Andreász Kosztopulosz – Éva Kuruczleki (eds.) (2020): The Challenges of Analyzing Social and Economic Processes in the 21st Century. University of Szeged Faculty of Economics and Business Administration, Szeged, https://doi.org/10.14232/casep21c.3

Investments in an intelligent and digital future – The case of an ICT company

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Over the past few years, there has been an avalanche of new digital technologies in the business services sector, many of which proved to be disruptive. Business service centres (BSCs) even in innovative industries like information and communication technology (ICT) find it highly challenging to accommodate these changes. New technological solutions transform consumer needs, shape organizational processes, and alter the way employees cooperate in a computerized environment. These changes make it inevitable for companies to adjust their business models. In this paper, we present a case study of IT Services Hungary Ltd., a Hungarian based BSC in the ICT industry. We carried out semi-structured interviews with the CEO and four senior technology experts of the company to analyse digital transformation plans they initiated. We investigated and now reveal three projects through which they implemented cognitive automation, cloud computing, and advanced cybersecurity technologies. We also describe the general organizational, financial, employment, and motivational background of these projects at IT Services Hungary Ltd. With this paper, we aim to present transferable best practices and appealing management efforts to invest in an intelligent and digital future.

Keywords: service sector, business service centre, digital transformation, cognitive automation, cloud computing:

1. Introduction

The business service market based on the shared services and outsourcing model has undoubtedly been one of the fastest-growing economic sectors in Hungary in the last one and a half decades (Marciniak 2015). Today, approximately 150, mostly multinational companies are headquartered in the capital, employing approximately 67,000 people.

While in the 1990s, the number of companies focusing on outsourcing increased, in the past one and a half decades the shared service model has become more prevalent due to the region's favourable characteristics (multilingualism, stable economic, legal and financial regulatory environment, relative geographical proximity to Western Europe). Shared Service Centres have now expanded their operations focus to become a multi-functional, multi-model organizational solution with strategic importance (Drótos et al. 2018).

Although the primary goal of the shared service model remained to increase cost-efficiency until today, it has become increasingly important to create new, innovative business value for the customer and to foster effectiveness. The digital transformation of service centres' internal and external customers is increasingly impacting and significantly driving the integration of technological advances into

service delivery models. Today, technological innovation has become the primary driver of change in service centres (Chandok et al. 2016). However, it is a question of how these technologies are implemented and impacted in the practice of service centres in Hungary.

2. Theoretical framework

The shared service model, including outsourcing, is a relatively old concept, at least 40 years old. According to some authors (Ferreira 2016), it has been in existence for over 60 years but has gained real popularity over the last two decades. Today, it is widely adopted by multinationals, and about 90% of Fortune 500 companies have at least one Shared Service Centre (SSC). (Röder et al. 2013) However, in the early 1990s, in addition to the private sector, the public sector also discovered the benefits of the shared service model and in many countries (United States of America, United Kingdom, Australia, the Netherlands, etc.) shared services became part of government strategy as a widely proven solution (Schulman et al. 1999).

The concept of the shared service model can be properly grasped by several definitions:

- According to Ulrich (1995) it is an organizational model that combines certain corporate support functions into a separate organizational unit to provide them as a service to the rest of the company.
- According to Quinn et al. (2000) the idea is that shared service centres are created to provide a single service from there rather than being replicated across multiple parts of the organization.
- According to Schultz and Brenner (2010) it is an organizational concept that reduces redundancies, reduces operating costs, follows best practices, focuses on internal customers, and operates on a business basis by consolidating enterprise processes.

The most typical service features organized in a shared service model are customer service, finance, accounting, human resources, IT, sales, facility management, and general administration. According to Vollmer and Rasper (2013), SSCs in the financial accounting sector are leaders with 56%, followed by IT (19%) and HR (18%). Half of the SSCs worldwide (51%) are based in Europe. (Vollmer–Rasper 2013)

There are several benefits to consolidating certain enterprise areas and centralizing them into one SSC (Constantine 2018, Bergeron 2002, Röder et al. 2013, Marciniak 2015):

- It improves process standardization and efficiency: because standard processes simplify the design and upgrade of process control environments and produce consistent input and output reports. Revisions can be simplified and the number of iterations reduced.

- It improves service quality: improves the internal customer focus and applies best practices.
- It reduces operating costs: consolidation, automation, and other process improvement solutions can significantly reduce costs.
- It provides a deeper business insight: without it is slower and more difficult to gather decision-making information form fragmented functional areas in a company, and often by the time this information becomes outdated.
- It improves process transparency: clearer operation of standard processes, cost structure, and responsibilities.
- It increases the focus of the company's core activities: unlocking business units allows you to focus on higher value-creating activities.

The primary goal of the shared service model is to reduce enterprise operating costs, i.e. efficiency gains, which have been continuously promoted by various technological innovations. However, in recent times, the shared service model has been used extensively and nowadays, besides pure cost efficiency, innovative value creation and effectiveness have become one of the main goals (Durou et al. 2019). As technology solutions have become the focus of business renewal over the past few years, there has been an increasing focus on technology incentives within shared service centres.

According to the research of McKinsey (2017) organizations typically use five key capabilities or approaches to improve their operations (Bollard et al. 2017):

- Digitalisation: able to renew the traditional process by incorporating digital tools and technologies, transforming customer relationships and often creating self-service systems.
- Advanced analysis: automated processing of data using cutting-edge technologies to uncover relationships and make well-supported suggestions.
- Intelligent process automation (IPA): operating new technologies capable of combining traditional process redesign, robotic process automation (RPA) and machine learning.
- Business process outsourcing: the use of external resources to perform certain functions or activities for cost efficiency.
- Lean process redesign: streamline processes, reduce wastage and promote a culture of continuous improvement.

According to Röder et al. (2013), new digital technologies (such as mobile devices, cloud computing, social media or big data) mean significant contributions to enabling SSCs to simultaneously achieving effectiveness and increasing their efficiency. This could lead to digital or intelligent shared service centres. It represents a new maturity stage of service centre where holistic services and supply chain focus ensure strategic importance, and where highly automated end-to-end processes are operated locally and globally in a global process control model. (Röder et al. 2013)

Business service centres are organizations that organize themselves on a process basis and typically provide services to other departments within the parent

company or to other external clients. As a result, digitalization and automation potential are extremely high at service centres, as they provide a large number of, often repetitive, standardized processes, typically with IT support (Darino et al. 2016).

The three most significant technologies driving shared service centres today are the expansion of cloud services, the robotic process automation that automates routine, repetitive, well-structured processes, and artificial intelligence (AI) enhancements that can automate tasks that require human intelligence. (Durou et al. 2019)
Utilizing the benefits of automation for business providers can be the result of a reactive and proactive approach:

- Reactive: Business Service Centres (BSCs) are suppliers to their (mostly internal) customers, so they must follow the needs of their environment. If digital channels are used with customers, then service providers must also follow this.
- Proactive: Business Service Centres are in constant competition, even with internal service centres (captive centres) that only provide services to their parent company. Transformations in service aim to improve service levels and to reduce costs. This is vital for survival. It creates a continuous transformation pressure on the operation of the centres, which can be reduced by technological innovation.

The rise of automation and digitalisation in service centres contributes to the digital transformation of the entire sector, which in various senses (number of employees, service and pricing models, geographical location of service centres, etc.) may even be disruptive for the whole sector in the future (Edlich et al. 2017). The essence of digital transformation is to integrate digital technologies across all areas of the business in a way that fundamentally changes how the business operates and creates value. Thus, the goal is to create new value and to reap the benefits that these technologies bring to organizations, but not to use technology anyway (Eden et al. 2019) (Westerman et al. 2014).

Thus, the use of new digital technologies from the digital transformation process serves primarily digital optimization by improving quality, process flow, and work flexibility. At the same time, the impact of successful transformation projects can be twice as effective as efficiency (Edlich et al. 2017). However, as new technologies are being adopted, service centres may significantly transform in many of their features:

- Process automation primarily focuses on low value-added activities. Automation provides an opportunity for the workforce to do higher value-added work, and to position the portfolio of service centres and the entire sector up in the value chain (Marciniak–Berend 2017, Willcocks–Lacity 2016, Chandok et al. 2016);
- Although software robots replace the human workforce in certain activities and it is not labour arbitrage that determines deployment and service migration decisions for new service centres, but a rather low-cost server operation and the presence of automation professionals. This shifts the focus

of the enterprise HR from lower-skilled to highly-skilled to talented (Sowinski 2016, Chandok et al. 2016);

- New technologies such as smart chatbots or virtual assistants make some front-office activities robotic (Bornet 2017);
- Technologies like voice recognition, face recognition, and other cognitive technologies accelerate customer service and omnichannel solutions become widespread;
- Higher value-added jobs require a more specialized workforce, as opposed to previous practice, where many foreign-language graduates have been trained in many cases;
- Digitalisation allows for better customization of services, which increases customer satisfaction.

3. Methods

3.1. Research methods

This case study focuses on ITSH SSC practice. At the beginning of the research, general information about the company, public data, news, and press releases were processed using secondary sources. This was followed by interviews. Four interviews with five interviewees were conducted, including the managing director of the ITSH SSC and some leaders in several areas of digital technology. Prior to the interview, a methodological guide was prepared for broader research and a question list that was adapted to service centres. This guide provided the framework, the lead topics and main questions for the semi-structured interviews. The interview also included a short questionnaire about the adopted technologies. The subject area of the interviewees is summarized in the table below.

Table 1 Details of interviews

No.	Name	Affiliation	Date
1.	Bálint Zsíros	Head of Business Unit	11:00 AM, 13rd of December 2018
2.	Richárd Réfi	Product Owner and Head of Team of Managed Services and Connectivity/Network	14:00 AM, 14th of December 2018
3.	Erik Slooten	Managing Director	10:00 AM, 19th of December 2018
4.	László Kónya	Vice President Growth Portfolio	10:00 AM, 19th of December 2018
5.	Árpád Jorzsits	Head of Public Cloud and IoT Hungary	13:00 AM, 19th of December 2018

Source: own edited

Although the company operates service centres in four locations in Hungary and not all of the interviewees worked in the capital, but the interviews were always recorded at the company's headquarters in Budapest. In the interviews, two researchers of research teams participated, one researcher recorded the interview in writing while the leading researcher asked questions. Interviews were written on a computer and recorded with a smartphone. University students were also involved in the interview processing.

3.2. Company introduction

As a Hungarian subsidiary of T-Systems International, IT Services Hungary (ITSH) is a significant element of T-Systems' international supply-chain. Its main activities are system integration and IT outsourcing, but they also offer SAP system services for all widely used software and hardware platforms, remote and local server operation, and network management.

In 2019, they have 12 units in their service portfolio. Some of them (such as public cloud, IoT) are growing strongly, while others (such as x86-based virtualization) are already shrinking. ITSH primarily provides services internally to T-Systems International or other subsidiaries of Deutsche Telekom (DT) but they have their international clients (e.g. BMW, Daimler, etc.) as well. Usually, they do not have clients from the Hungarian market. Although ITSH operates in cost centre responsibility status, it is represented in the international top management bodies as well. As a global service centre, the company serves clients with languages in English, German, Dutch and Hungarian. About 40% of its services, provided on a continuous basis every day of the week, are still transactional. 40% of employees are women at the level of employees and management as well, which may be due to the general under-representation of women in the IT field.

From six offices, which are equipped with state-of-the-art infrastructure, the ITSH now serves its typically European customers with 4,765 employees. It is currently the largest business service centre in Hungary. The average age of employees at the company is 34, with 70% having a university degree. In 2018, the company generated sales of HUF 60 billion. Founded in 2006 in Budapest, the company continues to operate offices in Debrecen, Pécs, and Szeged.

4. Results

The relation of the corporate strategy to the Business Services 4.0

According to the company's management, the past of ITSH was based on cost efficiency, but its future lies in innovation. The challenge is to be able to apply technologies as soon as possible. “Do it today and become excellent in it tomorrow: this can be our key competence” – says the company's management. To this end, the company is no longer just looking for new projects from its parent company but wants to do “tech projects” for itself.

Available financial resources for the purposes of the Business Services 4.0

According to the company's executives, they don't spend money on technology simply because it is fashionable or affordable, but only if there is added value in its use. They look at the level of benefit each technology brings and in what areas. In their view, innovation is increasingly a matter of mindset and not a matter of return. It is a huge challenge to transform Germany's and Europe's leading ICT companies into a culturally innovative organization.

The company operates an innovation fund to support useful internal ideas. Even smaller ideas with low resource requirements are supported in this initiative. Otherwise, more robust ideas that may result in new products are preferred by this fund. Beyond cost savings, new products can also generate additional revenues.

In case of efficiency improvements (e.g. Robotic Process Automation – RPA), as ITSH operates as a cost centre, the savings contribute to the central overhead costs. However, it another existing model when the site management decides on the use of the savings generated. Although the company can reinvest some of the savings from the projects, it is far from sufficient for major innovations.

External Relations and Business Services 4.0

The company provides its services primarily to external customers of the parent company. For this reason, managing its inter-organisational relations and its role in the supply chain is particularly important at ITSH. The main focus is on the external clients, the end-users. Therefore, technology development initiatives are also primarily driven by how they can generate value for customers. The downside to this is, as our interviewees denoted, that internal efficiency improvements have lower priority.

ITSH is basically a system integrator company. For this reason, before deciding whether to buy or develop, they typically look for the most suitable open-source components which they can easily work with and build on. Of course, wherever possible, they favour the internally available solutions. Regarding the externally developed components, the company has strategic suppliers for certain products. When choosing strategic suppliers, they always decide on the best solution after a thorough market analysis.

Employee participation in the Business Services 4.0 projects

Each department is responsible for its ongoing developments. There is a dedicated process development team that supports, designs, and develops. But, ultimately, this team strives to keep an innovative approach in the minds of all employees.

All employees are encouraged to participate in innovation projects, and later the project initiators have the chance to lead the implementation of the projects. Interviewees said that there are many ideas generated at the company, so the challenge is not to encourage the colleagues to come up with ideas, but to persuade them to develop those into something feasible. This is not funded by the company. People have to devote their free time to the elaboration of the idea. At the same time, this is supported by a facilitator workshop based on a design thinking methodology – but the host of the idea must commit to this in addition to the 40-hour workweeks.

Employment structure, trends

The management of the company expects the current automation trends to continue and intensify. The need for manual, repetitive work will surely decrease, but in the future, there will be automated and non-automated workflows as well, which means that human labour cannot be replaced everywhere. The management must already think about how employment and wages are going to change. They think there is a need for a completely different system to pay-per-hour billing, which means a complete change of philosophy.

Although ITSH technology does not endanger workplaces, the management is aware of the resistance at all organizational levels when it comes to automation and robotisation issues. This, however, is not considered a problem, as the ethical, legal, or cultural aspects of many issues are still unclear on the subject, but it still should be treated with caution.

In addition to stimulating an innovation climate and bringing new ideas to the market, they also operate formalized support structures, such as centres of excellence, in service areas that are important to the company. The employees can contact these departments in order to implement a process improvement project.

Governance of innovation processes at the company

The management believes that the large organisational size comes with some bureaucratic constraints on the one hand, but with opportunities to do development projects internally on the other. They also see the advantage of being very close to the parent company, this way they quickly learn about new internal innovations. Deutsche Telekom has an innovation department with a relatively large annual R&D budget. ITSH employees can also submit proposals to this department. Some of these proposals were successful in the past. The parent company also operates an innovation fund, which finances five to six employees for up to a year. On average, two out of ten projects, depending on their results, and move on to the next stage of the funding. After this stage, a committee from the innovation fund analyses the potential of the project and decide whether to proceed or terminate. Proceeding means that the development project has to evolve into a product, an application or a service that has a market value.

Innovation is an important and recurring issue for a system integrator company like ITSH. Such a company has to maintain its distinctive character in order to prevent being perceived as a “LEGO-building” company. The distinctive character is maintained by the additional developments that ITSH typically adds to the services it sells.

Development projects can be initiated in all directions. From the top, from the management of the company, or even from the customers. To support this, the company organises workshops using design thinking methodology, university collaborations or internal innovation and process development. The latter is assisted by an internal process development team that focuses on internal processes. They have a list of processes that have already been automated and have a service tracking system, although in connection with that there is resistance from the employees.

ITSH actively encourages all employees to come up with new ideas. The implementation of these ideas is fully democratic, the initiators can even get the role of a project leader. The management rewards innovative employees with a number of awards, including the "Best Employee" and "Best Idea" corporate awards. They also organize annual hackathons and innovation quest events in which they evaluate results from the aspects of value creation and efficiency.

Selected projects

Project 1: Cognitive automation project

Motivation, planning

ITSH is a very large organisation that has been expanding over the past 12 years and is expected to continue to do so in the future. Like in other organisations, the fluctuation is present. As a result of these two facts, the company has to hire hundreds of people each year. Therefore, it is a challenge for the HR organisation to manage the recruitment volume, especially as the labour market competition for talented people increases. The time spent on finding and selecting candidates has to be reduced. In parallel, the HR organisation is expected to hire talents who will become good-performer in her jobs.

The company was looking for a solution to this problem. They decided to focus on curriculum vitae processing. Checking, sorting and ranking of the CVs is probably the most repetitive and low-value activity, yet inevitable, in the hiring process. A bottom-up initiative emerged; the proposal was developed by the HR team leader. The idea was to use artificial intelligence for robotising this task. Assuming that 80 percent of the incoming CVs can be processed without human intervention, significant cost savings could be achieved.

The final idea was developed through several stages. At the first stage, all ITSH developers ever involved in any artificial intelligence projects were involved. Several rounds of meetings were deployed in order to develop ideas regarding the simplification of the recruitment process. As a result of the workshops, the development of the CV processing software robot has started.

Implementation

The idea was discussed with the stakeholders of the recruitment process. Data security issues were also addressed at the beginning of the project. Then, a small development team has started to develop a prototype and tested it. The results of these were constantly consulted with the HR field. After several iterations, a final version of the software robot was completed.

Several issues have arisen during the implementation. At one point in the project, for example, the software had to be rewritten in order to make it capable to work on a larger scale as well. Maintaining anonymity was another issue to be addressed. The solution for this was the introduction of a pseudo-anonymity approach.

Responsibilities

It was the branch leader who decided to partly use the branch profit for dedicating budget for the preparation of a project plan. One reason for this was that the German parent company, heavily involved in artificial intelligence research, asked the Hungarian subsidiary to also present new ideas in the field of AI. In case of a convincing business case, an approval decision may fund 5 to 30 FTE workforce.

The project manager devoted 20 percent of his working time to the project. Junior Python developers worked on coding. The HR staff was involved in the project part-time, in the field of the software features. The project was supported by design thinking facilitators. Minor prototypes were constantly created as new people entered the project organization. Finally, the project became so popular that even those who had not been involved in AI development earlier had applied. Even external AI experts had to be involved to assure the successful completion of the project.

Results, impacts, experiences

The project has produced several results. The main result is the software robot that performs the selection of the CVs. Its most important feature is its machine learning ability. Based on new development ideas, the project manager plans to incorporate heuristics in the future.

The project is still going on, but apparently, it hasn't grown as much as it was expected at the beginning. The robot is still in the form of a prototype. ITSH started to use it internally, however, not on a large scale yet. Therefore, this solution is not yet ready to be introduced as a product to the market.

Another benefit of the project is that ITSH gained direct experiences in artificial intelligence technologies. Managers of the company denoted that the team that experimented with AI may evolve into a larger department or even a new product line. This is the reason why management supports progressive experiments. However, this requires critical mass. Three to four additional staff can fit into a cost centre, but a separate department is needed for a larger team like 8 to 16 people.

As another result of the project, ITSH started building a portfolio of AI solutions. The portfolio helps to identify what type of AI solution is suitable for what type of problem. When an AI-related client need arises in the future, the experts working on the previous projects can be mobilized.

There are plans to continue the project. A proposal for using the blockchain technology in smart contracts was submitted to the parent company's innovation fund. Future steps depend on the decision of the innovation fund, that is, the availability of the financial resources.

Project 2: Data Science Workstation Project

Motives and planning

ITSH works on various technology solutions and development areas within publicly available cloud services. In particular, they sought to make it easier for data scientists to use their working platform on their own notebooks. It was an upscaling service identified by a pre-sales colleague. First, they wrote a one-page description of the capabilities this solution should possess.

Based on this one-pager plan, a call for tenders was also created so that the company can benefit from state innovation support. The application was written here according to very strict criteria and the waterfall planning logic. A six- to eight-person project was scheduled for a two-year term. The project was planned for half a year and, after submitted, had eventually won support from the government. However, they did not take this funding, as in the meantime, they realized that open source products had evolved, and they could develop the solution with fewer people at a lower cost.

Implementation

Compared to the funding application, a smaller project was implemented. Colleagues in the field who supported client operations were involved in working on the development through this time.

Responsibilities

ITSH manages a couple of expert teams who operate on sub-platforms and provide developers with this capability. This capacity was dedicated to the development project together with a professional project manager.

Results, effects, and lessons learned

It was not a classic cloud-based solution; however, it was primarily built on it. The novelty of the project was the creation of a cloud-based database that had not been previously used in this field. The result was particularly innovative in two areas: on the one hand, in the integrity of the constituents, and on the other, in data mining.
It is used in the Cassandra database, developed in a pilot big data project to capture the world-renowned game Sea Hero Quest by a start-up company they have acquired. Millions of users played this globally, and many petabytes of data were collected in just a few days. This data were all stored in the Cassandra database, which was not easy to manage, but also tested the scalability of the platform. Finally, they needed external developers to extract the information stored in the database.

Project 3: Cyber Threat Intelligence Project

Motives and planning

One of their customers requested to be notified of expected cybersecurity threats as a form of clandestine activity. The customer requested an information monitoring service that would send a weekly report of potential risks that could be shared within the company.

Implementation

Internal resources were collected for development. Several service levels have been defined. On the first level, they observe the world, see what is going on, what is in the news, what useful information emerges. It is challenging to determine where to look for information. For instance, hackers frequently announce planned attacks on social media to gain a reputation. Organizing and visualizing social media pages, forums, and other platforms proved to be a complicated task to solve. On the second level,

they analyze content that is relevant to the company in this flow of data and information; and filter out what may be relevant for them concerning their vulnerabilities. This also depends on the customers, the assets, the sector and other factors. The second level is, therefore, a service tailor-made for the customer company. On the third level, they identify potential attackers and prepare for the attacks. Being a company, not an authority, the variety of usable tools is limited due to their lack of privileges.

Responsibilities

The development did not require the involvement of an external supplier, and the company was able to implement it entirely on its own. No additional staff was recruited for this project. As cyber threat monitoring is a new area, it is easy to find interested people to participate in the project. It was a challenging, yet essential task to balance the rate of day-to-day work and project tasks for internal employees

Results, effects, and lessons learned

The project has been running for one and a half years but has not yet been completed. Developments are ongoing and the potential customer base is also growing.
They have developed a unique cybersecurity monitoring activity into a stand-alone service that sends daily reports to the clientele on relevant security topics (e.g., security news, attacks on the IT systems they use). For the time being, this information is sent to the customer via email rather than through a dashboard interface. The future goal of the project is to eventually create a complete dashboard through which potential plans on attacks can be narrowed and tracked. This is important because by knowing the country from which the attack may come from is "easier to filter out potential attackers from network noise."

As a result of the service, it is possible to monitor groups of hackers (for example, on the dark web), and to infiltrate their ranks. They can set up a trap ("a honey pot") to learn from controlled attack situations.

The development did not cause high costs. Although the buyer paid for the deliverables of the project, the most significant benefit was that it improved the quality of their other services and improved their goodwill.

5. Conclusions

ITSH ensured an exciting case study to get a deeper insight into the real issues at a market-leader technology company. The analysed 4.0 projects revealed that not only knowledge and skill are necessary for successful implementations but favouring innovative environment, human resource and financial resources dedicated by top management, etc.

The company runs in the ITC market, so the utilization and application of various new digital technologies are constantly in focus. In many areas, the company develops its state-of-art solutions for external customers. Most internal efficiency improving developments turn into external products as well if successful.

The management of the company is aware of and preparing for the disruptive impact of 4.0 technology. Since ITSH is Hungary's largest business service centre, they have excellent capabilities in a wide range of areas. They rely not only on internal resources but also on leveraging the company's supply chain position and developing knowledge and technology in the broader network of T-Systems and Deutsche Telekom.

The company is proud of its innovative and agile organizational culture and approach that creates a vital basis for developments. They successfully operate an internal innovation fund to discover, realize and market new ideas. Employees are also rewarded with prizes and rewards for new improvements. At the beginning of a project, the employees need to realize an idea with extra work, but if the idea became successful and got support, the company will already ensure dedicated resources. In the case of technology development, they are always working to create a product with the highest added value, either entirely by their development or by combining with open source products. The company allocates the workforce to the developments, either from the start of the development or from the approval of the internal support system.

ITSH uses an open-innovative approach. Initiatives usually come from a variety of directions: clients, university partners, and in-house staff. Many times, they improve their internal processes to reach operational excellence but usually do not stop here. The ultimate goal is always to create a higher value-added product or service through development that could sell for external clients as well. They successfully operate not only research and development but also the innovation phase.

Acknowledgments

This research was supported by project no. EFOP-3.6.2-16-2017-00007, titled Aspects on the development of intelligent, sustainable, and inclusive society: social, technological, innovation networks in employment and the digital economy. The project has been supported by the European Union, co-financed by the European Social Fund and the budget of Hungary.

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