hungary about the customer loyalty to the local electricity distributors. prove that the loyalty factors known from the international literature should be dealt with special care in the case of the electricity industry. A representative sample of 1000 in the population living in the supply area of a Hungarian electricity supplier has been asked to fill in a questionnaire. The sample was selected with the mechanical simple random method (method of each n). The factor analysis of the survey results – by operationalizing the client consciousness in three dimensions – served to test the in-depth interviews (Table 10.1 and 10.2).

Table 10.1 Factor analysis of the consciousness dimension

Questions	Factors			
	1	2	3	4
Comp1	**0.91**			
Comp2	**0,91**			
Comp3	**0,89**			
Comp4	**0,80**	0,28		
Comp5	**0,53**	0,45		
Info2	0,29	**0,76**		
Info3	0,21	**0,73**		
Info1	0,32	**0,72**		
Info5		**0,65**	0,26	
Info6		**0,63**	0,23	
Info4		**0,62**	0,20	
Interest4			**0,90**	
Interest5			**0,88**	
Interest3		0,23	**0,71**	0,39
Interest1		0,40	**0,41**	0,27
Interest2				**0,85**

Source: Hetesi (2001)

Table 10.2 Analysis of the explained variance

	Explained variance after rotation		
Factors	Eigenvalue	Explained variance	Cumulated variance
1	3,67	22,95	22,95
2	3,42	21,35	44,30
3	2,45	15,30	59,60
4	1,26	7,89	67,49

Source: Hetesi (2001)

From the 16 questions the factor analysis identified four factors as explicative dimensions of client consciousness, where the

- first factor represents competence,
- second the “being informed”,
- third the assertion of interest and
- fourth is not in relationship with the consciousness dimension.

The separation of competence and interest-assertion and the eigenvalues draw the attention of quality managers to the fact that in quality development these variables have also to be taken into account when managing loyalty.

More useful information can be found in the result of the regression analyses. We can study the absolute value and direction of the standardized regression coefficients in Table 10.3, and certain findings can be interpreted on the presumed relationship between the variables.

Table 10.3 Result of the regression analysis

Independent variables	Loyalty	
	Standardized beta	p value
ÜSZI	-0,22	0,003
EMP	-0,19	0,002
ÉRD	-0,15	0,010
KOMP	0,12	0,044
ELÉR	-0,17	-0,035
R^2=0,12		P<0,05

Abbreviations: ÜSZI = client service, EMP = empathy, ÉRD = assertion of interest, KOMP = competence, ELÉR = accessability

Source: Hetesi (2001)

For quality management it is important information that competence is in inverse function with loyalty, consequently, the more competent clients will more easily leave the supplier than the less competent ones. On the other hand, the assertion of interest is in positive relationship with loyalty.

We have seen that the ordinary performance-importance map in itself can mislead the quality management if the company neglects those – and other – inconsistencies that we presented in this paper. As a practical scenario it is proposed to segment the client-population in different dimensions by

- hierarchy of the respondents,
- complaint,
- contact persons,
- relationship status.

Based upon the empirical results of the surveys as a new dimension, the measuring of client consciousness has to be built in to the research design. The impact of competence and the assertion of interest in loyalty can deliver useful information for quality management.

10.5 Conclusions

The ordinary client satisfaction surveys in company practice ignore the above detailed segment-specific differences, therefore, they report the means of the client opinions. When applying the quality image models a threshold of deviation should be defined above which the grouping of the population and analysis of variance would be proposed. The users have to reveal that the performance-importance map is not a two-dimensional phenomenon but a much more complex one because the quality image is a multiple-sided prism. The image depends on where we look at it from. The marketing research experts can deliver these proposals to the quality management. The real question is in fact how the management will be able to operationalize the proposals.

The measuring of loyalty also needs corrections. It is probable that the variables which are responsible for influencing loyalty are industry-specific ones. Special research could explore for quality management the key dimensions in the loyalty function. Measuring difficulties can also emerge in the operationalization of the competence variable (items to measure exactly an extremely subjective parameter, building into the measuring model etc.). Apart from the mixed opinion of the respondents in a stable satisfaction state and those within a service recovery process there is a further difficulty in measuring loyalty: the operationalization of the assertion of interest. What influence loyalty more: the propensity or the possibility to assert interest or both? In which situation should we detect this dimension: in the forming of cooperative conditions or in complaint handling or in both?

The correct methodology for total quality management programs is indispensable, but before finding this correct methodology the minimum what we can do is to comprehend our limits in the exploration of the quality image.

References

Axelsson, B. and Wynstra, F. 2002: *Buying Business Services.* Wiley, Chichester.

Christopher, M. and Yallop, R. 1990: Audit your Customer Service Quality. *Focus*, 9(5): 1-6

Cova, B. and Salle, R. 1999: *Le marketing d'affaires*. Dunod, Paris.

Cova, B., Ghauri, P. and Salle, R. 2002: *Project Marketing: Beyond Competitive Bidding*. Wiley, Chichester.

Feigenbaum, A. 1983: *Total Quality Control.* McGraw-Hill, Boston.

Fornell, C. and Wernerfelt, B. 1987: Defensive Marketing Strategy by Customer Complaint Management. *Journal of Marketing Research*, 11: 337-346

Gadde, L.E. and Hakansson, H. 2001: *Supply Network Strategies.* Wiley, Chichester.

Garvin, D.A. 1987: *Competing on the eight dimension of quality*. Harvard Business Review, Nov-Dec: 43-51

Grönholdt, L., Martensen, A. and Kristensen, K. 2000: The relationship between customer satisfaction and loyalty: cross-industry differences. *Total Quality Management*, 5&6: 509-514

Grönroos, Ch. 2000: *Service Management and Marketing: A Customer Relationship Management Approach.* Wiley, Chichester.

Hetesi, E. 2001: *A marketing munka dolgozói megítélésének, valamint a lakossági fogyasztók lojalitásának mérése és elemzése a hazai közüzemi szolgáltatók körében* (Measuring and analysis of marketing function's evaluation by employees and of consumers' loyalty in the domestic public utility service industry). PhD dissertation, University of Pécs, Hungary.

Martensen, A., Grönholdt, L. and Kristensen, K. 2000: The drivers of customer satisfaction and loyalty: cross industry findings from Denmark. *Total Quality Management*, 5&6: 544-553

Veres, Z. 2003: *Szolgáltatásmarketing* (Services marketing). KJK-KERSZÖV Könyvkiadó, Budapest.

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 145-160

11 Some Aspects of Regional Development in Hungary

Szabolcs Deák and Imre Lengyel

11.1 Introduction

Accession to the European Union is a significant strategic aim of every Central and Eastern European country (CEECs), including Hungary as well. In accordance with the present state of negotiations on accession, the first group of countries is going to become members of the European Union in 2004. But the accession of the CEECs to the European Union is presumably to lead to conflicts between the present and new member countries, because the CEECs are much poorer and have proportionately much larger agricultural sectors than the average EU country.

The starting years or (decades?) of the Union membership are going to pass in the spirit of catching up, which are actively contributed by the budget of the Union. The instruments used by the EU have been incorporated into the Community Support Frameworks (CSF) supported by the Structural Funds. The sources paid out for every country are maximised in 4% of the GDP which, in case of Hungary, is equal to about 2.3- 2.5 billion € per year. This sum in order is equal to the amount of foreign direct investment flowing annually to the country, which has been one of the most important factors of economic growth following the transition in Hungary. The regional policy of the Union is of special importance for Hungary, since the financial support may become the factors generating economic growth and development, moreover may moderate the regional disparities (Barlow at al 1998, Bartke 1997, Horváth 1999, Rechnitzer 2000).

In this paper we are going to analyse what characteristics do have the economic growth and catching up of Hungary and the spatial differences among its regions[1]. The structure of this paper is as follows*. In section 2 we are going to examine four closely related macroeconomic variables. First of all, we are investigating how the rate of GDP per capita changed in the last few years. Its importance lies in the fact that the level of GDP per capita is the main criteria of whether the Hungarian regions (NUTS II level) and counties (NUTS III level) (Figure 11.1) can be expected to gain share of financial support through the Structural Funds after accession to the

[1] In order to make distinction between the two levels, we are going to use the expressions *region* for the NUTS II level regions and *county* for NUTS III level ones, as used in Hungarian public administration. There are 7 regions at NUTS II level and 19 counties and Budapest at NUTS III level in Hungary.

*This study was supported by the Hungarian Research Found, OTKA (number of project is T38150).

European Union. In section 3 we are going to study unemployment as one of the aims supported by Objective 2 of the Structural Funds. In section 4 we are analysing the change of employment, which serves as an interesting experience in case of Hungary. The conclusions are set out in section 5.

Figure 11.1 Regions and counties in Hungary

Source: Hungarian Central Statistical Office

11.2 Regional differences in GDP per capita

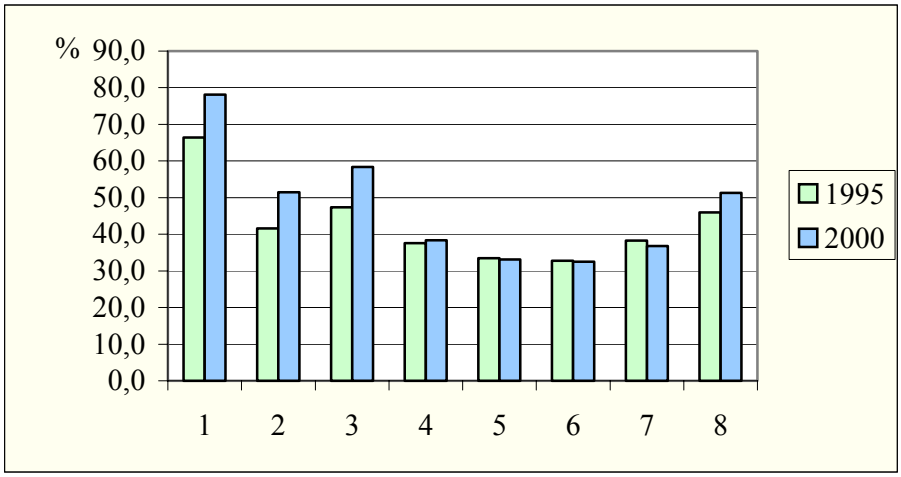
In the economic literature of integration theory, there are two different views concerning the process of regional growth and the catching up hypothesis (Marques and Soukiazis 2000). According to the first, higher integration increases factor mobility and concentration of economic activity, which can be in favour of developed regions and leads to regional divergence. From the second point of view higher integration causes increased factor mobility and trade, which eliminates income differentials through equilibrating tendencies in income levels and more efficient specialization in production and leads to regional convergence in the long-run.

Papers by Armstrong (1995), Boldrin and Canova (2001) and Marques and Soukiazis (2000), among others, argue that, the deeper economic integration of the

USA yields lower regional disparities than in the European Union, which suggests that higher integration of the EU will lead to regional convergence rather than divergence.

The strategy underlying the CSF is consistent with the second point of view expecting that the transfer of resources to the poorer Member States and regions will hasten the process of convergence among countries and regions of the EU. A large proportion of support through the Structural Funds is expended on regional development programs within the framework of three objectives in the European regional policy (EC 1999). Objective 1 serves as a support for the regions whose development is lagging behind. Objective 2 supports the regions faces with structural difficulties, and are in need of social and economic change. Especially the regions formerly declining in industry, the population largely employed in agriculture in the rural areas and respectively, the regions afflicted by high rate of unemployment are involved. Objective 3 is to help the development of human resources in the regions out of support in Objective 1 (Hall et al 2001).

Figure 11.2 The purchasing power adjusted GDP per capita relative to the EU-average (15 countries) in %, 1995 and 2000



Note: 1: Central Hungary, 2: Central Transdanubia, 3: Western Transdanubia, 4: Southern Transdanubia,5: Northern Hungary, 6: Northern Great Plain, 7: Southern Great Plain, 8: Hungary

Within the framework of Objective 1, those NUTS II level regions are entitled to support in which the GDP per capita does not reach the 75% of the EU average. In case of Objective 2 the assessment of competence may be made by several criteria in consideration. In fact, there is a list to make of regions entitled to support, and in its construction the national governments have special privileges to make the European

Commission support the most serious problems in the economy of a certain country. As criteria, the change of unemployment, the rate of the young-age unemployed population, the rate of long-term unemployment, the change of employment in industry and finally the rate of employment in agriculture can be taken into account. Regions entitled to support may be located at NUTS II and NUTS III levels.

In Hungary, between 1995 and 2000 the GDP per capita amounted to half of the EU average, increasing in 5.3% in its relative situation in 6 years (Figure 11.2, Table 11.1). While the GDP was increasing at a very low rate around the middle of the 1990s, on volume index 1.5% in 1995 and 1.3% in 1996, economic growth has gathered pace rapidly from 1997 onward with 4.6% in 1997, 4.9% in 1998, 4.2% in 1999 and 5.2% in 2000. GDP growth exceeded the average of EU countries after 1997 and as a consequence, a process of catching up is outlining (Lengyel 2002, Lengyel and Deák 2002, Rechnitzer 2000).

Nation-wide economic growth has been distributed among the regions in a very unequal way. Three regions (Western Transdanubia, Central Hungary, Central Transdanubia) show spectacular increase in GDP relative to the EU average, while the other four regions have grown at a rate close to the EU average (or even less in Southern Hungary, in the northern and southern parts of the Great Plain). Therefore, three out of seven regions are catching up with EU average, meanwhile the remaining four regions only have stopped lagging behind further.

In Hungary, between 1995 and 2000, the purchasing power adjusted GDP per capita of regions reached 32.0 to 78.1% of the average of the fifteen EU member countries (Table 11.1). The region of Central Hungary is in sharp contrast to the other Hungarian regions, of which purchasing power adjusted GDP per capita has exceeded the 75% threshold value quantified in Objective 1. Nevertheless, all the other regions can be found under the threshold value. Thus, following the accession to the Union, the regions are expected to receive support on the basis of Objective 1.

Provided the growth of GDP is compared to the growth of the national average, much difference can be pointed out between the regions (Table 11.1). The three catching up regions have produced growth exceeding the national average, meanwhile the remaining four regions seem to lag behind.

On the level regions and counties as well, increase in difference can be experienced between the most developed and the less developed counties. The discrepancy on the level of regions was 33.5 percentage points in 1995, meanwhile it was as much as 45.5 percentage points in 2000. In case of the counties it was 55.9 percentage points in 1995 and 72.3 percentage points in 2000. Figure 11.3 also confirms the increase in inequalities at both level and illustrates that this increase is still taking place.[2]

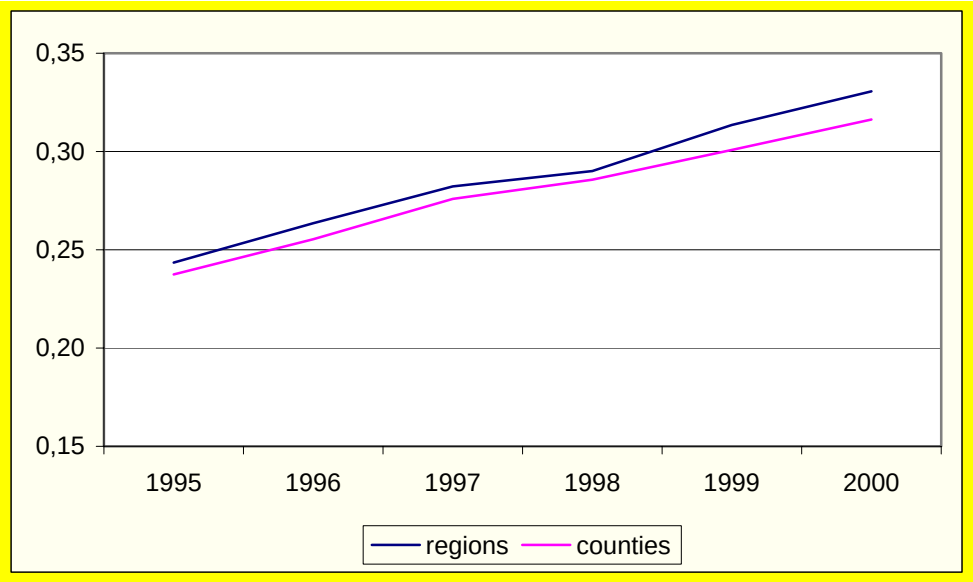
[2] This measure of GDP per capita disperson is called σ-convergence in the literature (see Sala-i-Martin 1996).

Table 11.1 The purchasing power (PPS) adjusted GDP per capita relative to the EU-average (15 countries) in %, 1995-2000

Region, County	**1995**	**1997**	**1999**	**2000**	**Average difference per year (2000-1995)**	**Average difference per year over national average (2000-1995)**
Budapest	83.3	89.0	94.8	100.1	3.4	2.3
Pest	33.4	36.9	40.0	40.1	1.3	0.3
Central Hungary	*66.4*	*70.9*	*75.1*	*78.1*	*2.3*	*1.3*
Fejér	45.5	55.6	56.5	65.0	3.9	2.8
Komárom-Esztergom	39.8	40.9	41.0	42.7	0.6	-0.5
Veszprém	38.8	38.1	40.0	43.4	0.9	-0.1
Central Transdanubia	*41.6*	*45.6*	*46.6*	*51.5*	*2.0*	*0.9*
Győr-Moson-Sopron	50.0	52.0	65.0	68.5	3.7	2.6
Vas	49.0	54.2	58.5	58.6	1.9	0.9
Zala	42.2	43.3	44.5	43.5	0.3	-0.8
Western Transdanubia	*47.4*	*50.0*	*57.1*	*58.4*	*2.2*	*1.1*
Baranya	36.7	37.9	38.9	38.8	0.4	-0.6
Somogy	35.1	33.3	34.2	34.9	0.0	-1.1
Tolna	42.4	39.9	44.3	42.4	0.0	-1.1
Southern Transdanubia	*37.6*	*36.9*	*38.6*	*38.4*	*0.2*	*-0.9*
Borsod-Abaúj-Zemplén	35.0	33.0	33.4	33.3	-0.3	-1.4
Heves	34.3	34.3	35.9	36.2	0.4	-0.7
Nógrád	27.3	25.1	27.2	27.9	0.1	-0.9
Northern Hungary	*33.5*	*32.0*	*33.0*	*33.1*	*-0.1*	*-1.1*
Hajdú-Bihar	35.7	36.3	35.6	36.3	0.1	-0.9
Jász-Nagykun-Szolnok	35.6	35.8	33.5	34.2	-0.3	-1.3
Szabolcs-Szatmár-Bereg	27.9	27.6	27.1	27.8	0.0	-1.1
Northern Great Plain	*32.8*	*32.9*	*31.9*	*32.5*	*-0.1*	*-1.1*
Bács-Kiskun	36.2	34.7	34.7	34.7	-0.3	-1.4
Békés	36.0	34.1	33.9	33.8	-0.4	-1.5
Csongrád	43.0	42.7	42.9	42.5	-0.1	-1.2
Southern Great Plain	*38.3*	*37.0*	*37.0*	*36.8*	*-0.3*	*-1.4*
Hungary	**46,0**	**47,5**	**49,7**	**51,3**	**1,1**	**-**

Source: HCSO (2000, 2001)

Figure 11.3 GDP per capita dispersion (standard deviation of the log) among Hungarian regions and counties, 1995 and 2000



Source: own calculation

The averages of GDP per capita in the regions hide the differences clear between the counties and within the regions, since in the developed regions there are only one or two counties with prosperous economy (Table 11.1). Considering the values in 2000, Budapest has already reached the average of the EU countries. Besides the capital, the county of Győr-Moson-Sopron is outstanding, furthermore the counties Fejér and Vas. In the region of Western Transdanubia there are two counties with high values, meanwhile in the Central Transdanubia region there is only one such county. The GDP per capita of the county Győr-Moson-Sopron is twice as much as of the counties in the Great Plain regions.

In accordance with the change of GDP four groups of counties can be distinguished (Lengyel 2001, Nemes Nagy 2001):

- the catching up counties (Budapest, Fejér, Győr-Moson-Sopron), which show impressive economic growth exceeding the national average,
- the slowly catching up counties, which have grown at a rate close to the national average (Pest and Veszprém),
- the slowly lagging behind counties, which have grown at a rate close to the EU average but fallen back relative to the national average (Komárom-Esztergom, Zala, Baranya, Somogy, Tolna, Heves, Nógrád, Hajdú-Bihar and Szabolcs-Szatmár-Bereg) and

- the rapidly lagging behind counties, which have fallen back relative to both the EU and national average (Borsod-Abaúj-Zemplén, Jász-Nagykun-Szolnok, Bács-Kiskun, Békés, Csongrád).

There are two homogeneous regions, of which all counties can be ranked in the same group. The counties of the Southern Transdanubia are in the group of those slowly lagging behind and the counties of the Southern Great Plain region fall in the group of those rapidly lagging behind.

11.3 The change of regional unemployment

The Hungarian Central Statistical Office (HCSO), in the spirit of Union harmonisation, has been using a different methodology from the former one in calculating the unemployment rate in Hungary since 1996. Before 1996, the rate of unemployment was equal to the rate of the registered unemployed population on the basis of the registrations by the Labour Office. Since 1996 the measuring of unemployment has been based on the survey of workforce through sampling in accordance with Union recommendations. Therefore, in our analysis we are going to rely on the data taken between 1996 and 2000, since they are adequate for comparison to the Union. Moreover, it is also an important difference that in the Hungarian tradition the employment survey covers the population between 15 and 74 years of age, while in the EU it is between 15 and 64 years of age. It is worth noting that the age group 65-74 being present at the labour market is at low rate, thus it does not cause much difference in the data (in 2000 the 0.6% of the population between 65 and 74 years of age was active in terms of economy).

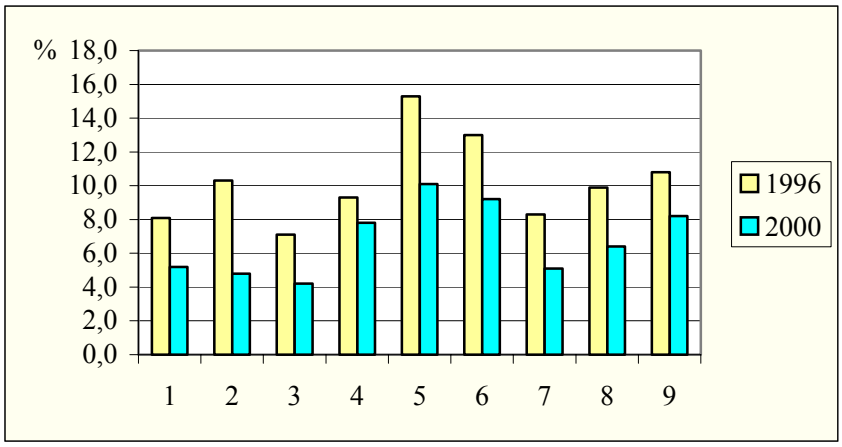
In Hungary, between 1996 and 2000 the rate of unemployment was very low relative to the EU average (Figure 11.3, Table 11.2). Although the difference already mentioned was decreasing in the beginning, since 1997 it has been 2 percentage points in long term.

In the Hungarian regions significant regional differences follow closely the discrepancies in GDP per capita. On one hand, there are regions with a low rate of unemployment (Western Transdanubia and Central Transdanubia), and there is Central Hungary with traditionally good economic indicators. All the three regions successfully adapted to the international division of labour, thus a large proportion of direct investment flow to the regions already mentioned.

On the other hand, there are the Eastern regions afflicted by high unemployment. The reason in the regions of Northern Hungary is of structural nature. It used to be the most important Hungarian basis of heavy industry before the transition, and in the region a large number of workplaces ceased to exist during serious economic recession after economic and political transition in 1989-90 (Lengyel 1993). The region of the Northern Great Plain, due to its agriculture and eastern location (it is

located far from the western border of the country and traffic is poor), shows high unemployment indicators. However, it can be stated that in both regions the rate of unemployment decreased more relative to the EU average between 1996 and 2000, thus their backward position partly became moderate.

Figure 11.3 Unemployment rates, 1996 and 2000



Note: 1: Central Hungary, 2: Central Transdanubia, 3: Western Transdanubia, 4: Southern Transdanubia,5: Northern Hungary, 6: Northern Great Plain, 7: Southern Great Plain, 8: Hungary, 9: EU

The regions of Southern Transdanubia and Southern Great Plain can be found between the two extremes. The former was characterised by unemployment close to the EU average in the period of survey. Although the latter region can be considered as lagging behind in terms of GDP per capita, unemployment was much lower than the EU average. Moreover, in 2000 it exceeded the more advanced Central Hungarian region.

We note that most of the CEECs are characterized by this spatial structure as a result of the transition. The western regions of the countries and the capitals are usually the 'flagships' of the restructuring with above national average number of private businesses, share of FDI and service sector. In contrast the monocultural industrial regions and rural areas at the eastern part of the countries are the obvious losers of the transition (Horváth 1995). The extensive and forced centrally planned industrialization after World War II preferred the eastern regions to the western ones and induced an artificial convergence process. The spread of the market economy and the establishment of the modern economic structure reversed this process (Barta 2002, Souza and Korompai 1995).

Table 11.2 Unemployment rates of regions and counties, 1994-2000

Region, County	1996	1997	1998	1999	2000
Budapest	8,4	7,0	5,5	5,3	5,2
Pest	7,5	6,6	5,9	5,0	5,2
Central Hungary	*8,1*	*6,9*	*5,6*	*5,2*	*5,2*
Fejér	8,8	8,4	7,1	6,0	5,1
Komárom-Esztergom	13,3	9,7	6,5	6,6	5,3
Veszprém	9,6	6,3	6,4	5,6	4,0
Central Transdanubia	*10,3*	*8,1*	*6,7*	*6,0*	*4,8*
Győr-Moson-Sopron	6,7	6,2	5,1	3,7	4,2
Vas	5,5	4,2	5,5	4,7	4,6
Zala	8,9	7,4	7,9	5,1	3,8
Western Transdanubia	*7,1*	*6,0*	*6,0*	*4,4*	*4,2*
Baranya	7,8	9,0	7,8	7,3	7,1
Somogy	9,7	10,7	10,3	8,9	8,3
Tolna	11,1	10,1	9,5	8,8	8,2
Southern Transdanubia	*9,3*	*9,9*	*9,4*	*8,2*	*7,8*
Borsod-Abaúj-Zemplén	15,6	15,3	13,8	13,1	11,7
Heves	14,2	11,3	9,7	8,7	7,6
Nógrád	15,7	13,2	10,8	10,9	9,1
Northern Hungary	*15,3*	*13,9*	*12,1*	*11,5*	*10,1*
Hajdú-Bihar	13,3	11,6	9,7	8,8	7,2
Jász-Nagykun-Szolnok	13,3	11,2	11,8	10,9	9,4
Szabolcs-Szatmár-Bereg	12,5	12,8	11,8	11,0	11,2
Northern Great Plain	*13,0*	*11,9*	*11,0*	*10,1*	*9,2*
Bács-Kiskun	7,8	7,6	8,5	6,4	5,6
Békés	9,4	7,9	8,1	6,2	5,8
Csongrád	6,4	6,4	5,4	4,5	3,9
Southern Great Plain	*8,3*	*7,3*	*7,1*	*5,7*	*5,1*
Hungary	**9,9**	**8,7**	**7,8**	**7,0**	**6,4**
EU	**10,8**	**10,6**	**9,9**	**9,1**	**8,2**

Note: On the basis of the Labour Force Survey of HCSO (for population aged 15-74)

When analysing data of counties, such differences are highlighted that the regional data may hide (Table 11.2). It is apparent that the division of unemployment in the developed western and central regions is even among the counties, only the county of Komárom-Esztergom is worth underlining. In 1996 unemployment highly exceeded the EU average due to structural problems, i.e. the leading industry was mining which collapsed after the transition. Car industry meant the way out of crisis as the SUZUKI assembly plant started its operation in the

county at the end of 1992. Later on the foreign suppliers of the factory also began enterprise there. Consequently, several new workplaces were established, thus considerably improving the unemployment indicators of the county.

In the regions of Southern Transdanubia, Southern Great Plain and Northern Great Plain there is similar inner structure on the level of counties. In all three regions there is such a county in which the rate of unemployment is more favourable than in the other counties of the regions. In the three regions the counties in order are Baranya, Hajdú-Bihar and Csongrád. It is a significant feature of the counties mentioned above that the largest towns of the regions are located there. The towns can be described as the centres of the region with a large-scale of public sector making good impact on unemployment (for instance universities, regional hospitals). Besides, the regional management of enterprises with extended regional network (for instance trade, financial services, insurance companies, gas and electricity supply, etc.) are located in the centre towns affecting unemployment positively (Lengyel 1993, Mészáros 1998, Timár and Váradi 2001).

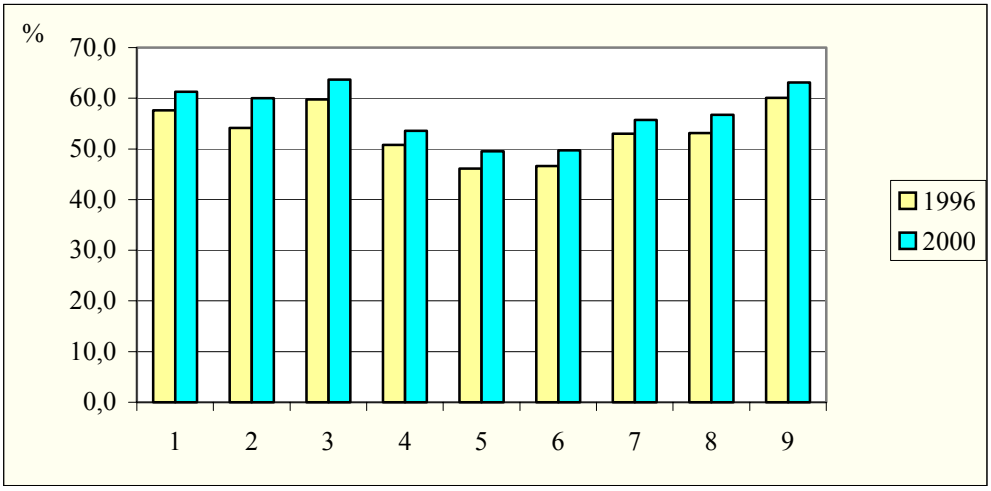
The county of Borsod-Abaúj-Zemplén plays a similar role in the life of the Northern Hungarian region, nevertheless in contrast to the former counties, the rate of unemployment is the highest here. The reason for it is that in the structure of employment in the county heavy industry (mining, chemistry, metallurgy etc.) was dominating before the transition but it went bankrupt and as a consequence the county is now a region afflicted by serious structural problems.

On the basis of the data, the situation of labour market in Hungary is approving, since in only four out of twenty counties on NUTS III level the unemployment rate is higher than the EU average. Nonetheless, the situation is not that favourable. In the questionnaires and methodologies there are significant differences between the countries, i.e. the registration of unemployment is not consistent, mainly in comparison to the participation rate. For instance, while the unemployment rate was 16.1% in Poland, 9.0% in the Czech Republic and 6.5% in Hungary in 2000, there were 146 non-active inhabitants to 100 active members of the labour force in Hungary as opposed to 123 in Poland and 98 in the Czech Republic. To sum up, beside the low rate of unemployment in Hungary, the rate of employment was also low, thus the number of the non-active working-age population is extremely high. As there is no such difference in the age structure, the contrast is obvious and several answers may be given, however, none of them is satisfactory in terms of profession.

11.4 The change of regional employment

In Hungary, between 1996 and 2000 the rate of unemployment was very low to the EU rate (Figure 11.4, Table 11.3). The growth of employment was a bit higher than that of the EU average although the difference did not show considerable decrease.

Figure 11.4 Employment rates, 1996 and 2000



Note: 1: Central Hungary, 2: Central Transdanubia, 3: Western Transdanubia, 4: Southern Transdanubia, 5: Northern Hungary, 6: Northern Great Plain, 7: Southern Great Plain, 8: Hungary, 9: EU

Note: Data estimated for the population aged 15-64 on the basis of the Labour Force Survey of the HCSO for population aged 15-74.

In accordance with the rate of employment there are significant discrepancies among the regions. In 2000 the rate was above 60% in the more advanced regions, meanwhile it was under 50% in the other two regions (Table 11.3). Onward the period in the employment survey, the rate is 10-12 percentage points higher in the advanced than in the backward regions, i.e. regional differences hardly changed in the last 5 years. It is worth noting that after 1996 in the population between 15 and 74 years of age employment remarkably increased by 200 thousand in number, meanwhile the number of the employed population was 3684 thousand in 1996 and 3849 thousand in 2000.

The pace of growth in employment was unequal between 1996 and 2000. The formerly higher rate of employment increased at a faster pace in the developed regions, i.e. 1.0 or 1.5% in the western and central regions, thus exceeding the national average growth. In the underdeveloped regions growth fell behind the national average since the rate of employment increased 0.7 or 0.8% per year. These indications imply further increase in regional disparities. Obviously there are not enough workplaces in the backward regions, thus growth in employment is low, too, while it might become slower in Central Hungary as the base of labour force is getting scarce.

Table 11.3 Employment rates of regions and counties, 1996-2000

Region, County	1996	1998	1999	2000	Average difference per year (2000-1996)	Average difference per year over national average (2000-1996)
Budapest	58,5	59,1	61,2	61,9	0,84	-0,07
Pest	55,8	56,8	59,1	60,3	1,11	0,21
Central Hungary	*57,6*	*58,3*	*60,5*	*61,3*	*0,92*	*0,01*
Fejér	55,5	57,7	60,1	60,2	1,17	0,27
Komárom-Esztergom	51,1	54,8	57,6	58,9	1,95	1,05
Veszprém	55,1	57,8	60,3	60,8	1,43	0,53
Central Transdanubia	*54,1*	*56,9*	*59,5*	*60,0*	*1,48*	*0,58*
Győr-Moson-Sopron	59,3	62,1	63,4	62,9	0,91	0,01
Vas	63,2	63,9	64,5	66,2	0,75	-0,15
Zala	57,3	59,5	61,4	62,5	1,30	0,40
Western Transdanubia	*59,8*	*61,8*	*63,1*	*63,7*	*0,98*	*0,08*
Baranya	50,5	51,5	52,5	52,6	0,50	-0,40
Somogy	50,6	50,2	51,6	53,7	0,77	-0,14
Tolna	51,5	53,3	55,1	55,0	0,86	-0,04
Southern Transdanubia	*50,8*	*51,5*	*52,9*	*53,5*	*0,68*	*-0,22*
Borsod-Abaúj-Z.	46,3	43,9	46,0	46,6	0,09	-0,81
Heves	46,4	49,7	51,5	54,0	1,91	1,00
Nógrád	45,3	49,6	50,5	52,4	1,77	0,87
Northern Hungary	*46,1*	*46,4*	*48,2*	*49,5*	*0,85*	*-0,05*
Hajdú-Bihar	48,4	48,7	52,1	52,1	0,91	0,01
Jász-Nagykun-Sz.	47,9	48,8	51,5	52,9	1,23	0,32
Szabolcs-Szatmár-Bereg	43,9	43,7	44,9	45,1	0,29	-0,61
Northern Great Plain	*46,6*	*46,9*	*49,3*	*49,7*	*0,77*	*-0,14*
Bács-Kiskun	53,5	55,2	56,8	57,4	0,99	0,09
Békés	49,1	48,7	50,5	51,0	0,49	-0,41
Csongrád	56,2	57,5	57,3	58,0	0,45	-0,45
Southern Great Plain	*53,0*	*54,0*	*55,1*	*55,7*	*0,68*	*-0,22*
Hungary	**53,1**	**54,1**	**56,0**	**56,7**	**0,90**	**-**
EU	**60,1**	**61,2**	**62,3**	**63,1**	**0,75**	**-**

Note: Data estimated for the population aged 15-64 on the basis of the Labour Force Survey of the HCSO for population aged 15-74.

Employment has increased in every county, not only in the advanced ones (Table 11.3). It was especially dynamic within the more developed regions such as in the counties Komárom-Esztergom (the reason has already been discussed), Veszprém and Zala by establishing new workplaces. Within the backward regions the counties of Heves, Nógrád and Jász-Nagykun-Szolnok employment is relatively high. Despite the outstanding growth, the country has divided into two parts as in the counties of Central Hungary, Western Transdanubia and Central Transdanubia labour supply and economic activity are much higher than in all the other counties of Hungary. Two neighbouring counties, Szabolcs-Szatmár-Bereg and Borsod-Abaúj-Zemplén have lagged behind forming a geographical "block" in the northern-western part of the country.

The rate of employment in Hungarian regions is very low relative to European countries and regions. This fact is only partly explained by the high rate of unemployment. Although employment is closely related to unemployment which is high in the less developed regions, the rate of unemployment does not seem extremely high. When analysing the regional data it is striking that the rate of disability pensioners, especially the rate of early retirement disability pensioners is really high, the 10% of the working-age population is non-active for health problems or other reasons, or get such type of pension (early retirement disability pensioners have been registered since 1998). Following the transition, the system of pension distributed in large scale to lessen the tension in the labour market, consequently serious problems in finance characterised social security. Partly as a consequence, it was inevitable to reform the whole system of pension in 1998.

In Hungary the number of the population between 30 and 60 years of age was about 4100 thousand in 2000, meanwhile (mainly those belonging to this age group) the number of early retirement disability pensioners was 447 thousand (moreover the number is increasing since it was only 421 thousand in 1998). While the number of the unemployed population was 263 thousand in 2000 on the basis of labour force survey, the number of the registered unemployed population was 372 thousand. It is well known that many of the early retirement pensioners are in work, moreover, their increase in number (meanwhile many of them became old age pensioners) implies that in terms of social or other reasons one can easily get pension. It seems that the regional disparities in the rate of employment can be explained by 3 factors, i.e. the number of the unemployed and the early retirement pensioners, and those who try to earn their living from casual or seasonal work but are not at present in the labour registration.

11.5 Summary

In Hungary, after the transition, dynamic economic growth and development can only be detected after 1996 (Enyedi 1998). In accordance with the data of regional disparities, after analysing the GDP per capita, rate of unemployment and employment, we are stating the facts as follow:

- In terms of *GDP per capita* there are significant discrepancies between the eastern and western regions of Hungary. On one hand, the rate of the GDP is 1.5 or 2 times as much in the developed regions and counties as in the underdeveloped ones. On the other hand, the pace of growth is much faster in the developed regions. Thus the western regions of Hungary are catching up to the EU-average, meanwhile the eastern and southern parts of the country merely stopped further lagging behind. Regional differences are still increasing.
- All of the seven regions are entitled to the financial support by the Structural Funds on the basis of Objective 1. Beside the present pace of growth, even the regions most rapidly catching up may receive aids for only 10-20 years within the framework of regional policy.
- In terms of the data of *unemployment*, we can say that the Hungarian statistical registrations do not adequately show the real process undergoing in the country. The data partly reflect the differences in development, but the low rate can be experienced in such regions where it is not supported by economic growth.
- In terms of *employment* almost the whole country can be characterised by low rate of employment relative to the international rate. The differences in the rate of employment are very similar to those of the GDP. The growth in employment is unequally distributed among the regions, since 50% of the increase of the population employed between 1996 and 2000 can be connected to two regions (Central Hungary and Central Transdanubia).
- In Hungary only four out of nineteen counties and two of the seven regions show lower rate of unemployment in comparison to the EU average, thus on the basis of programs in connection with unemployment involved in Objective 2, entitlement is restricted to a small part of Hungary. Nevertheless, in accordance with the employment data we must conclude that the county of Borsod-Abaúj-Zemplén is struggling with serious problems of structural transformation due to the collapse of its heavy industry after the transition. In most counties of the regions of Southern Transdanubia, Northern and Southern Great Plain the rate of employment is slowly increasing. Among other factors, the agricultural feature and the lack of modern, exportable productivity of the regions play important role.

References

Barlow, M., Lengyel, I. and Welch, R. (eds) 1998: *Local Development and Public Administration in Transition*. JATEPress, Szeged.

Barta, Gy. 2002: Strong regional competition – weak co-operation. Attempts at "bottom-up" co-operation and contradictions in governmental efforts in Hungary. *European Spatial Research and Policy*, 1: 5-21.

Bartke, I. 1997: Social Driving Forces and State Regulation of Regional Economic Development. *Papers in Regional Science*, 2: 155-174

Boldrin, M. and Canova, F. 2001: Inequality and Convergence in Europe's Regions: Reconsidering European Regional Policies. *Economic Policy: A European Forum*, 32: 204-45

EC 1999: *Commission Communication concerning the Structural Funds and their coordination with the Cohesion Fund. Guidelines for programmes in the period 2000 to 2006*. 1999/C 267/02.

EC 2001: *Second Report on Economic and Social Cohesion*. European Commission, Brussels.

Enyedi, Gy. 1998: *Social Change and Urban Restructuring in Central Europe*. Akadémiai Kiadó, Budapest.

Hall, R., Smith, A. and Tsoukalis, L. (eds) 2001: *Competitiveness and Cohesion in EU Policies*. Oxford University Press.

Horváth, Gy. 1995: Economic Reforms in East-Central Europe. In Hardy, S. and Hart, M. and Albrechts, L. and Katos, A. (eds.): *An Enlarged Europe. Regions in Competition?* Regional Policy and Development 6. Regional Studies Association and Jessica Kingsley Publishers, London: 35-52

Horváth, Gy. 1999: Regions in the European Union. *European Mirror*. Special Issue. March: 58-78

HCSO 2000: *Regional Statistical Yearbook*. Hungarian Central Statistical Office, Budapest.

HCSO 2001: *International Statistical Yearbook*. Hungarian Central Statistical Office, Budapest.

Lengyel, I. 1993: Development of local government finance in Hungary. In Bennett, R.J. (ed): *Local Government in the New Europe*. Belhaven Press, London and New York: 225-245

Lengyel, I. 2001: Megjegyzések az alföldi régiók versenyképességének megítéléséhez (A few comments on the evaluation of the competitiveness of regions in the Great Plain). *Alföldi Tanulmányok*, MTA RKK, Békéscsaba: 64-89

Lengyel, I. 2002: The Competitiveness of Hungarian Regions. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 235-246

Lengyel, I. and Deák Sz. 2002: The features of regional competitiveness in Hungary, especially at the Hungarian-Rumanian border. In Falnita, E. (ed): *Economics and Management of Transformation*. CD-rom, Mirton, Timisoara: 719-730

Marques, A. and Soukiazis, E. 2000: Per capita income convergence across countries and across regions in the European Union. Some new evidence. Working Paper 1, Faculty of Economics, University of Coimbra.

Mészáros, R. 1998: Geographical and Historical Implications of the Development of an Hungarian City. In Barlow, M., Lengyel, I. and Welch, R. (eds) 1998: *Local Development and Public Administration in Transition*. JATEPress, Szeged: 134-141

Nemes Nagy, J. 2001: New Regional Patterns in Hungary. In Meusburger, M.J. (ed): *Transformations in Hungary*. Physica Verlag, Heidelberg: 39-94

Rechnitzer, J. 2000: *The Features of Transition of Hungary's Regional System*. Discussion papers No. 32., Centre for Regional Studies of the Hungarian Academy of Sciences, Pécs.

Sala-i-Martin, X. X. 1996: Regional Cohesion: Evidence and Theories of Regional Growth and Convergence. *European Economic Review*, 40: 1325-1352

Souza, P. de and Korompai, A. 1995: The Regional Dimension in Hungary: Aspects of Transformation in 1991-92. In Hardy, S., Hart, M., Albrechts, L. and Katos, A. (eds): *An Enlarged Europe. Regions in Competition?* Regional Policy and Development 6. Regional Studies Association and Jessica Kingsley Publishers, London: 242-255

Timár, J. and Váradi, M. 2001: The Uneven Development of Suburbanization during Transition in Hungary. *European Urban and Regional Studies,* (8) 4: 349-360

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 161-179

12 Programming for Economic and Enterprise Development in the Southern Great Plain Region

Imre Lengyel

12.1 Introduction

With the intensification of globalization processes in recent decades, the economic development of regions and finding effective ways of supporting small and medium-sized enterprises (SMEs) have become important issues of economic policy in practically all developed countries. Not only individual countries but international organizations as well, the OECD and the EU in particular, have begun to pay special attention to these two interrelated problems. EU accession and the need to ensure spatially balanced economic development have resulted in increasing the significance of these two development objectives in Hungary as well.

Global processes are chiefly to be made responsible for the growing focus on the *economic development of regions.* The 1970s clearly demonstrated the shortcomings of post-Keynesian economic policy, including centralized regional development. Regional policy has changed within the EU as well. From the 1990s, there has been a growing tendency to give preference to decentralized regional development and to opt for bottom-up economic development programmes based on endogenous resources.

Economic policy has started to concentrate on *supporting SMEs* for two main reasons. First, it has been found that in developed countries two-thirds or even three-quarters of new jobs are nowadays generated by innovative, knowledge-based SMEs. Competitiveness of countries and regions is increasingly dependent on the improved productivity of SMEs organized into networks or clusters. Second, in most sectors of the global competition SMEs are at a serious disadvantage. It has also become clear by now, however, that the social costs of improving the competitiveness of SMEs are smaller than having to manage the economic and social consequences of company bankruptcies.

The two issues are obviously related: one of the keys to regional economic development lies in improving the competitive advantages of local SMEs. In this paper, I will first discuss the basic considerations underlying regional economic development and SME development. I will then go on to discuss the most important connections between the strategic economic development programme for the

*This study was supported by the Hungarian Research Foundation, OTKA (number of project is T38150).

Southern Great Plain region, on the one hand, and the SME operative programme, on the other. In doing so, I will rely on the results of several research papers[1] about the regional development of the Southern Great Plain region.

12.2 The objectives of regional economic development

The increasing concentration on regional economic and enterprise development and the recent changes in the approach and means of such development are to be attributed to processes of *globalization*. These processes have restructured national economies spreading market competition to the entire developed world (Enyedi 1996, 1998). Due to the operation of global financial systems and the impact of deregulative international agreements national governments find it increasingly difficult to intervene into global competition on behalf of domestic companies. As the significance of taxes, exports subsidies and other forms of subvention is steadily on the decline, national governments can only seek to improve competitiveness and create an appropriate business environment through indirect means (Porter 2001).

In the last decade, *regional policy has undergone significant changes* within the EU as well. The principles (subsidiarity, decentralization, programming, complementarity, etc.) which to an increasing extent have begun to govern the distribution of Structural Funds favour the development and realization of bottom-up programmes based on institutions and organizations of the given region (Horváth 1998a, Rechnitzer 2000). Regional economic development resting on these new principles entails in effect *strategic programming on the basis of endogenous resources* (Farkas 2001, Rechnitzer 1998).

It is essential to note with regard to the conceptual framework of regional economic development that regions are to be understood as *open spatial units* and thus as *open local economies* (Bartke 1997). This is because market economic conditions do not allow for the regulation of a given region's (or county's) economy. Only certain parameters of the economic environment can be changed. It is often difficult to assess the impact of accepted development blueprints since various economic connections and transactions are not limited to a single region: business relations, information flow, capital and income movements are not restrained in any way by regional boundaries. Another consequence of economic openness is that it is difficult to exert pressure on those locations, subsidiaries and branch units which have their headquarters and key decision making-centres in other regions, even

[1] The preparation of regional programmes for the South Great Plain regions was started in 1998. The work was supported by PHARE and coordinated by DARFT. The strategic economic development programme of the region and the operative programme for SME development were written by the Department for Regional and Applied Economics of Szeged University (SZTE) under the direction of Imre Lengyel, Head of Department. Norbert Buzás was in charge of the internal coordination of the projects. The research materials are downloadable at www.del-alfold.hu.

though precisely these externally-based (usually multinational) companies can play a decisive role in accelerating the development of backward regions.

In the age of globalization, cheaper means of transport and the availability of information-technology based networks enable companies to pursue their economic activities in any region of the world (Dicken 1998, Porter 1998, 2000). Nevertheless, empirical studies have shown that the competitive advantages of global companies depend primarily on the *home base,* i.e. the country locating the headquarters, and the *local base,* i.e. smaller regions within the country (usually a larger town and its agglomeration). The top management and the majority of those responsible for competitive strategies reside and work in the local base (Mészáros 2002). This is where the core competencies of companies are concentrated. The processes of globalization are paralleled by those of *localization:* the region and settlement locating the company's core units create competitive advantages in terms of information and innovation and generate agglomerational surplus and tacit knowledge which are difficult to imitate by more remote competitors elsewhere.

The current transformation of economy is characterized by the participation of so-called *global companies* in the global competition, while the majority of SMEs are active on local and regional markets only, although partly in collaboration with global companies. The welfare of a region's population is a function of the success of all economic actors. In other words, global companies operating in the region and local SMEs are equally important. The number of global companies is relatively small and their compatitiveness depends in the long-run on the success of the SMEs involved in their production chains. *Large companies* tend to drive forward the growth of productivity in a given region by integrating sub-contractors, generating complementary and regional multiplicatory effects, spreading innovation and so on. By contrast, *SMEs* are responsible for deepening structural transformation, for the exploitation of niche markets, flexible adaptation, the creation of jobs, etc. In addition, it is also true that global companies often reduce their workforce in order to improve labour productivity outsourcing their less important or less effectively organizable activities to smaller and more flexible enterprises.

The strategic approach to bottom-up regional economic development has become widely accepted by now. It has been incorporated into the methodology of regional programming in Hungary as well. Different models can be found in the literature (Rechnitzer 1998). One of the most often used methods is based on Michael Porter's work (Lengyel 2000a, Porter 2001). According to Porter, *economic development* of a region:

- *aims* at increasing the welfare of the local population,
- by *means* of improved competitiveness of the region,
- on the *basis* of innovational potential.

Reaching back to Adam Smith, Porter identifies the "welfare of regions", i.e. the improved living standards of the local population, as the fundamental objective of

economic development. Porter defines the *competitiveness of regions* as the *productivity* of global sectors (mainly clusters) operating in the region, meaning both a *high level* of productivity and a *high rate of growth* of productivity. The growth rate of productivity depends primarily on *innovation* which enables the strengthening of the competitive advantages of companies. The reason behind the increased support for the elaboration of regional innovational strategies (RIS) within the EU is precisely that the significance of innovation has come to be generally recognized (Dőry 2002, Varga 2002).

The accepted notion of competitiveness within the EU (and the publications of the OECD) is also based on the objective of a simultaneous improvement of both income and employment. The *standard definition of competitiveness* can be stated as follows: "the ability of companies, industries, regions, nations and supra-national regions to generate, while being exposed to international competition, relatively high income and employment levels" (EC 1999: 75). Income (i.e. GDP which is typically used to measure welfare) is approximately equal to the product of labour productivity and employment. Thus regional competitiveness amounts to sustainable economic growth in global competition generated by both high labour productivity and high employment. The standard notion of competitiveness entails that economic development ought to aim at increasing income (welfare) while assigning an important role both to improved labour productivity and improved employment (Hall et al 2001).

Regional economic development always implies deliberate and communal intervention into spatial economic processes (Barlow et al 1998, Lengyel 1993). Essentially, regional economic development seeks to strengthen the competitive advantages of companies partly by enabling corporate strategy and operation to become more effective, and partly by raising the level of local business environments. The interests of enterprises should enjoy priority since they are in a position to generate higher incomes and improve employment (rather than institutions). Generally, local companies and sectors are to be concentrated upon. Given, however, that neither the strategies (and interests) of various sectors and companies nor their sources of productivity coincide, differential programmes are to be developed for separate groups of enterprises. Improved competitiveness of a region will primarily depend on the success of home-based clusters, i.e. that of key local industries (Lengyel 2001, Waits 2000).

12.3 Target groups of regional economic development

From the perspective of regional economic development, one can distinguish different sectors in terms of target markets and sources of income (Malizia and Feser 1999). Regional economy can be divided into three groups on the basis of these distinctions (Porter 2001):

- *Tradeable sector:* companies catering for demand outside the region and in many cases for exports as well (processing industry, business services, transport, etc). This sector has the potential for significant growth and is thus capable of attracting additional income into the region. This is because access to global markets enables these companies to rapidly increase their outputs.
- *Local, non-tradeable sector:* catering for local demand (within the region). The provision of services for households and smaller companies operating in the settlement (retail trade, maintenance of domestic appliances, local construction industry, etc). The growth of this sector is constrained by the availability of solvent demand locally. Companies can only increase their shares of the local market at each other's expense.
- *Combinations of the two sectors* above: companies and institutions (hotels, restaurants, universities, etc.) catering for the needs of those coming to the region (tourism, medical services, higher education, etc). In these cases, externally generated income can be attracted into the region.

It follows from the above categorization that the development of local economy is to focus on two large targets groups, the *tradeable sector* and *services based on income generated outside the region.* These two sectors are capable of expanding their markets and thus improve their competitiveness (productivity) thereby significantly increasing the amount of income generated. This is why these two sectors have the greatest interest in innovation, the introduction of new technologies and enterpreneurial cooperation (networks, clusters). This insight is put in practice in all the places where attracting foreign direct investment and the development of tourism are given high priority. By contrast, in the local, non-tradeable sector increased market shares and improved labour productivity (technology) can only be achieved when rival companies go bankrupt or the workforce is reduced.

Regional economic development involves having to develop different programmes separately for all of the above sectors (Armstrong and Taylor 2000, Maskell et al 1998). Moreover, even within these sectors themselves individually-tailored programmes may be necessary for economic activities with discrepant interests. For strategic development programming, the following *three company groups* are to be distinguished according to the spatial location of company decision-making centres (home base/local base) and company size:

- Locating *externally-based (global) companies*. The locations created can be expected to have high employment and/or engage in close cooperation with local SMEs as subcontractors.
- *Regionally-based local large companies* with access to income from outside the region, producing for external markets (exports) or attracting inflowing income.
- *Local SMEs* with access to income from external markets and/or inflowing income, independently or in collaboration with a large company.

SMEs comprise a mixed group of *extremely diverse enterprises* in Hungary, too (Szerb and Ulbert 2002, Szirmai 1997, Török 1997). On the basis of the above considerations and with respect to global competition, it may be useful to distinguish among *four types of SMEs* for the purposes of regional economic development. Different means will enable a sustainable improvement of the competitive advantages of these four types:

- SMEs associated with global companies (multinationals or local large companies). These SMEs usually operate as subcontractors or are linked to large companies in other ways. Their development is crucially dependent on large companies with an integrating function. Consequently, supporting SMEs of this group can be effective if coordinated with the integrating company and is in many cases provided directly through such companies.
- *Innovative, mainly knowledge-based SMEs* which can successfully participate in the global competition independently or when organized into regional networks and clusters.
- *SMEs operating on the local and regional market* in a position to absorb inflowing income (hotels, restaurants, etc). Regional (settlement) marketing plays a key role for this group.
- *SMEs catering for the demands of the local population.* These can improve their competitiveness by providing cheaper and better-quality services (e.g. local construction industry, maintenance of domestic appliances) or can place a share of their workforce at the disposal of the more fastly developing tradeable sector.

Familiarity with regional and local development of SMEs is still insufficient in Hungary as only nationwide programmes have been launched until now. At the same time, concepts such as *competitveness, innovation, sustainable competitive advantage* have begun to crop up in various publications and materials on regional and county-level regional development. This is important because the conceptual and systematic apparatus of regional economic development is based on precisely these notions. They can help to formulate the aims and means of development programmes and to evaluate the effectiveness and positive impact of subsidies.

In view of the above, it seems clear that *the development of SMEs should constitute one of the key programmes of regional economic development.* In regions with strong traditions and a wealth of accumulated knowledge, clusters and regional networks formed by SMEs may lay the groundwork for competitive economic activities (Grosz 2003). In some developed countries, one also finds innovative SMEs (especially in information technology) participating in the global competition on their own. It is worth noting that SMEs play an important role not only in economic development but also, of course, in improving local employment.

12.4 The competitiveness of the Southern Great Plain region

Before elaborating the region's development programme it is important to evaluate the economic situation of the region. In terms of the notion of standard competitiveness outlined above and the basic development indicators, the most important pertaining data can be summed up as follows (Lengyel 2001, 2002, Lengyel and Deák 2002, Nemes Nagy 2001):

- The per capita GDP (regional GDP) of the Southern Great Plain region amounted to 83% of the national average in 1995, but only 72% in 2000. While measured on purchasing parity (PPS) basis the national average increased from 46.6% of EU average in 1996 to 51.3% in 2000, the same average decreased from 37.9% to 36.8% in the region. In contrast to the overall rapid economic growth in the country, economic output has hardly grown in the Southern Great Plain region, its rate just about keeping pace with the EU average.
- In 1996, *labour productivity* (GDP per employee) was 82% of the national average in the region, and only 74% in 2000. These figures indicate a backward economic structure as well as deficiencies in technological transformation and innovational activities.
- The *employment rate* approximated the national average in the region. The regional employment survey on those aged between 15 and 74 showed that the employment rate was at 46.6% in 1996 (46.7% nationwide), and 49.2% in 2000 (50.1% nationwide). These data reveal that the main problem of the region is not the shortage of labour, but rather productivity, i.e. the effective employment of the workforce.
- Even though the *agricultural sector* is on the decline, still as many as 16% of the total workforce was employed in the region's agriculture and forestry in 1996 (7% nationwide) and 26% in *industry* (27% nationwide). Agriculture was responsible for 11% of the region's GDP in 1999 (5% nationwide), while industry generated 25% of the total GDP (28% nationwide). There are hardly any indications of *structural transformation* in the region: the share of agriculture is high and still many people work in the less profitable food and textile industries (46% of all industrial employees, while the corresponding national figure is only 31%), the share of modern industrial sectors is low.
- Per capita *total investments* reached 70.7% of the national average in 1996 (71.6% in industry), 53.5% in 2000 (49.8% in industry). Decreasing year by year, sectoral investments are the lowest in the Southern Great Plain region foreshadowing a further worsening of the region's competitiveness.
- *Per capita exports* of companies (employing more than 50 people) located in the region amounted to 46% of the national average in 1998 and only 40% in 2000.
- *Per capita foreign direct investment* was 32.2% of the national average in 1999, and only 24.4% in the processing industry.

To sum up, in comparison to former levels the economy of the Southern Great Plain region has indeed developed in recent years, but this sufficed only to prevent a further increase of the disparity relative to the national average. The region's competitiveness is poor with few internationally competitive products and services. Direct exports are low and investment rates do not give reason to expect a recovery in the near future. Few signs of economic transformation can be observed in the region, while local economic sectors cannot generate significant economic growth and the expansion of industrial activities also falls behind the national average. These findings leave no doubt that the most expedient economic development strategy for the region will be one that initiates structural transformation.

12.5 The strategic economic development programme for the Southern Great Plain region

In the light of the above figures and tendencies, the Southern Great Plain is to be classsified as a socially and economically backward region (Barta 2002, Horváth 1998b, Lengyel 2001, Rechnitzer 2000, Timár 1998). What such regions need are *strategies oriented towards structural transformation.* This is because the regional economy is not competitive and therefore cannot generate adequate levels of income. The main objective of strategies aimed at structural transformation is the creation of competitive dynamic sectors with a local base in the region. This involves, on the one hand, locating and spreading new economic activities with good future prospects and the strengthening of existing competitive industries, on the other. A development strategy[2] stands for a process, four temporally subsequent stages of which can be distinguished (Lengyel 2000, Waits 1998):

(a) *Initiating structural transformation (industrial recruitment):* the apperance of new industrial and commercial sectors. At this stage, the strategy aims at attracting companies and locating their branch plants.
(b) *Creating the local economic base (business formation):* the strategy seeks to promote the "embededness" of newly-settled companies, to strengthen subcontracting and other associated enterprises and to create a significant number of new jobs (the *en masse* appearance and strengthening of SMEs).
(c) *Reorganization (period of reinvention):* at this stage, the strategy aims at improving the effectiveness, performance and quality of the regional programme and regional policies which seek to redirect resources to sectors with higher added value.

[2] In the course of working out the economic development strategy we carried out a survey in the region. The questionnaire was returned by 120 companies. 100 interviews were conducted with company managers. This survey aimed to explore corporate demands with respect to development programmes.

(d) *The emergence of new local industrial and commercial activities (new directions):* the strategy is directed at this stage at supporting the preparation for global competitiveness, at providing incentives for cluster-formation by developing SMEs and at strengthening the regional base of the emerging new local industrial and commercial activities.

The proposed strategic blueprint[3] for the economic development of the Southern Great Plain region consists of *seven programme directions,* each of which consists of 2 to 5 specific programmes adjusted to local demands (Table 12.1). There are two programme directions of special importance: first, the strengthening and expansion of existing competitive activities (1st programme direction), and second, the attraction of large companies (2nd programme direction). It is crucial for both of these core programme directions that they are to *focus on improved regional competitiveness.* As a result, employment and labour productivity can both increase due to technological spillover and the transfer of production patterns. The other programme directions also seek to realize important objectives, however, attempting to remedy genuine problems specific to the region.

The strategy oriented towards structural transformation has six general target areas (Horváth 1998a: 31). The economic development programme directions for the Southern Great Plain region are also related to these target areas (Figure 12.1). All programme directions are tied up in one way or another with the target areas of structural transformation, even though a certain "ranking" can be established in terms of the strength and importance of the actual connection. Thus dominant, key and important connections can be distinguished, in this order of importance. Clearly, strengthening the existing competitive local economy (1st programme direction) contributes most importantly to industrial transformation. At the same time, it can play a significant role in the re-industrialization and modernization of technological, business and institutional infrastructure as well. By the same token, locating units of large companies is most essential for re-industrialization and the creation of a new local economy (new commercial activities), but it can also help to foster the business infrastructure and the strengthening of services.

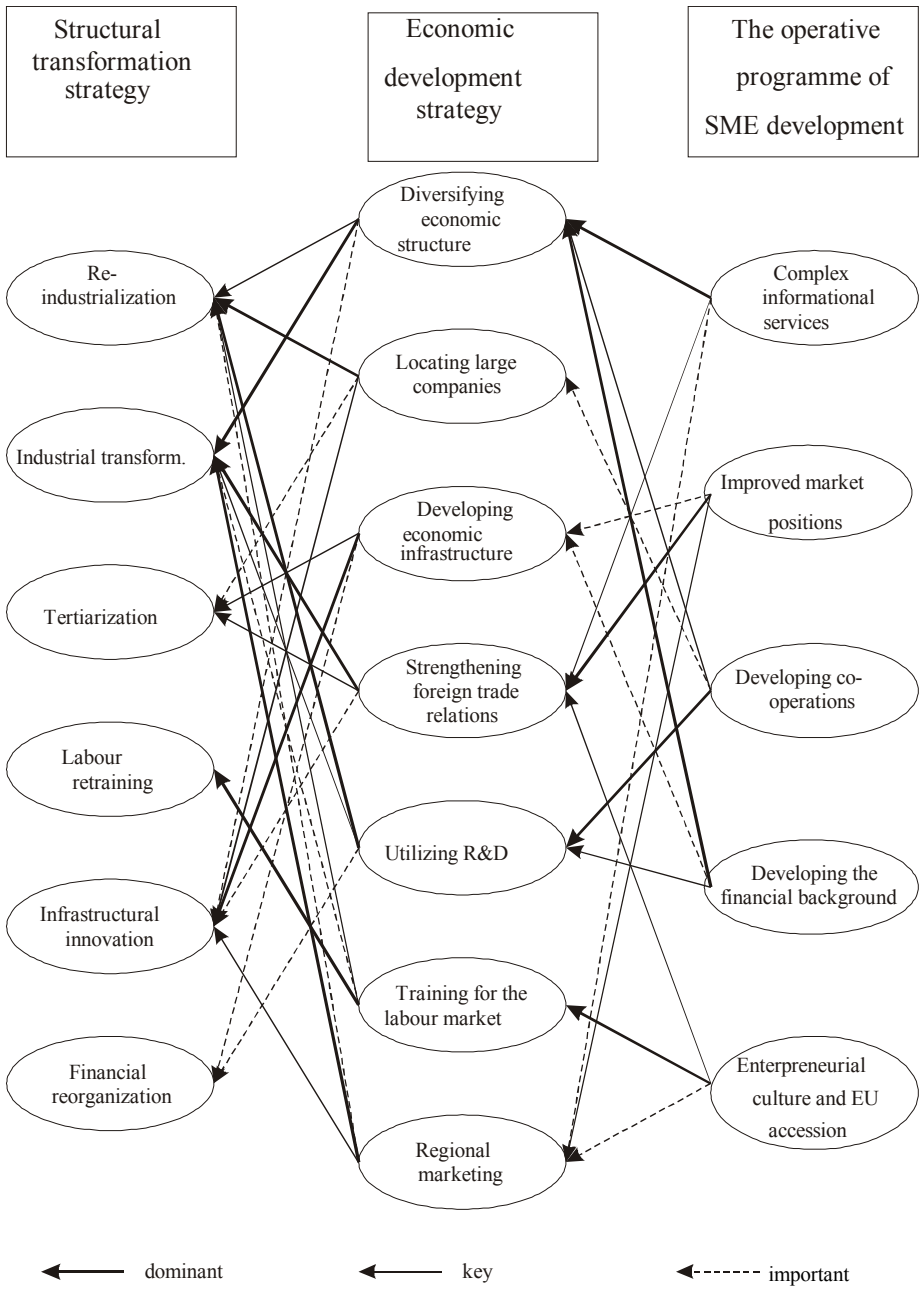
It will be observed that this blueprint for the economic development strategy of the region centers on globally competitive activities: locating global companies, on the one hand, and strengthening the competitive advantages of existing competitive industries. Another important objective is the supporting of exportable activities by means of strengthening foreign trade relations (for tradeable activities) and the increase of inflowing incomes (through regional marketing). The proposal focuses on two crucial company target groups: global companies and competitive SMEs.

[3] The programme directions and individual programmes included in the table are contained in our proposal. Certain modifications and compilations are possible in the final strategic programme of the region after the conclusion of the pertaining negotiations (see DARFT 1999 [The development programme for the Southern Great Plain region] and www.del-alfold.hu).

Table 12.1 The strategic economic development of the Southern Great Plain region

Programme directions	Programmes
1. Diversifying the economic structure	Strengthening competitive SMEs of the regional processing industry and business services Support for the production of knowledge and labour-intensive, high-quality, traditional consumption goods Strengthening the regional connections of "isolated" but competitive large companies Integrated development of local food processing enterprises Creation of regional networks and industrial clusters
2. Support for the location and strengthening of strategically-important large companies, fostering the emergence of subcontracting networks	Location of new sectors, particularly through the settlement of multinational companies Support for subcontracting and cooperative networks Support for the operation of innovation agencies
3. Creating attractive locations through the development of the economic infrastructure	Creation of production infrastructure for the location of processing industrial and service activities Creation of enterpreneurial districts, realizing their investment advantages Fostering of general agreement withing the region on location marketing
4. Strengthening the region's foreign trade relations	Improving the export potential of regional enterprises Strengthening cross-border economic relations Decreasing the dependency of enterprises engaged in lease work
5. R&D, higher education, developing cooperation among academic centres, mediating their findings towards economic actors	Incentives for the cooperation of research institutes, university departments and enterprises Creating institutions for venture capital and support for their operation Incentives for the cooperation of the higher education institutions of the region in order to coordinate economic and technical training Creating institutional relationships and expert networks required for the analysis of economic processes in the region, establishing information databases
6. Training, coordinating vocational training with demand on the labour market	Adjusting medium-level and vocational training to labour market expectations Coordinating post-secondary training within the region
7. Endogenous regional products and cultural goods	Developing regional product marketing Regional exhibitions and events

Figure 12.1 Economic and enterprise development programmes of the Southern Great Plain region



12.6 The operative programme of SME development in the Southern Great Plain region

The operative programme of SME development is based on the economic development strategy of the Southern Great Plain region. While working out this operative programme, in addition to local demands we have also paid attention to relevant international experience, especially the wealth of pertaining knowledge accumulated in member countries of the European Union. In the EU, SMEs play an important role not only in communal policies aimed specifically at SMEs, but also in regional policies and programmes for the development of backward regions (Forman 2000, Horváth 1998b).

The main guidelines for the use of Structural and Cohesion Funds between 2000-06 included *regional competitiveness* with the highest priority. This is to foster the economic development of NUTS II level backward regions (objective 1) and to create adequate conditions for economic growth and increasing employment (EC 1999c). Improved regional competitiveness consists of two programme packages: the first of which contains the development of *basic factors* (transport, energy networks, etc.), while the second provides backing to *enterpreneurial efforts to create more jobs.*

When elaborating our regional programmes for enterprise development, in addition to community level SME-programmes, we have also paid attention to past experience with development programmes in several EU member countries, particularly in Portugal, Greece, Spain and Northern Ireland. We have also included the specific SME-programmes of regions similar to the Southern Great Plain (Dőry 2002, Rechnitzer 1998). The comparison of materials on ten such regions permits the conclusion that while there may be some similarity at the level of principles, when it comes to the means applied in SME development, there is no unified methodology of SME development for countries or regions. The following ideas concerning development have been put forward in the majority of countries mentioned:

- *Support for innovation in SMEs:* technological transfer, cooperation with R&D institutes, introduction of new technologies (information and telematic technology).
- *Access to informational services:* extension of networks and facilitating access, filling up databases.
- *Training entrepreneurs:* strategic planning, quality control, training for the application of new technologies, information technology, management training.
- *Cooperation among SMEs:* creation of networks, exchange of expertise, joint events, exhibitions, publications.
- *Financial support:* security funds, venture capital.

Various criteria are prescribed in Hungary by legal regulations with respect to the form and content of operative programmes. The operative programme consists of subsidiary programmes which can be further divided into programme parts and tasks to be realized. The latter also contain the outline of application criteria for the projects foreeseen. The operative programme contains ideas to be realized in the short and medium-run. Needless to say, these ought to be aims which stand a reasonable chance of being successfully realized, meaning both that resources are likely to be available and that projects will also be submitted by prospective partners as well.

The operative programme of SME development for the Southern Great Plain region contains five subsidiary programmes, i.e. five priorities which are approximately of equal weight (Lengyel 2000b). In order to accommodate actual local demands, the subsidiary programmes have been further divided into programme parts. The latter include the tasks to be realized as well. Tenders will be invited for these projects (Table 12.2). Since the main objective is the general and normative development of SMEs in the region, all regional enterprises can benefit from the majority of tasks.

Two general subsidiary programmes (the first and the fifth) have been provided both of which are equally important for all SMEs, whether in the tradeable or nontradeable sectors: the creation of a complex enterpreneurial information services system (CEISS) and the preparation for EU accession. Ensuring access to internet services for all SMEs is of crucial importance. This is critical because it enables SMEs to obtain quick and reliable information on any kind of service as well as the regional/local organizations providing that service and can help to coordinate enterpreneurial needs and services. SMEs are going to face new challenges in the wake of Hungary's accession to the EU. They are to be supported, therefore, in meeting the challenges posed by the new competitors as successfully as possible. But not only will SMEs enter a new regulative environment and encounter new requirements, they will also have the chance to apply for various EU resources. Backing for SMEs will be needed so that they can successfully tender for these funds and cooperate efficiently with enterprises from other countries.

The other subsidiary programmes are addressed primarily at enterprises of the *tradeable sector*. These enterprises are in a position to improve the region's competitiveness and to generate new jobs. *Preserving and improving market positions* is essential for SMEs operating in this sector. One of the most important means to achieve this is marketing. Market positions can only be improved by introducing innovations in a broad sense of the word. In short, flexible and swift adaptation to changing demands and conditions is called for through the adoption of the latest methods and techniques.

Table 12.2 The operative programme of SME-development in the region

Subsidiary programmes/ programme parts	**Tasks**
1. The complex information service operative development programme for SMEs	Creating the CEISS* Marketing the CEISS Operating the CEISS
2. Improving the market positions of SMEs	
2.1. Marketing programme for products from the Southern Great Plain region	Creating a database of regional products Creating and coordinating product-pyramids Creating joint regional product marketing
2.2. Supporting the market expansion of SMEs	Improving the market approach of SMEs Preserving and expanding market positions
2.3. Developing an innovational network	Creating the RIS** Establishing innovational incubator houses Improving the innovational awareness of SMEs
3. Improving forms of cooperation among SMEs	
3.1. Organization of associations for acquisitions and marketing	Provision of information on EU agricultural policies Introducing and mapping cooperational systems Organizing model cooperations
3.2. Incentives for local subcontracting networks	Training in basic subcontracting expertise Fostering regional subcontracting integration Training in SME specific know-how
3.3. Fostering clusterization	Spreading clusterization Mapping potential clusters Practical support for clusters
4. Developing the financial background	Creating a complex informational system Leasing programme Establishing a regional venture capital fund
5. Developing the enterpreneurial culture of SMEs and their preparation for EU accession	Evaluating EU-relevant knowledge of the SME-sector Special training programme in EU-relevant information Providing information on the SME-policies of the EU Operating an Informational Network on the EU

Note: *CEISS=Complex Entepreneurial Information Services System;
**RIS=Regional Innovation Strategy

The majority of SMEs will only be able to survive, i.e. acquire agglomerated competitive advantages, *by participating in various cooperations:* as subcontractors to large companies or by grouping together with other SMEs (business networks, clusters). This could involve the exchange of information and expertise and the joint provision of certain services (Buzás 2000).

A considerable share of SMEs in the region are agricultural enterprises. Similarly to other examples in the EU, the value chains and cooperative associations of these enterprises are to be organized differently from the vertical production chains of large industrial processing units. Local subcontracting networks of large companies in processing industry are to be developed as well. It will also be useful to provide incentives for clusterization in certain sectors.

One of the most serious problems faced by SMEs is the lack of capital and loans. A considerable share of currently operating enterprises was created in the wake of the disintegration of companies belonging to the former state-owned or state cooperative sector, or alternatively, are newly founded enterprises on the basis of private (family) real estate property (Kállay 2000, Kőhegyi 2001). Most SMEs, therefore, look back on a very short history and thus have not been able to accumulate capital. Many of them are still labouring under the high interest rates of loans disbursed in the middle of the 1990s (or under the various negative consequences of these loans). So it is understandable that most SMEs are involved in various activities which require very little capital. Significant amounts of capital and the introduction of new and special forms of financing will be critical, however, to start and strengthen the innovative enterprises on which the region's prospective development could be based.

The operative programme rests on the economic development strategy outlined above and is in accordance with the main principles of this strategy (Figure 12.1). Practically all of the subsidiary programmes connect to one or the other of these strategic principles. It is once again possible, in terms of the strength of the connection, to evaluate the extent to which these subsidiary programmes contribute to the realization of the strategic principles: For instance, the strengthening of foreign trade relations is particularly important for improving market positions. To achieve better foreign trade relations, however, regional marketing on behalf of SMEs and the development of economic, business and institutional infrastructure are indispensable.

International and Hungarian practical experience and empirical investigations confirm that the development of SMEs divides into two important stages: First a *transitional* period takes place which involves the "identification" or location of the region's key sectors and the *en masse* training of local entepreneurs preparing them for a successful participation in business competition (e.g. tendering for EU projects, familiarity with business "matchmaking" services, awareness of the nature of subcontracting networks and clusters, etc). Then only the second stage will see, parallel to the development of the region's economy, a substantial increase in the

application of modern innovational techniques in enterpreneurial development and the spread of various forms of cooperation and financing (e.g. venture capital), etc. The two processes can, of course, also start simultaneously in some sectors and areas of the region. In general, however, in most sectors and areas of the Southern Great Plain region increasing focus on the second phase can only be expected in a few years' time.

12.7 Conclusion

This study has reviewed our proposal for the strategic economic development programme of the Southernern Great Plain region and the closely related operative programme for SME-development. The aim of the region's economic development is the improvement of the living standards of the local population, while its primary means is improved competitiveness through both improved productivity and growing employment.

The strategic proposal for the region's economic development realizes a strategy oriented towards structural transformation. This is because the structure of the region's economy is insufficiently competitive: there are too few locally-based, internationally competitive sectors in the region. For this reason, it would be crucial to locate new companies (first of all units of global companies) which could in turn provide contracts for local SMEs and from which the expertise, networking methods etc. necessary for corporate success could also be acquired. It is equally important to strengthen the embededness of local large companies and to support networks and clusters of SMEs. The operative programme of SME-development seeks primarily to stimulate the growth of the tradeable sector, while also containing some forms of support accessible to all SMEs (information, EU training, etc).

The fully elaborated programmes provide the means for the region's improved competitiveness on the basis of carefully worked out local policies. It is clear, however, that the progammes outlined here constitute only a necessary but not a sufficient condition for the beginning of a recovery period. What matters is the not the description of tasks, but their realization. In a market economy, the development of SMEs can only be successful as long as it is based on local initiatives and cooperation. The strengthening of enterpreneurial organizations (chambers of commerce, professional associations, etc.) is, therefore, definitely desireable and so is the selection of influential enterpreneurs with generally acknowledged credentials who can thus effectively represent local enterpreneurial interests. Regional and local governments can help in creating and fostering the competitive advantages of local key industries: first, by means of establishing the general business environment (training, transport, etc.), and second, by means of "location marketing". The role of local governments is, on the other hand, crucial in initiating the process of structural transformation since they are to attract competitive companies and overcome the

resistance of local enterprises with opposing interests. The programmes commissioned by the political leadership of the region are also decisive as they are instrumental in obtaining support from the Structural Funds of the EU.

References

Armstrong, H. and Taylor, J. 2000: *Regional Economics and Policy*. (3rd ed) Blackwell, Malden (MA).

Barlow, M., Lengyel, I. and Welch, R. (eds) 1998: *Local Development and Public Administration in Transition*. JATEPress, Szeged.

Barta, Gy. 2002: Strong regional competition – weak co-operation. Attempts at "bottom-up" co-operation and contradictions in governmental efforts in Hungary. *European Spatial Research and Policy*, 1: 5-21.

Bartke, I. 1997: Social Driving Forces and State Regulation of Regional Economic Development. *Papers in Regional Science*, 2: 155-174

Buzás, N. 2000: Klaszterek: kialakulásuk, szerveződésük és lehetséges megjelenésük a Dél-Alföldön. *Tér és Társadalom*, 4: 109-123

DARFT 1999: *A Dél-alföldi régió stratégiai programja*. DARFT, Szeged, www.del-alfold.hu.

Dicken, P. 1998: *Global Shift. Transforming the World Economy*. Guilford Press, New York.

Dőry, T. 2002: Towards a Regional Innovation System: Regional Policy Issues and Problems in the Central Transdanubian Region. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 247-264

EC 1999: *Sixth Periodic Report on the Social and Economic Situation and Development of Regions in the European Union*. European Commission, Luxembourg.

Enyedi, Gy. 1996: *Regionális folyamatok Magyarországon az átmenet időszakában (Regional Processes in Hungary in the Period of Transition)*. Hilscher R. Szociálpolitikai Egyesület, Budapest.

Enyedi, Gy. 1998: *Social Change and Urban Restructuring in Central Europe*. Akadémiai Kiadó, Budapest.

Farkas, F. 2001: A kompetenciák fejlesztésének regionális összefüggései és tapasztalatai. *Tér és Társadalom*, 3-4: 25-38

Grosz, A. 2003: Cluster Initiatives in Hungary – the Case Study of Pannon Automative Cluster (PANAC). *European Spatial Research and Policy*, 1: 47-70

Hall, R., Smith, A. and Tsoukalis, L. (eds) 2001: *Competitiveness and Cohesion in EU Policies*. Oxford University Press.

Horváth, Gy. 1998a: *Európai regionális politika (European Regional Policy)*. Dialóg Campus, Budapest-Pécs.

Horváth, Gy. 1998b: *Regional and Cohesion Policy in Hungary*. Discussion papers No. 23., Centre for Regional Studies of the Hungarian Academy of Sciences, Pécs.

Kállay, L. 2000: Mikrohitelezés piaci alapon. Vállalkozásélénkítés intézményfejlesztéssel. *Közgazdasági Szemle*, 1: 41-63

Kőhegyi, K. 2001: Növekvő és zsugorodó vállalkozások. *Közgazdasági Szemle*, 4: 320-337

Lados, M. 1998: Taxation Attitudes of Local Governments in Hungary. In Barlow, M., Lengyel, I. and Welch, R. (eds) 1998: *Local Development and Public Administration in Transition*. JATEPress, Szeged: 158-181

Lengyel, I. 1993: Development of local government finance in Hungary. In Bennett, R.J. (ed): *Local Government in the New Europe*. Belhaven Press, London and New York: 225-245

Lengyel, I. 1995: From plan to market: The case of Hungarian banking system. In Tykkyläinen, M. (ed): *Local and Regional Development During the 1990s Transition in Eastern Europe.* Avebury, Aldershot: 109-118

Lengyel, I. 2000a: Porter-rombusz: a regionális gazdaságfejlesztési stratégiák alapmodellje (Porter's Diamond-Model for Regional Economic Development Programming). *Tér és Társadalom*, 4: 39-86

Lengyel, I. (ed) 2000b: *Programming for SMEs Development of the Southern Great Plain Region* (in Hungarian). Department of Regional and Applied Economics, University of Szeged: www.del-alfold.hu.

Lengyel, I. 2001: A regionális versenyképesség tényezői, különös tekintettel a Dél-Alföldre (Factors of regional competitiveness, particularly on the Southern Great Plain). In Farkas, B. and Lengyel I. (eds): *Versenyképesség – regionális versenyképesség*. JATEPress, Szeged: 39-57

Lengyel, I. 2002: The Competitiveness of Hungarian Regions. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 235-246.

Lengyel, I. and Deák Sz. 2002: The features of regional competitiveness in Hungary, especially at the Hungarian-Rumanian border. In Falnita, E. (ed): *Economics and Management of Transformation*. CD-rom, Mirton, Timisoara: 719-730

Malecki, E. J. 1997: *Technology and Economic Development: The dynamics of local, regional and national competitiveness*. Longman, Edinburgh.

Malizia, E. E. and Feser, E. J. 1999: *Understanding Local Economic Development*. Center for Urban Policy Research, New Brunswick (New Jersey).

Maskell, P., Eskelinen, H., Hannibalsson, I., Malmberg, A. and Vatne, E. 1998: *Competitiveness, Locational Learnings and Regional Development: Specialisation and prosperity in small open economies*. Routledge, London.

Mészáros, T. 2002: *A stratégia jövője, a jövő stratégiája*. AULA, Budapest.

Nemes Nagy, J. 2001: New Regional Patterns in Hungary. In Meusburger, M.J. (ed): *Transformations in Hungary*. Physica Verlag, Heidelberg: 39-94

Porter, M. E. 1998: *On Competition*. The Free Press, New York.

Porter, M. E. 2000: Location, Competition, and Economic Development. *Economic Development Quaterly:* 1: 15-34

Porter, M. E. 2001: *Clusters of Innovation: Regional Foundations of U.S. Competitiveness*. Council of Competitiveness, Washington.

Rechnitzer J. 1998: *Területi stratégiák*. Dialóg Campus, Budapest-Pécs.

Rechnitzer, J. 2000: *The Features of Transition of Hungary's Regional System*. Discussion papers No. 32., Centre for Regional Studies of the Hungarian Academy of Sciences, Pécs.

Szerb, L. and Ulbert, J. 2002: Entrepreneurial Growth and the Role of Venture Capital in Hungary. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 122-144

Szirmai, P. 1997: *A kis- és középvállalatok képzési és tanácsadási igényei*. MVA Kutatási Füzetek 14. Magyar Vállalkozásfejlesztési Alapítvány, Budapest.

Timár, J. 1998: Recent Changes and Governmental Problems in Urban-Rural Fringes in the Great Hungarian Plain. In Barlow, M., Lengyel, I. and Welch, R. (eds) 1998: *Local Development and Public Administration in Transition*. JATEPress, Szeged: 150-157

Török, Á. 1997: *Az EU-hoz való közeledés várható hatásai a magyar kis- és középvállalatokra – a vállalkozások munkamegosztási szerepe*. CIPE, Budapest.

Varga, A. 2002: Knowledge Transfers from Universities and the Regional Economy: A Review of Literature. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 147-171

Waits, M.J. 1998: Economic Development Strategies in the American States. In Liou, K.T. (ed): *Handbook of Economic Development*, New York, Marcel Dekker.

Waits, M.J. 2000: The Added Value of the Industry Cluster Approach to Economic Analysis, Strategy Development, and Service Delivery. *Economic Development Quaterly*, 1: 35-50

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 180-192

13 The Logistical Opportunities of Szeged

Ferenc Tráser

13.1 Introduction

As accession to the European Union draws near, it is time to consider what challenges the town of Szeged as the southeastern gateway to the EU faces in the field of logistics and what logistical demands it will need to meet in future in order to play the role of a logistics gateway.

In Szeged's logistical, social and economic development, primary significance may be assigned to the town's geographical location and to the partitioning of its economic region, which has determined development as well as industrial, agricultural and societal aspects since the Treaty of Trianon was signed after World War I. (Enyedi 2000, R. Mészáros1998). Following accession to the EU, Szeged will become a border town for a transitional period and an EU gateway to the Balkans along the Romanian and Serbian borders (Horváth 2001, Tóth and Golobics 2002, Rechnitzer 2000). In the years to come, this fact, in addition to the locality's good transport links and potential for innovation, might become an essential factor in the decision-making process concerning short-term development.

In order to exploit this temporary advantage, we need to elaborate an algorithm based on a well-defined vision of the future, which can be equally favourable for the enterprises working here, for the "decision-makers in Brussels", who, with their financial resources, influence local processes here, as well as for capital on the other side of the border, beyond the boundaries of the current region.

In this examination method, Szeged's competitive ability might move into the foreground (Lengyel and Rechnitzer 2000). For this purpose we need to take into account research findings at the crossroads of several sciences.

In this paper I try to survey the changes in Szeged's logistical opportunities based on national and international research findings. I will draw up expectations that need to be met in order for Szeged to become a modern centre for commerce and logistics in the near future and to fulfil an integrative role within and beyond the borders of the region.

.

13.2 A SWOT analysis of Szeged

To be able to describe Szeged's logistical area and a vision for the future, a logistics-centred SWOT analysis of the town seems in order. While making up this analysis I relied some research findings of Szeged and Csongrád county (RDP 1999, PSP 2001, SPER 2001).

(a) Strengths

- In the European regional development context, the town's geographical location is excellent (it lies at the juncture of three borders).
- An east-to-west road transport corridor crosses it. Both for Serbia and for Romania "the road to Europe leads through Szeged". (Vienna-Budapest-Szeged-Belgrade, Vienna-Budapest-Szeged-Bucharest).
- Szeged is the hub for routes within the region (Szeged-Kiskunfélegyháza-Kecskemét, Szeged-Csongrád, Szeged-Hódmezővásárhely-Szentes-Szolnok, Szeged- Hódmezővásárhely-Békéscsaba).
- The administrative area of the town boasts a functioning airport.
- The infrastructure of the town is favourable, the avenue-and-ring road structure of the town is highly advantageous.
- Primed areas of development (Priority Economic Zone).
- The establishment of the Logistical Service Centre of Szeged is part of the National Regional Development Plan (A feasibility study has already been carried out).
- Szeged is the largest town in the southern plain region and has been a hub for centuries.
- It has been a centre of education, healthcare, culture, commerce and public administration.
- The town is an intellectual centre: the proportion of inhabitants with a college or university education is high. It is an especially liveable town on a human level with a very good atmosphere.
- It is a popular conference venue.
- Szeged itself, as a big town, is a consumer hub (both in terms of orders and purchases).
- It is characterised by business activity well beyond the county average.
- The town and its region are marked by a flexible labour market and the capacity to absorb and release the labour force, thus adjusting to fluctuations in economic activity. A relatively low unemployment rate.

- The appearance of multinational chains (such as Metro, Tesco, Cora, Praktiker, Baumax, Mediamarkt etc.); the town is a destination for consumer tourism.
- The town has the institutional background required for interregional co-operation (DKMT office, Romanian Consulate, Institute of Italian Culture, Institute of French Culture, Austrian and Turkish Honorary Consuls etc.).
- A centre for higher education, a base for information technology and biotechnology.
- The University of Szeged has at its disposal nearly one hundred hectares of easily accessible, useable land awaiting infrastructure development.

(b) Weaknesses

- The town is in the borderlands. The disruption of earlier (pre-Trianon) economic ties within its natural region. Lack of formerly existing railway lines (Transylvania-Great Hungarian Plain-Transdanubia, Great Hungarian Plain-Bácska-Fiume).
- Lack of transport infrastructure: lack of motorway between Kiskunfélegyháza and the southern borders, outdated Cegléd-Szeged railway line, grassy runway at the airport, cumbersome accessibility to the port both from roads and the river.
- Unused natural geographical potential for transport: role as junction in the traffic between the north-south Tisza valley and east-west Maros valley.
- Unnecessary through traffic in town (lack of network of bypass roads).
- Deficiencies in the town's transport system (lack of a third road-rail bridge across the River Tisza, western motorway to bypass the town).
- Unused potential for shipping (cargo shipping on the Tisza is negligible).
- Outdated industrial structure of the town, lack of high-tech production sectors.
- Devaluation of local light and food industry sectors that form the basis of the local economy.
- Low export orientation among firms.
- Lack of co-operation between the three towns of Szeged, Hódmezővásárhely and Makó.
- Lack of state-of-the-art warehousing capacity.
- Little useable land for development at the disposal of the local government.
- Social tensions arising from economic restructuring, undermining of social security.
- Environmental pollution due to through road traffic (air, noise, vibration pollution).

(c) Opportunities

- Increasing the investment appeal of the town (working out a system of incentives).
- Attracting multinational firms to establish their operations here (facilitating their integration into interregional co-operative efforts).
- Facilitating cross-border mobility (linking the southern and eastern parts of the natural region to existing economic and social processes).
- Exploiting the regional development advantages arising from borderland relationships (tapping central budgetary and EU resources).
- Joining the work of international organisations: Danube-Körös-Maros-Tisza Euroregion, Balkans Stability Pact.
- Developing joint applications (Phare CBC, Interreg III Cadses etc.).
- Exploiting the interethnic cohesion of the peoples (minorities) situated in the territory of the DKMT Euroregion.
- Fitting into the hierarchical European town network (establishing characteristic features).
- Establishing harmonic co-operation with localities within the economic region (developing complementary activities).
- Establishing juncture points for the various means of transport; improving accessibility: constructing the transversal motorway (M9, southern motorway) would enhance the appeal of the region and facilitate the town's integration into the domestic intercity mainstream, establishing the Szeged-Temesvár railway link (Great Hungarian Plain-Bánság), the Szeged-Szabadka-Bácsalmás-Baja railway line, declaring the Tisza waterway of international concern and rendering it navigable.
- Exploiting the comparative advantages arising from the town's geographical location, boosting its capacity to attract labour from areas across the border, mainly in the fields of agriculture and processing, consumer tourism, and spa tourism; it is a financial hub for a region that transcends the border (being at the southeastern border of the eurozone).
- Fulfilling the role of a secondary gateway town (owing to the nearby three borders it can act as a centre, a starting point and a destination): a complex system of storing, loading, transport, product assembly, packing as well as logistics services with a higher added value has to be realised in the intersection of transport infrastructures.

(d) Threats

- The domestic policy situation of neighbouring countries. Following the regime change, the frameworks of nation states were formed in a highly centralised way. Their economy and their democratic institutional structure require significant improvement to meet the demands of integration.
- Competition of logistical initiatives between domestic big towns and towns outside the borders.
- The powerlessness of the institutions of euroregional co-operation (anti-integration sentiments and policies coming to the fore in neighbouring countries.
- The emergence of secondary European areas due to the existence of the eurozone.
- The maintenance of certain limitations at the borders due to derogations (free movement of labour, compulsory visa regime etc.).
- Stagnation of the region's economy.
- The development of infrastructure - due to the immense demand for improvement and lack of capital - will lag behind.
- The country is experiencing a domestic brain drain in the direction of Budapest and Western Hungary.
- Rising unemployment, increasing social inequality and marginalisation are all becoming a common phenomenon in many areas.
- Growing gaps in development in various parts of the country. The west-east slope of development is growing steeper; the provinces and regions are suffering from a flight of capital.

On the basis of the above, we can see that Szeged's role as a hub does not only depend on its geopolitical situation, but is also a function of the extent to which the town can live up to its role as part of an international corridor. The Szeged region must transform from a transit element of transport into a strong, powerful supply centre, where the railway station, airport, river port, logistical bases, combined terminals and local end points form a well-integrated system. The junction of these is the centre of gravity through which business development and regional development plans are realised, i.e. this is the direction in which such efforts can be made (Lengyel 2002, R. Mészáros 1998).

This shows that favourable economic and socio-geographical conditions can only represent a starting point for the role of regional centre. Szeged can only become a real regional centre if - through government assistance and co-operation based on the common interests of the town and its economic region - it is determined to create the conditions that are necessary for it to develop into a logistics centre.

13.3 The preconditions of Szeged becoming a logistics centre

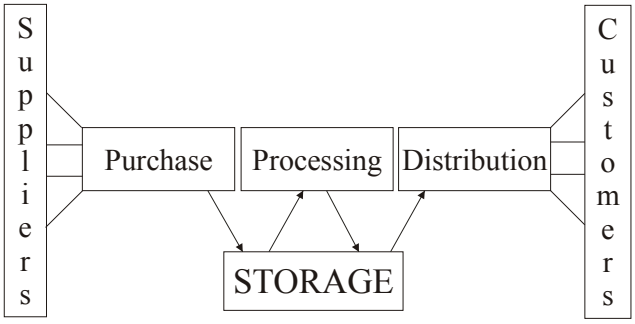
"Logistics is a science dealing with the flow, planning, organisation, management and control of materials, persons, energies and information within a system" (Prezenszki 2001: 13). Its task lies in supplying the above to the user in adequate quantity and quality at the right place and time.

If we apply this notion to the functioning of a town - Szeged, in this case - its vicinity and region, we need to devote a great deal of attention to the examination of the relatively limited possibilities of the flow of materials. And furthermore, beyond the increasingly free and self-regulating individuals moving between the logistical systems and passengers crossing the region to the movement of the ever more important information systems and information itself.

When examining the region, especially when analysing the role of the regional centre, besides the classical problems of logistics (transport of materials, packing and storing), special emphasis must be placed on those logistical questions which, in the course of their development, influence the working of the region with ever more definitive force (T. Mészáros 2002). What is of primary importance here is the transport of materials, flow of goods, the information and the accessibility of information governing the guided and arbitrary movement of persons; these are the decisive factors in the development of a region, Szeged in this case.

If we look at the correlation of the classical elements of the logistical approach, Purchase-Storage-Processing-Distribution-Consumption, these notions can be applied when examining configurations and reconfigurations (Figure 1). It is, however, proper to supplement them with elements that strengthen the economic projection of classical logistical processes and enrich the description of individual events. Such can be the examination of labour force, capital, commodities, the scope of movement of information and labour.

Figure 13.1 The classical elements of the logistical approach



A well articulated tendency could be discerned in the economic processes of recent years, especially among multinational manufacturing and trading companies that had entered Hungary, when the proportion of production itself and processing drastically decreased, whilst the proportion of storage and distribution increased compared to the former. This also means that the development of a logistical region in the future will greatly depend on whether it lies in the intersection of proper transport routes, whether there is a chance there for low investment but high efficiency storage, whether the region has the proper information processing capacity which will later make it absolutely unnecessary to move or store other logistical elements, which would increase costs.

In the working principle of Szeged as a regional centre, traffic and several well-known forms of transport play a key role, being those elements of logistical assets which through "space-span" and "time-span" appear integrated in the whole process both in the field of transport and information transfer (R. Mészáros 1999).

Time-span has another comprehensible meaning, when information transfer processes take place without time limits by bridging over the limitations of space, and simultaneously with transport production and perhaps packing and storage taking place. This, then, projects the prospective that modern production organisation techniques and trade techniques continuously merge in each other resulting in a uniform transport system owing to the speeding up of the most valuable logistical asset: information flow.

In the relationship between a region employing the results of logistics and its centre, the following goals should be realised in the given configuration:

- the persons taking part in the process,
- the desired goods and services,
- in the necessary point of time,
- to the proper geographical location,
- in the desired quantity and quality,
- with agreed parity,
- at the lowest possible cost,
- causing the least possible environmental pollution.

To this we have to add the aspect of sustainability. "Growth is sustainable if it satisfies present demands, but does not impair the chances of future generations to satisfy their demands in the future" (Enyedi 2002: 21). If, on top of all this, we apply the same principles to people, to the movement of labour in a given town or region, or to the flow of information at a time when options for information transfer are rather limited, we can grasp the picture of future development and growth in the case of Szeged, too.

Complex logistics cannot be narrowed down to the problem of transport and storage; it should much rather be spread to the complex entirety of the contact points

of special fields including such aspects as technical conditions, information technology options, environmental questions, as well as economic, social and geographical factors as well.

As for the logistical system Felföldi László's statement is authoritative, according to which system is a togetherness of well-organised sets of determined function elements carefully chosen to reach a certain goal or to fulfil a certain task, and also of the relationship existing between them (Felföldi 1983).

The environment of a system always comprises whatever is available outside the given system, be it a production unit (company) or a town, but it is always related to them in some way: the flow of labour (commuters), networks of energy supply systems, road networks, and transport facilities.

The relationships between system and surroundings can be described as input and output type relationships, from which, in the case of Szeged, the following can be found on the input side:

- workers commuting to work,
- students commuting to school/college/university,
- tourists arriving for relaxation etc.,
- transport vehicles approaching the system, carrying goods and people,
- energy supplies approaching the system (electricity, gas etc.),
- information entering from the outside, facilitating the operation of the system (traffic reports, weather forecasts etc.).

In addition to the washback effects of the former, we can find the following on the output side:

- harmful emissions,
- as a result of processing: semi-prepared or ready-made products,
- intellectual products and information that have been "processed".

As for the input and output sides of a town, several kinds of groupings are conceivable. Here we have to point out that the population of the town and its vicinity possesses movement that can be influenced by the elements of logistics. There are, however movements, which cannot be influenced; these either increase or decrease the predictability or uncertainty of the operation of the logistical system (e.g. rush hour, peak through traffic with its attendant environmental pollution etc.).

Factors defining the level of logistical services considering the logistical system of a town, in this case Szeged, include the following:

- The length of transport times between the town and the systems related to it, including both passenger and freight transport, considering all forms in the given configuration.

- The correspondence of logistical services to market demands, namely the question of availability of the service networks and infrastructure facilities necessary for the way of life desired by the population.
- The flexibility of services, their adaptability to the needs of the market, or their rigidity.
- The quality and adjustment of services in response to demand.
- The level of public safety, safe living conditions.
- The level of healthcare etc.
- The satisfaction of cultural needs.
- Education at the secondary and tertiary levels.

The configuration of logistical systems - taking into consideration economic and socio-geographical factors - are a given and can only be partially modified. In the logistical systems, persons, materials and information all flow between determined points, which by themselves can function as a logistical system (Halászné Sipos 1998). With regard to their configuration, logistical systems are made up of focal points and networks linking those focal points. These focal points may be mines, factories, agricultural facilities and warehouses whereas the networks that connect them may be natural links such as rivers and seas; they may, however, also be artificial ones such as roads, railway lines etc.

With regard to their structure, focal points facilitating the transport of people as well as the flow of goods and information can be systems consisting of one stage or several stages and they can be receptive or distributive or a combination of all of these. In the flow of information, the spread of Internet links has brought about revolutionary changes in the relationships between logistical IT systems.

It is of importance that a town like Szeged which aims to become a regional hub should possess as many elements of the above logistical system as possible, and should rank as high as possible in the hierarchy of logistical systems.

The given economic, social and geographical situation determines what features of the given logistical system it can possess and what it cannot (e.g. sea and river port, railway station, airport, raw material supply, etc.).

The constraints of natural conditions can be removed in the course of development, when the entrepreneurs of a town establish virtual companies, which - as regards their organisation - only have an upper layer of executives with most of their work done by outsourcing; what they themselves do is co-ordinate the contractors' work, satisfy the demands of the market and organise the economic processes. In the case of virtual companies there is only an information flow, and as a result of the output the income is divided between those taking part; in a virtual company the flow of personal and material processes is not present.

13.4 Szeged as a future "gateway" model

The spread of the concept of trade centres functioning as sites for logistics, reception and distribution has conceived and developed a new model, the so-called "gateway" practice. The "gates" between systems built upon each other in multi-stage, structurally cohesive logistical systems serve as junctions that offer a chance for a further regrouping and diversification of persons and goods.

The use of gateways is justified for several reasons, e.g. the transfer between the individual logistical systems is not automatic, goods must be identified and distributed based on quantity and quality; also in some cases the performance of administrative tasks needs to be checked. To mention practical examples, duty-free areas and customs facilities both qualify as gateways, of which we can find several examples in Szeged, too.

The proportion of the flow, transformation and classification of goods and energy resources is noticeably higher in an industrial region than in one whose main activity is connected to tourism and a beneficial utilisation of leisure. In the latter type, human mobility with all its accompanying services is higher than in the former.

In Szeged both these processes are present. The main difference is that while goods themselves do not define the direction of their motion, in the case of human transport - due to human self-determination - beyond the satisfaction of the need for comfort and other services, the accessibility of information, news and smooth flow of people's transport must be guaranteed.

A special task of logistics is to optimise the process, to remove bottlenecks and remedy occasional stoppages. Unlike the flow of goods, the demand for "storage" is different here, and the birth of "human commissioning" together with the dynamic growth of tourism poses a great challenge for Szeged.

The supply of goods can be optimised with the help of a one-stage or multi-stage gateway model, both in the operation of the region and the regional centre.

With the single-stage model the region's big industries are supplied with resources and energy from the trade centre, while in the case of the multi-stage model further sub-centres as well as reception and distribution sites are inserted in the process to satisfy the demands of a broader market. If we wish to describe the process down to the level of consumers, the number of stages increases, since the sub-centres are further connected with distribution centres until the particular commodity reaches the final step, the consumer, through for example a city centre specialist shop. Such a detailed analysis of the flow of goods is performed by urban logistics.

During the evolution of regional logistics a special socio-economic and geographical state is represented by the configuration system, in which the organic region and its centre are divided by a borderline. The reconfiguration of the Szeged economic region in the period after Trianon provides a good example of this.

In Szeged, large trade and energy distribution centres are available; in addition, the town has been a hub for combination transport for years. The town being a logistics centre, in older days goods were loaded from ships onto carts and then onto trains. Today RO-LA represents large-volume combination transport, but there is railway-highway and even road-airway combined passenger transport, too.

According to related statistical data, established transport directions, capacity and load are the following:

- 4 trains per day depart for WELS, Austria,
- 4 trains per day arrive from WELS,
- every other day 1 train leaves for SEZANA, Italy,
- every other day 1 train arrives from SEZANA, Italy,
- each train can carry up to 18-22 lorries, with escort.

Logistical contacts reaching beyond the border can accelerate passenger and freight transport to a great extent. On the analogy of virtual companies, virtual trade and logistics centres can also be formed, whose activity is aimed at evaluating the flow of data instead of the flow of goods. Being in possession of the proper information, the manufacturer no longer owns the goods he physically keeps in his warehouse; instead, owner's rights are exercised by the buyer. In this way the goods reach the consumer without actually being in the logistics centre.

In like manner, without direct contact with the goods, the logistics centre can decide on the fate of goods which are already in the process of being shipped in such cases, when the task is the transport and distribution of large quantities of homogeneous raw materials (e.g. corn, crude oil etc.). Exploiting its infrastructure advantages and its supremacy in information technology, Szeged can fulfil the role of a logistics centre in the context of its onetime organic economic region, not all of which will form part of the EU as of May 2004.

In Szeged, the supply of goods of the multinational trading companies established in the town exceeds the demand of the population of the town and the vicinity (Lengyel and Deák 2002). Their stores located here reckoned on the demand not only of the inhabitants of the town, but also those of the vicinity, and in particular those of the areas across the borders. The directions of consumer tourism have changed several times over the past few decades. According to the tendencies noticeable today it can be predicted that following EU accession the shopping demands of the areas beyond the border will be consolidated for many years to come.

13.5 Summary

Szeged's future in logistics is determined by EU accession and by the town's economic region, whose advantages and disadvantages have been reassessed in the

past century time and time again owing to the town's borderland position. For the town implementation of the development project is inevitable, the final objective of which is to create a trading and logistical hub, which will become the centre of transport routes, service networks, financial and commercial processes and information technology and telecommunications networks. Its role as a centre needs to be enhanced in the areas of education and research, as—due to their geographic locations—neither Temesvár nor Újvidék has educational and research facilities comparable to Szeged's.

References

Enyedi, Gy. 2000: *Magyarország település-környezete (Hungary's Settlement-Environment)*. Hungarian Academy of Sciences, Budapest.

Enyedi, Gy. 2002: A fenntarthatóság értelmezése (The Meaning of Sustainability). In Abonyiné Palotás, J. and Becsei, J. and Kovács, Cs. (eds): *A magyar társadalomföldrajzi kutatás gondolatvilága (Ideas on Hungarian Social Geographic Research)*. Szegedi Tudományegyetem Gazdaság- és Társadalom-földrajz Tanszék, Szeged: 21-26

Felföldi, L. 1983: *Anyagmozgatási folyamatok tervezése I. rész (Planning Transport Procedures. Part One)*. Tankönyvkiadó, Budapest.

Halászné Sípos, E. 1998: *Logisztika – szolgáltatások, versenyképesség (Logistics – services, competitiveness)*. Logisztikai Fejlesztési Központ, Magyar Világ, Budapest.

Horváth Gy. 2001: *Európai regionális politika (European Regional Policy)*. Dialóg Campus, Budapest - Pécs.

Lengyel, I. and Rechnitzer, J. 2000: A városok versenyképességéről. In Horváth, Gy. and Rechnitzer, J. (eds): *Magyarország területi szerkezete és folyamatai az ezredfordulón*. MTA RKK, Pécs: 130-152

Lengyel, I. 2002: The Competitiveness of Hungarian Regions. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges.* University of Pécs Press, Pécs: 235-246

Lengyel, I. and Deák, Sz. 2002: The features of regional competitiveness in Hungary, especially at the Hungarian-Rumanian border. In Falnita, E. (ed) *Economics and Management of Transformation*. Mirton, Timisoara: 719-730

Mészáros, R. 1999: A megye fejlődésének lehetőségei és korlátai (Opportunities and limits of Csongrád county development). Mészáros, R. (ed): *Csongrád megye. Helyzetkép az ezredfordulón (The Csongrád County. Situation at the Millenium)*. Csongrád Megyei Kereskedelmi és Iparkamara, Szeged: 445-449

Mészáros, R. 1998: Geographical and Historical Implications of the Development of a Hungarian City. In Barlow, M. and Lengyel, I. and Welch, R. (eds): *Local Development and Public Administration in Transition.* JATEPress, Szeged: 134-141

Mészáros, T. 2002: *A stratégia jövője, a jövő stratégiája*. AULA, Budapest.

RDP 1999: *The Regional Development Progtamme of the Csongrád County*. Centre for Regional Studies of HAS, Békéscsaba.

Prezenszki J. 2001 *Logisztika I-II. (Logistics I- II.)*. Budapesti Műszaki Egyetem Mérnöktovábbképző Intézet, Budapest.

PSP 2001: *Programs of the Széchenyi Project in Szeged*. Strategic Office, Szeged

SPER 2001: *The Study Project of the Szeged Economic Region of Szeged*. Strategic Office, Szeged.

Rechnitzer, J. 2000: *The Features of Transition of Hungary's Regional System*. Discussion papers No. 32., Centre for Regional Studies of the Hungarian Academy of Sciences, Pécs.

Tóth, J. and Golobics, P. 2002: A nemzetközi regionális együttműködés egyes elméleti kérdései (Certain theoretical questions of international regional co-operation). In Abonyiné Palotás, J. and Becsei, J. and Kovács, Cs. (eds): *A magyar társadalomföldrajzi kutatás gondolatvilága (Ideas on Hungarian Social Geographic Research).* Szegedi Tudományegyetem Gazdaság- és Társadalomföldrajz Tanszék, Szeged: 149-161

Lengyel, I. (ed) 2003:Knowledge Transfer, Small and Medium-Sized Enterprises, and Regional Development in Hungary. JATEPress, Szeged: 193-210

14 Some Effects of the European Charter for SME's in the Southern Great Plain Region

Szabolcs Imreh

14.1 Introduction

Small and medium-sized enterprises (SMEs) play an important role in both employment and GDP production. At the same time, they are considerably disadvantaged in the competition with large enterprises. In order to compensate for these disadvantages, enterprise development activities are crucial.

The present paper analyses the events that have significantly influenced the development of Hungarian SMEs. Regarding the European Union's enterprise development, the European Charter for Small Enterprises released in June 2000 is of primary importance. The document is a set of recommendations designed in 10 points that aim at orienting the Member States' enterprise development practices, especially the tools of implementation. In the past two and a half years this document has determined the main guidelines for enterprise development in the EU, that is why it is useful to examine its most important consequences just before the accession.

In this paper I will first discuss the recommendations of the Charter are examined in general, and then some of the steps of their implementation will also be introduced. Eventually our own recommendations will be formulated for enterprise development in the Southern Great Plain Region and some proposals will be made according to the Charter about the enterprise development of the region, highlighting the possible role of enterprise development organisations.

14.2 The European Charter for Small Enterprises

The European Union's enterprise development has radically changed in the last few years. The importance of SMEs was already known in the '80s, on the other hand, conscious and serious activities started only in the second half of the '90s. This period was characterised mainly by the launch of independent programmes, for example BEST (EC 1998a, 1998b) or the Round Table of Bankers (DG ENTR 2000). Basically the Multiannual Programmes for SMEs were the only complex

*This study was supported by the Hungarian Research Found, OTKA (number of project is T38150).

business development services. The most important questions in the development of SMEs arose only after the endorsement of the Charter.

The European Charter for Small Enterprises was endorsed at Feira European Council in June 2000 (European Council 2000). In the Charter it is laid down that some development actions are necessary to improve the situation of SMEs. Therefore, the countries of the European Union pledged themselves to (European Council 2000: 1-2):

- 'Strengthen the spirit of innovation and entrepreneurship which enables European business to face the challenges ahead;
- Achieve a regulatory, fiscal and administrative framework conducive to entrepreneurial activity and improve the status of entrepreneurs;
- Ensure access to markets on the basis of the least burdensome requirements that are consistent with overriding public policy objectives;
- Facilitate access to the best research and technology;
- Improve access to finance throughout the entire life-cycle of an enterprise;
- Improve our performance continuously, so that the EU will offer the best environment for small business in the world;
- Listen to the voice of small business;
- Promote top-class small business support.'

The signers commit themselves to work along the following lines for actions in the interest of the SMEs (European Council 2000):

- Education and training for entrepreneurship;
- Cheaper and faster start-up;
- Better legislation and regulation;
- Availability of skills;
- Improving online access;
- Getting more out of the Single Market;
- Taxation and financial matters;
- Strengthening the technological capacity of small enterprises;
- Making use of successful e-business models and developing top-class small business support;
- Developing stronger, more effective representation of small enterprises interests at Union and national level.

The importance of the Charter is demonstrated by the fact that an implementation report was written at both the EU and the national level. The first report (EC 2001b), presented only a few months after the endorsement of the Charter briefly summarised the main areas of action since many of these have recently been covered in the Report on the Implementation of the Action Plan to Promote Entrepreneurship and Competitiveness (EC 2002a). Except for that first one, all the Reports contain

detailed descriptions about the efforts made for the implementation of the 10 points of the Charter (EC 2002a, EC 2003b).

The importance of the Charter is also indicated by the fact that nowadays enterprise development activities are evaluated based upon these recommendations. The 2001 edition of the series of documents summarising enterprise development activities (Creating an entrepreneurial Europe: The activities of the European Union for small and medium-sized enterprises) listed the activities according to intervention areas (EC 2001a). On the other hand, the 2003 edition contains a step-by-step survey on the efforts made to implement the recommendations of the Charter. So the logical structure of enterprise development of the EU is basically characterised by the Charter (EC 2003a).

Candidate Countries (CCs) joined the Charter in 2002. At the Maribor Conference these countries endorsed the Maribor Declaration, which says that they acknowledge the Charter as the basis for their actions to support and develop small enterprises. They announced that 'they will inform the European Commission on the completion of the internal procedures to endorse the European Charter for Small Enterprises in their respective Countries' (CC BEST Conference 2002b: 1). According to this Declaration CCs will also release Implementation Reports, which the EU will integrate into a single report (EC 2003c). In the framework of the recommendations of the Charter several areas of intervention were covered at the Conference like the Access to Finance, Education for Entrepreneurial Society (CC BEST Conference 2002a). Besides the organisation of the Conference and the endorsement of the Declaration, these special discussions also prove that CCs aim at harmonising their enterprise development activities with the objectives of the Charter.

In the light of the above process, it is clear that Hungarian experts in enterprise development must pay particular attention to the Charter. After joining the EU, the objectives of the Charter will constitute the logical frame of Hungary's enterprise development.

The Charter contains general recommendations while the Implementation Reports investigate the activities at the national and EU levels, but the particular regional specialities might also have an important role in the realisation of the objectives of the Charter. Although the Charter itself, the Maribor Conference and the Implementation Reports all target the national and EU levels, the realisation of some recommendations of the Charter are carried out at the regional level. This is needed partly because differences in the needs of SMEs are much better identified at the regional level. Enterprise development organisations are the ones that are expected to measure these needs as thoroughly as possible in order to improve the efficiency of the provided services. That is one reason why it is definitely useful to study the different types of enterprise development activities, the differences in the needs of SMEs and the connections between these.

14.3 The support needs of SMEs

Firstly enterprise development services are surveyed according to the classification of the Committee of Donor Agencies for Small Enterprise Development (CDASED). Almost every significant association is a member of the Committee, which currently has 39 bilateral and multilateral agencies as members. (The importance of the Committee is justified by such institutions as the World Bank Group, the European Commission, the European Bank for Reconstruction and Development, the Organisation for Economic Co-operation and Development, etc.) The Committee plays a very important role in enterprise development since its announced guidelines are basically the summary of the participating enterprise development institutions' opinions.

The Committee's objective is to promote small enterprises in developing countries by (CDASED 2001):

- exchanging information on the programmes of participating agencies in the field of small enterprise development;
- sharing experiences and lessons learned during the implementation of projects; and
- coordinating efforts and establishing common guidelines in these fields.

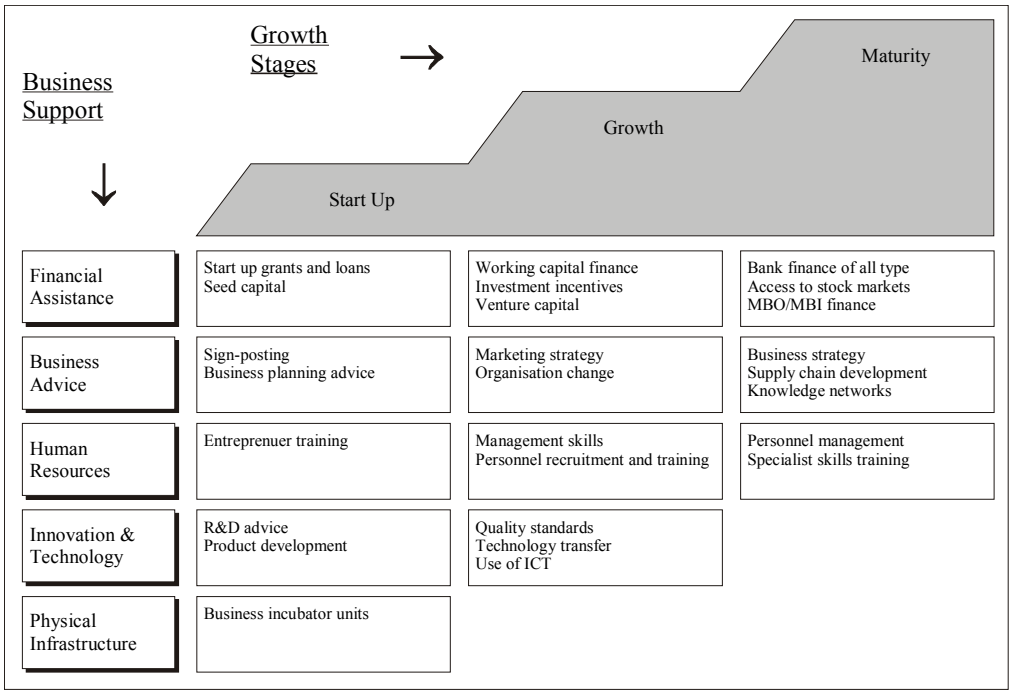
For the sake of the above objectives significant trade papers have been released which are crucial in the theoretical background of enterprise development. The definitions presented below are also based on such a trade background paper. The Committee classifies the instruments of enterprise development as follows (CDASED 1997):

- The *micro level* (i.e. the level of SMEs): In this case enterprise development instruments used at the micro level are delivered directly by development organisations to SMEs. (For example, training, consultancy and counselling, developing commercial entities, business linkages, etc).
- The *meso level* (i.e. the level of intermediary enterprise development institutions): In this case the objective is to enhance the efficiency, effectiveness and sustainability of local or national business development organisations through institutional development or capacity building. (For example, improving services, adding new services or expanding their target group, establishing new organisations or developing networks of organisations, etc).
- The *macro level* (i.e. the level of policy and regulation): In this case the interventions help to develop a 'market-friendly' macroenvironment. (For example, tax reform, financial sector reform, competitive micro-economy, encouraging foreign investment and the transmission of technologies, etc).

It is obvious that enterprise development can be realised simultaneously at different levels. The defined interventional levels are also strongly connected to

regional questions while in the case of micro and meso level enterprise development services, the regional differences are of crucial importance (Lengyel 2001a). Concerning the direct services offered to enterprises, the investigation of special local needs is one highly important part of a successful programme. Two areas must be precisely analysed. First, the specialities of enterprises in the region must be investigated, and then the enterprises must be segmented according to their objectives. In most cases the reason for the failure of a training programme lies in the fact that these programmes are usually designed for all entrepreneurs in general and do not focus on special groups of them. Therefore, the investigation and segmentation of the needs for support is a determining factor of the success or failure of a training programme (Mészáros and Pitti 2003, Szirmai 1997). In the case of meso level enterprise development services those development organisations must be supported which are the most suitable for the specialities of the region and fit the given environment. In the regions the necessary support must be investigated and the associations able to satisfy these needs must obtain priority (Lengyel 2001a, Szerb and László 2000).

Figure 14.1 SME support needs at different stages of development



Source: Ernst&Young (1999)

Besides the levels introduced above, there are other ways to classify SMEs that may highlight other differences in their needs. Another possible classification can be based on the stage of SMEs' development, which their needs greatly depend on. During their life cycle, SMEs usually need different means of support, therefore the enterprise structure of the region must also be considered when the offered services are developed (Figure 14.1). According to SMEs' life cycle the following phases can be defined (Ernst&Young 1999):

- *Start up Phase*: SMEs usually need a full range of support services, ranging from start-up finance to the provision of suitable and affordable premises.
- *Growth Phase*: SMEs need typical development service, for example financing, developing their markets and improving management skills.
- *Maturity Phase*: SMEs need special development service, for example exporting, helping with the development of supply chain and integration into knowledge networks.

During the different stages of development SMEs have different absorption abilities so the type and amount of support that they are able to use can vary (Lengyel 2002):

- In the Start up Phase the position of most SMEs is unstable, their objective is usually not market expansion, the main goal is survival. This means that they can absorb types of support that correspond to their objectives or that help to start their development.
- In the Growth Phase SMEs not only ask for support, but can also use it very effectively as they know exactly what they need to speed up their development and increase their competitiveness.
- In the Maturity Phase enterprises already need special, often individual services, moreover, they usually ask for support to help their further growth.

The specialities of Hungarian SMEs are also significant, which can constitute a further basis for the classification of them. According to these, two classifications are presented below.

SMEs form a group containing heterogeneous enterprises. Concerning the services offered, three types of SMEs have to be distinguished and the different types need different interventions (Lengyel 2000):

- *Enterprises corresponding to global enterprises, industries*; these are usually suppliers.
- *Innovative, knowledge based SMEs*; these SMEs take part in the global competition individually or in clusters.
- *Enterprises on the local and regional market*; they usually satisfy the demands of local households.

In a similar classification more categories of Hungarian SMEs can be created. The classification is based on the roles played by SMEs in the international economy (Török 1997):

- *Passive enterprises* with a wage system: they perform little added value on outgoing materials.
- *Active enterprises* with a wage-system: they perform more added value activities, and often produce end-products for the national market.
- *Passive supplier enterprises*: these enterprises have stable business relations, and in these cooperations they have greater bargaining power. They do not have their own R+D activities.
- *Active supplier enterprises*: these enterprises already have their own R+D activities, but they greatly depend on dominant partners.
- Enterprises, which are *capable of independent development*: they have considerable R+D backgrounds, and have the possibility to choose their partners.
- Enterprises, which are *independently competitive on the market of end-products*: their competitiveness is based on their own products; unfortunately there are only a few of these enterprises among Hungarian SMEs.

In this section it has been shown that, based on the heterogeneity of SMEs, the participants of enterprise development face different support needs. In order to realize the objectives of the Charter, it is worth investigating the special characteristics of the regions as well as examining those points that may have regional effects. To offer a better insight into regional specialities a short overview of the characteristics of the Southern Great Plain region is made and the activities so far achieved by its enterprise development organisations are briefly presented. Once a deeper view of their roles played so far is achieved, it is much easier to define in what areas they can operate effectively.

14.4 Enterprise development organizations in the Southern Great Plain Region

Among the regions of Hungary the Southern Great Plain region has some special characteristics. Firstly, the triple border (Hungary-Romania-Serbia) considerably increases the importance of this region. Secondly, the biggest regional university is situated in Szeged, which also increases the importance of the region. Thirdly, this is Hungary's only region where the proportion of big companies is the smallest regarding employment.

In Hungary, big companies contribute the most to regional development, which is a special feature of the country (Table 14.1). This is why SMEs need special attention in the Southern Great Plain region because they can substitute the role of big companies both in employment and in regional development.

Some branches of the industry have serious traditions in the region, craft activities are the most typical (textile and pottery), but industries based on agriculture (food industry and canning industry) are also significant. In these areas some cooperations have been started (’red pepper-cluster’, ’hemp-cluster’ and ’canning-cluster’) among the SMEs to decrease the disadvantages of economies of scale. Unfortunately these initiatives were not really successful.

Table 14.1 Proportion of employed work force at companies in Hungary’s regions

	Micro enterprises	**Small enterprises**	**Medium enterprises**	**Large enterprises**	**Total**
Central Hungary	20	14	16	50	100
Central Transdanubia	15	16	20	50	100
Western Transdanubia	16	17	26	41	100
Southern Transdanubia	19	20	27	34	100
Northern Hungary	18	19	26	37	100
Northern Great Plain	18	20	29	33	100
Southern Great Plain	20	23	30	28	100
Total	**19**	**17**	**22**	**43**	**100**

Source: Kállay and Kőhegyi (2001)

In recent years, the number of companies and employed work force have decreased in the region. This worrying fact underlines the importance of enterprise development here. The three main enterprise development organisations are introduced in the following paragraphs:
- Progress Enterprise Development Foundation,
- DUTIREG PLC,
- Southern Great Plain Regional Development Agency.

(a) Progress Enterprise Development Foundation

The Progress foundation plays an outstanding role in Csongrád County (one of the three counties of the Southern Great Plain region) in the field of enterprise development. It is member of the Hungarian Enterprise Development PBC (Magyar Vállalkozásfejlesztési Kht.), an organisation represented by local enterprise centers in each of the Hungarian counties. The main roles of Progress are the following:
- elaborating overall strategies for the key sectors of the county,
- contributing to the growth of SMEs through programmes,
- developing enterprise culture in the county,
- working out complex training programmes,
- promoting information flow,
- supporting SMEs’ entry into foreign markets.

The realisation of the foundation's general tasks is carried out through a number of specific programmes and services among which are the following:
- providing business information and databases,
- technical assistance network,
- loan programmes,
- incubator house programme,
- organising vocational events,
- suppliers' programme,
- microcredit programme.

To sum up the foundation's activities and goals, the following can be said: Progress is considerably active in the field of enterprise development, but it is involved in too many activities of this kind and that is why there are not enough resources eligible for crucially important issues. Taking into account the foundation's wide range of activities, at least according to the available public information, there are no defined priorities within the set of goals.

From all its activities, Progress's management of specific programmes and the utilisation of resources eligible through tenders still play a primary role. In parallel, due to the expected decrease in the above-mentioned resources, another way of organisation development has started which would shift the profile of the Progress Foundation towards a much more market oriented package of services.

The renewed dynamic leadership, the better trained employees and the lean network organisation system all contribute to the success of the realisation of this new future image. Obviously only this sort of operation can sufficiently function and gain a leading role in the long-term enterprise development of the county.

(b) DUTIREG PLC

DUTIREG PLC (Duna-Tisza Regionális Fejlesztési Rt. – Danube-Tisza Regional Development PLC) also operates in the field of enterprise development, in well-defined areas. DUTIREG as a financial investment corporation undertakes the co-financing of starting or growing companies through buying shares in them for 1 to 5 years. The company is profile neutral, it only selects among enterprises on the basis of the expected rate of return. As a supplement to its capital investment branch, and also as independent activities, the company also deals with leasing and wholesale. The third significant group of its activities includes consultancy services, with special regard to the preparation of business plans and feasibility studies, company audits, organisation development strategies and also plans and consultancy in the field of regional development.

Among the activities of the DUTIREG group the 'Quasi Risk Capital' activity is extremely important. It has a significant role in providing capital to SMEs. The

company usually purchases business share in developing SMEs, and after a few years it sells its business share, usually to the original owner. According to the leader of the organisation the main problem is that there are only a few enterprises, which satisfy every aspect of the expectations. In most cases extra risk management solutions are necessary. (Sometimes, in the worst cases even the operative control of the enterprise is taken over; this condition is usually stipulated in the contract.)

On the whole, it can be said that the activities of DUTIREG mainly focus on the area of financing without any discrimination on sectoral bases, thus rendering general financial services to enterprises. Also, in the case of DUTIREG, EU-granted projects play a remarkable role. The company takes part in these as co-ordinator or researcher.

(c) Southern Great Plain Regional Development Agency

The Southern Great Plain Regional Development Council (Dél-alföldi Regionális Fejlesztési Tanács – DARFT) founded the Regional Development Agency (RDA) on December 1, 1997 with its own judicial rights. This act aimed at creating a professional organisation beside the decision-making body that is responsible for preparing and following programmes. In the past few years, DARFT RDA has become a primary participant of regional enterprise development. Its main areas of operation are: management of tenders, foundation of different consortia and, in general, leading development activities.

The regulatory system of Phare programmes usually puts the participating parties to difficult tasks, and that is a reason why the agency's information and training programmes are often inevitable for the region's development. In order to disseminate knowledge on handling Phare projects, a great number of vocational forums and meetings are organised where the agency's experts meet delegations of non-governmental organisations, industrial parks and all kinds of interested managers to provide them with useful theoretical and practical information. Besides the Phare programmes the agency aims at leading an outstanding activity in other fields of interest, for example, it builds intensive cross-border relationships with RDAs in the neighbouring countries.

Successful operation is carried out through a number of programmes, the most significant of these at the moment is the Regional Innovation Strategy and Programme, in the framework of which partners with a very wide range of activities co-operate in order to lay down the region's innovation strategy (Varga 2002). An expected result of the programme will be the clear understanding of the needs of SMEs, the overview of the co-operation between direct technology services and SMEs, and finally the composition of a coherent and concrete programme package.

All in all, it is evident that the agency has become an approved and appreciated participant in the region and in its economic development. On the other hand, it is

also clearly seen that this organisation operates in a specifically defined area, namely in the managing and operative execution of EU-granted projects. This is why its direct enterprise development role is not crucial. Moreover, as a consequence of this, the whole existence of the agency would be threatened by the possible decrease of these resources.

The enterprise development organisations of the region can have a significant part in the realisation of some specific recommendations of the Charter. It is useful to examine to which points of the Charter these organisations could contribute already at the regional level. Moreover, it is important to introduce the possible roles for these organisations in the future by defining which organisations can reach the specific objectives the most effectively.

14.5 The regional effects of the Charter in Hungary

There are many possibilities at the regional level to move towards realising the Charter's objectives in the following four areas:

- availability of skills,
- financing,
- getting more out of the Single Market,
- more effective representation of small enterprises' interests.

(a) Availability of skills

Besides the development of the general entrepreneurial skills, it would also be important to examine the specialities of the region. On the one hand, it should be examined how the enterprises of the region can be segmented, and what type of training and consulting services are demanded by the segments. This segmentation would result in more successful programmes (Szirmai 1997).

Those clusters that are likely to have a distinguished importance in the regional economy must also be chosen. Training could be organised in accordance with the needs of these clusters (i. e. first point of the Charter: education and training for entrepreneurship). In this case, specific information could be transferred by the appropriate experts. Experience shows that the time of general programmes is over and usually not much interest is shown towards these services.

The first problem is the investigation of the needs for support. It is difficult to characterise the demands of the enterprises in clusters. As regards the human resources of a region, it seems that the development of the required high quality educational material for the special training programmes will cause further problems. In this question, adoption of the best EU practices can be a solution. Enterprise development organisations should already perform much more serious

benchmarking activities. (Successful examples can be found in every industry, and this is true not only for consulting activities but for enterprise development services in general.)

The activities of Progress Enterprise Development Foundation should be improved in this area, as currently this organisation is the determining factor in offering micro level services, and as for the local branches and Progress has the strongest connection with entrepreneurs.

(b) Financing

Concerning the traditional financing ways, the Phare SME Finance Facility Programme is a novel possibility. The goal of the programme is to encourage the Hungarian financial system to subsidise SMEs. This is a national programme, but naturally local branches support local enterprises, thus the advantages of local financing (personal contacts, awareness of the local problems) might help SMEs to obtain some capital (Szerb and Ulbert 2002).

It is interesting that the increasing financial competition also helps the development of traditional ways. Especially local savings banks have problems with the outplacement of capital, therefore local SMEs naturally attract their interest, which also promotes the development of local financing.

Among non-traditional ways of financing, enterprise development organisations can play a very important role. Progress Enterprise Development Foundation has managed the microloan programme, and it is very likely to play an important role also in the reorganised version of this programme. Significant changes are not expected.

There are more considerable possibilities in alternative ways of financing. Innovative SMEs based on the intellectual resources of research institutes and universities are already significant participants of the economy of the region. These enterprises are preferred targets of Business Angels and risk capital, therefore they have good possibilities to build up such cooperations. The main problem is the lack of information (Mészáros and Pitti 2003). Enterprise development organisations have possibilities in the following areas:

It is important to provide enterprises with useful practical information as they must be informed about financing possibilities. On the other hand, it would be very useful to prepare an investor database about the enterprises, and make this database available to potential investors. Finally, they should organise business meetings, forums, where potential partners can meet. This is the area where DUTIREG should increase its activities since have a lot of experience in financial issues.

(c) Getting more out of the Single Market

In addition to the basic activities performed on the national market, the Hungarian SME sector and also the as well as enterprise development organisations must face an extra challenge, which is the EU accession. Unfortunately Hungarian SMEs are still unprepared and inactive, they are still not aware of the importance of the changes (Szanyi 2002). The results of a recent survey are interesting. According to this survey 10% of Hungarian enterprises claimed to be well informed about the EU accession, furthermore 25% of enterprises stated that they were basically completely uninformed. Concerning the preparations for the EU accession, the situation is even worse: 61% of the interviewed enterprises practically still have not started the planned preparations (Eurochambers 2002). It seems that serious problems are to be expected because of the weakly prepared enterprises even if Hungary does its best at the national level for the utilisation of the advantages present on the Single Market. In the current situation a large part of the enterprises will consider the EU accession as a problem and not as a possibility, and one of the reasons will be their lack of information.

It is likely that SMEs and these organisations are both responsible for this situation. Regarding SMEs it is surprising how small interest they show in relation to this question, on the other hand, as it is shown by the Austrian EU accession, SMEs consider short time periods and are not interested in programmes which start too early compared to the date of accession (Némethné 2002). On the other hand, enterprise development organisations are also responsible although they started more programmes to help the preparation for the EU accession on both the regional and national levels and published some studies, these programmes usually had very limited success.

The main problem is the same considering the preparation for the EU accession as with developing entrepreneurs' abilities in general. It is very hard to determine what special information enterprises need in relation to the EU. Based on the available experience, it seems that no real interest is shown towards general educational programmes so it makes no sense to start more programmes of this kind. Special knowledge related to the most significant sectors of the region must be synthetized and distributed in a form which can be used easily by the entrepreneurs. It would be the duty of these organisations to precisely investigate the areas where the SMEs of the Southern Great Plain region have backwardness and where knowledge is necessary to exploit the advantages of the Single Market. Then a serious marketing must follow to convince the local participants that they really need this knowledge. Successful programmes can only be organised this way.

In this area the Regional Development Agency should play the main role through its basic activities, or as a potential partner Progress Enterprise Development Foundation may also be involved since this organisation has the best network of formal and informal connections among the enterprises.

(d) More effective representation of small enterprises' interests

According to the experts of the region it proves to be a serious problem that the interests of the local enterprises are not at all represented at higher decision making levels just as the development programmes realised at micro, meso and macro levels usually offered to Hungarian enterprises. Experience shows that these general programmes can solve the special problems of a backwarded region only to a lesser degree. Here every enterprise development organisation should participate very actively but in the current situation it seems that DARFT RDA will play the determining role at both the national and EU level.

Since the specialities of the sectors might influence the realisation of the above-presented first three recommendations, it could be useful to organise the activities of enterprise development organisations not along the recommendations of the Charter. These organisations might focus on particular sectors, and these specialised Development Agencies may offer their services in specific areas (financing, training, information, etc.). In the next part a solution will be presented to that.

14.6 Other opportunities: Real Service Centre (RSC) model

Italian industrial districts can serve as an example of the development of Hungarian SMEs for several reasons. Firstly, local economy both in Italy and in Hungary relies greatly on SMEs and that is why it is crucially important to promote the development of this sector. Secondly, the dominant activities of industrial districts are based on traditional crafts. Thirdly, the strong informational network connections seem to be similar in these two countries. The Italian experience, after adjustment and refinement, could be used in the regional enterprise development of the Southern Great Plain region.

Italian industrial districts are a special form of spatial concentration of the economy. Besides the geographical concentration, socio-cultural connections are also of primary importance, just as the common historical background that gives a special characteristic to these local co-operations (Amin 1998, Belussi 1996, Paniccia 1999, 2000). Industrial districts have long existed, Marshall already wrote about them in 1890, that is the reason why the Italian districts started to attract interest in the 1970s are often referred to as 'new industrial districts'. These districts were the capable of realising remarkable economic growth in the 1970s when, due to the economic recession in the world, traditional industrial districts and large companies over the developed world suffered great losses both in revenue and in employed work force.

According to the United Nations' analysis of Italian industrial districts as an example for less developed local economies, their main characteristics are the following (UNIDO 2001):

- geographical concentration of SMEs,
- sectoral specialisation,
- dominance of SMEs,
- innovation based on competition between the firms,
- socio-cultural identity promoting the development of mutual trust,
- active self-promoting organisations,
- supportive regional and local government.

The concept of 'real business service' (RBS) is closely linked to the concept of Italian industrial districts according to which enterprises should be provided with real, high quality service for which they are ready to pay the market price. This seems to be the only enterprise development system sustainable in the long run. *'Real service centers'* (RSCs) play an outstanding role in the dynamic development of Italian industrial districts.

RSCs render a wide range of services among which the following are the most frequent:

- credit guarantee,
- organising fairs and exhibitions,
- information on the development of the market and of technologies,
- consulting and training
- quality certification,
- product development,
- improving innovation,

RSCs are usually owned by the local production companies, the local municipality, various SME agencies and the consortia of these. According to analyses and evaluations, RSCs show four different characteristics built upon one another (UNIDO 2001):

- effective area of operation,
- customer orientation,
- embedded autonomy,
- growing governing potential.

The experience of RSCs may be used in the enterprise development of the Southern Great Plain region so that the recommendations of the Charter may be realised under this scheme. The advantage of this solution is that these RSCs offer real business services, for which SMEs are ready to pay. Therefore a change in the approach to enterprise development would slowly appear in the region, which would help the development of efficient maintainable services (Kállay 2002).

14.7 Conclusions

Based on the processes presented in this paper it is clear that the Charter is significant in Hungarian enterprise development as well. Besides national level programmes, *regional level interventions* can also facilitate the efficient realisation of the principles, but unfortunately not enough attention is paid to regional effects in the Hungarian practice. Apparently the development organisations of the region can definitely help local SMEs.

Taking a closer look at the most significant participants of the southern Hungarian enterprise development organisations, some unique characteristics of them could be defined. First of all, organisations lack the specific definition of their activities. All the three introduced organisations, just as the other ones not mentioned in the present study, are involved in a wide range of activities, often creating competition. But unfortunately this competition is of an ad hoc type and the fight for clients completely lacks any *conscious classification* regarding the existing needs of potential clients and thus of clients themselves. Applying one of the classifications introduced above might provide them with a tool to define and segment their activities.

Still, there have already been signs of differentiation in their operations: Progress Foundation specialises in consultancy, training and the direct support of SMEs, DUTIREG concentrates on financial aspects while DARFT RDA is involved mainly in the co-ordination of Phare projects and helps enterprises to prepare for future EU projects. All the three organisations are starting to find their own profile in which they can be the most efficient although this process is at a very early stage at the moment. Since these organisations lacked specialisation in the early period, professionalisation did not develop either. Designing a better-defined set of tasks and goals, they could probably be more effective and thus could contribute to realising the recommendations of the Charter to a greater extent.

The Real Service Centre model cannot be used in the current regional situation. Such industrial districts, clusters that demand special business development activities have not been developed, and the income of enterprises is not enough to maintain such systems. This is likely to be the next stage of development because once the clusters and networks get stronger in the region, it will be possible to realise the guidelines of the Charter with the help of such specialised organisation systems.

References

Amin, A. 1998: The Emilian Model: Institutional Challenges. *European Planning Studies*, 4: 389-402

Belussi, F. 1996: Local systems, industrial district and institutional networks: Toward a new evolutionary. *European Planning Studies*, 1: 5-26

CC BEST Conference 2002a: Conclusions of workshops.
CC BEST Conference 2002b: Maribor Declaration.
CDASED 1997: *Preliminary Guideline for Donor-Funded Interventions*. Committee of Donor Agencies for Small Enterprise Development, IMF, Washington.
CDASED 2001: *What is it? What does it do?* Committee of Donor Agencies for Small Enterprise Development, IMF, Washington.
DG ENTR 2000: The third Round table of bankers and SMEs: Final report. DG ENTR, Brussels.
EC 1998a: *Promoting Entrepreneurship and Competitiveness: The Commission' s Response to the BEST Task Force Report and its Recommendation*. Commission of the European Communities, Brussels.
EC 1998b: *Report of the Business Environment Simplification Task Force*. BEST Volume I-II. Commission of the European Communities, Luxembourg.
EC 2001a: *Creating an entrepreneurial Europe. The activities of the European Union for small and medium-sized enterprises*. COM (2001) 98 final. Commission of the European Communities, Brussels.
EC 2001b: *European Charter for Small Enterprises - Annual Implementation Report*. Report from the Commission. COM (2001) 122 final. Commission of the European Communities, Brussels.
EC 2002a: *Report on the implementation of the European Charter for Small Enterprises*. COM (2002) 68 final. Commission of the European Communities, Brussels.
EC 2003a: *Creating an entrepreneurial Europe. The activities of the European Union for small and medium-sized enterprises*. SEC (2003) 58. Commission staff working paper. Commission of the European Communities, Brussels.
EC 2003b: *Report on the implementation of the European Charter for Small Enterprises*. COM (2003) 21 final/2. Commission of the European Communities, Brussels.
EC 2003c: *Report on the Implementation of the European Charter for Small Enterprises in the Candidate Countries for Accession to the European Union*. SEC (2003) 57. Commission staff working paper. Commission of the European Communities, Brussels.
Ernst&Young 1999: *Thematic Evaluation of Structural Fund Impacts on SMEs*. Synthesis Report, European Commission, Luxembourg.
Eurochambers 2002: *Lemaradtunk a felkészülésben*? www.pmkik.hu/world. (12.04.2003)
European Council 2000: *The European Charter for Small Enterprises*. Annexes III. to the Presidency Conclusions. European Council.
Kállay, L. 2002: Paradigmaváltás a kisvállalkozás-fejlesztésben. *Közgazdasági Szemle*, 7-8: 557-573
Kállay, L. and Kőhegyi, K. 2001: A Dél-alföldi Régió kis- és középvállalatainak helyzetelemzése. Kézirat. Kisvállalkozás-fejlesztési Intézet, Budapest.

Lengyel, I. (ed) 2000: *Programming for SMEs Development of the Southern Great Plain Region* (in Hungarian). Department of Regional and Applied Economics, University of Szeged: www.del-alfold.hu.

Lengyel, I. 2001a: A regionális versenyképesség tényezői, különös tekintettel a Dél-Alföldre (Factors of regional competitiveness, particularly on the Southern Great Plain). In Farkas, B. and Lengyel I. (eds): *Versenyképesség – regionális versenyképesség*. JATEPress, Szeged: 39-57

Lengyel, I. 2001b: Iparági és regionális klaszterek: tipizálásuk, térbeliségük és fejlesztésük főbb kérdései. *Vezetéstudomány*, 10: 19-43

Lengyel, I. 2002: Theoretical backgrounds of regional economic and enperprise development (in Hungarian). In Buzás, N. and Lengyel, I. (eds): *Ipari parkok fejlődési lehetőségei: regionális gazdaságfejlesztés, innovációs folyamatok és klaszterek*. JATEPress, Szeged: 24-54

Mészáros, T. and Pitti, Z. 2003: A vállalkozási szerkezet módosulása, különös tekintettel a középvállalkozásokra és az EU sajátosságokra. *Európai Tükör*, 1: 47-69

Némethné Pál K. 2002: Az Európai Unió-csatlakozás költségei és haszna (Az osztrák és magyar példa). *Európai Tükör*, 1-2: 143-145

Paniccia, I. 1999: The performance of IDs. Some insights from the Italian case. *Human Systems Management*, 18: 141-159

Paniccia, I. 2000: Italian industrial districts: Evolution and Performance. www.scipol.unipd.it/ricerca/ConvegnoFanno/paniccia.pdf (13.03.2002)

Szerb, L. and László, Gy. 2000: *Kisvállalati gazdaságtan és vállalkozástan*. Pécsi Tudományegyetem, Pécs.

Szerb, L. and Ulbert, J. 2002: Entrepreneurial Growth and the Role of Venture Capital in Hungary. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges*. University of Pécs Press, Pécs: 122-144

Szanyi, M. 2002: Az EU csatlakozás hatása a kis- és középvállalkozásokra Magyarországon. *Európa*, 4: 3-27

Szirmai, P. 1997: *A kis- és középvállalatok képzési és tanácsadási igényei*. MVA Kutatási Füzetek 14. Magyar Vállalkozásfejlesztési Alapítvány, Budapest.

Török Á. 1997: *Az EU-hoz való közeledés várható hatásai a magyar kis- és középvállalatokra – a vállalkozások munkamegosztási szerepe*. CIPE, Budapest.

UNIDO 2001: *The Italian Experience of Industrial Districts*. UNIDO, Vienna.

Varga, A. 2002: Knowledge Transfers from Universities and the Regional Economy: A Review of Literature. In Varga, A. and Szerb, L. (eds): *Innovation, Entrepreneurship, Regions and Economic Development: International Experiences and Hungarian Challenges*. University of Pécs Press, Pécs: 147-171