

Outsourcing and Organisational Innovation: the Example of a Service Provider

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SUMMARY

The history of the gas and oil industry in Hungary goes back to the mid-19th century. This industry and its participants have gone through an organisational structural transition that presents an exclusive example for establishing the modern corporate structure as well as of value-creating opportunities in organisational development.

In the present paper the notion of modern corporate organisation, the reasons for its establishment and its stages are presented through the example of a Hungarian gas provider, supported by theoretical outlooks.

The organisational development of one of the largest Hungarian gas providers made since the market opening (2004) is an appropriate way of representing the economic and organisational benefit within the application of modern organisational theories and strategies. This development presents the effects of the implementation of modern efficiency measuring means and methods (Economic Value Added) in the management operation to meet the expectations of investors. Decisions and steps determining the changes in the corporate organisation give a good example of measures taken to improve the efficiency implemented by centralizing as well as by process optimizing restructurings according to LEAN management principles.

The frequent presentation of decisions in classical (IT, mass data management) and competence-assessment-based outsourcing provides examples for effects of cost-saving opportunities and efficiency-improving measures.

The main purpose of the paper is the presentation of organisational development based on the practical evidence of organisational theories and relationships through which theoretical conclusions are proved. In addition, the conception that the efficient practical application of relationships developed by theories means economic benefit for companies is also presented.

However, development is still in progress. On the basis of the practical examples of the past and their theoretical connections there are further challenges in the networking of organisations and the virtual organisational structure.

Keywords: outsourcing, organisational innovation and organisational effectiveness

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INTRODUCTION

The history of the gas and petroleum industry in Hungary dates back to the mid-19th century. This sector of industry has a long history and its players have experienced favourable structural changes, which set businesses a good example of how to establish a modern corporate structure and offer value-creation opportunities hidden in developing an organisation.

HISTORY OF OUTSOURCING

A Brief History of Natural Gas Production in Hungary

By the 1840s and 1850s several European and overseas countries were involved in extracting petroleum. People had been using petroleum or crude oil and its

products for a variety of purposes for years. The industrial-scale production of crude oil began when customers' demand for illumination and lubricants needed to be met. Later people started to use hydrocarbons and their compounds.

The first Hungarian natural gas deposit was discovered in the Transylvanian basin and described by Valentin Frank von Frankenstein, the royal judge from Nagyszeben (Sibiu), in 1690. The first research into petroleum in Hungary began in the 1850s. Several decades later, on 15 July, 1938, the Hungarian-American Petroleum Corporation (Hungarian acronym: MAORT) was founded, which was producing enough oil to fully meet the country's needs in 1940.

In the late 1950s the role of hydrocarbons increased rapidly in the energy sector, leading to the emergence of a hydrocarbon processing industry. The Hungarian Oil Trust was founded. The Hungarian gas industry joined the Trust in 1960 and the Hungarian Oil and Gas Trust (Hungarian acronym: OKGT) was established.

After several re-structuring processes, the Hungarian Oil and Gas Company Plc (known as MOL), was founded in 1991 as a legal successor to OKGT. The Hungarian petroleum industry currently operates within the framework of this company. With the establishment of MOL, an integration of the entire Hungarian hydrocarbon industry was performed after a carefully considered selection process (Vince, YEAR). (Vince: 2009)

This stage in the history of this industry can be considered to be preparation for privatisation and market liberalisation, both from a Hungarian and a European prospective. The European Union opened its natural gas market in compliance with Directive 98/30/EC and its amendments, which entered into force on 8 October 2000 and have been in force for eligible consumers since then. The market opening resulted in the following phenomena (Index, 2008)

- > competition on the energy market was created;
- > service provision was concentrated;
- > complex energy services were provided when a service provider had a right to offer several energy and various services.

Since Hungary did not apply for derogation in the energy sector, Act XLII of 2003 on natural gas supply stipulated some business activities, as a result of which MOL lost its monopoly in January 2004. Any holder of the 'licence for the access to the cross-border natural gas transmission pipeline' had the right to import natural gas to Hungary. (Borbély, 2006)

TIGÁZ, THE LARGEST REGIONAL GAS DISTRIBUTOR COMPANY IN HUNGARY

Natural gas was discovered in 1925 in Hajdúszoboszló when thermal water was being searched for. It was primarily used for generating electric power for trams and illuminating train compartments, and later it was compressed, stored in cylinders and sold. The members of the city council of Hajdúszoboszló formed the Hajdúszoboszló Natural Gas Production and Distribution Public Company, a company that produced gas filled in cylinders, on 13 June 1950. This small public company was integrated into the Hungarian Oil and Gas Trust in 1967 and began its activity under the new name of Transisza Gas Provider and Maintenance Company (Tigáz). Tigáz was the first company in the EU that applied gas pipes made from polyethylene, a very advanced, durable and safe material.

In the late 1980s and early 1990s Tigáz acquired a stake in the Schlumberger plant in Hungary, which produced gas meters. This move considerably contributed to further development of the Hungarian gas network. In the early 1990s, the company became suitable for the implementation of the privatisation programme announced by the Hungarian government. By spring 1994

the national government had elaborated the basic privatisation principles of special strategic sectors.

On 22 November 1995 the Italgas-SNAM consortium acquired a majority stake in Tigáz Plc and Tigáz became a member not only of the Italgas group, but of Eni, an Italian multinational oil and gas company as well. A small gas supplier company operating in two settlements with nearly one hundred consumers in 1957 had by 2000 become one of the largest regional gas suppliers in Hungary and a recognised member of Eni group, one of the major energy companies in the world.

ORGANIZATIONAL STRATEGY AND CHALLENGES OF ENI, A MULTINATIONAL COMPANY

Eni is a universal, open and dynamically developing company, whose principle values lie in sustainability, corporate culture, partnership, innovation and efficiency. The main elements of Eni's corporate culture and success are as follows:

- > placing people and their wellbeing in the centre of attention;
- > developing people's skills and expertise;
- > ensuring employees do their job effectively and allowing them to fully exploit their hidden potential and creativity;
- > creating a working environment that ensures everybody equal and discrimination-free opportunities and complies with 'value' community norms; (eni Strategic Plan:2012)

In order to achieve the implementation of these fundamental principles, Eni continuously elaborates organisation development projects that ensure adaptability, growth and sustainability. Special attention is paid to human resource management. In 2001 Eni further developed the new organisational model that was suitable for providing efficient support to develop strategic directions of the company group. This move involved delegation of decision-making processes and responsibilities to operative units. The company prepared a basis for the renewal of corporate management, the integration of the Eni Corporate University (www.eni.com) and launched the Internal Communication project. In the following years the direction of organisational development shifted towards controlling centralisation and targeted equilibrium between management and control. In 2003 Eni reviewed the role of the Board of Directors, the corporate governance system, adopted the regulations of Internal Control Committee and Compensation Committee and reviewed several other issues related to corporate governance.

The Board of Directors defined Strategic Guidelines for sustainable development for the period encompassing 2007 and 2010 and set up a special unit for their implementation. The principles of these guidelines can be

seen on the Tigáz website. (www.tigaz.hu) The first sustainability report was published and a sustainability organisational model was elaborated. The Welfare Project and the Health Project were also introduced. Since currently the main objective of the company is to fight against corruption, the New Eni Regulatory System has been adopted.

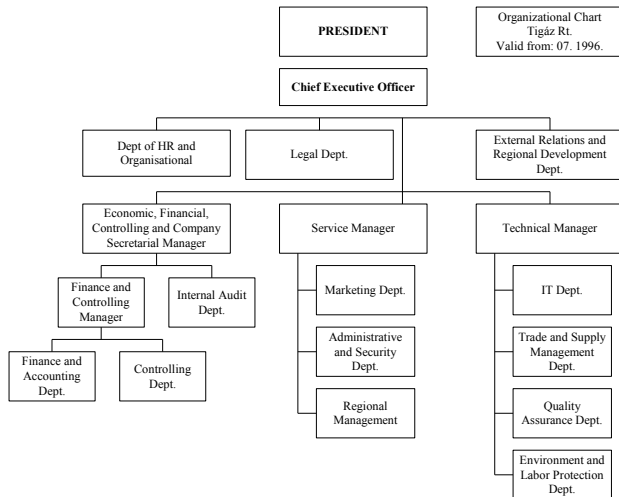


Figure 1. Tigáz organisational structure in 1996

ORGANISATION INNOVATION AT TIGÁZ

The evolution process of a modern corporate structure can be observed at Tigáz. The organisation development process presented in this paper follows the corporate structural and theoretical modernisation trends in an eclectic way, illustrating and justifying the basic principle of the 20th and 21st centuries.

The Conventional Organisational Model

In 1996 -- at the time of its privatisation -- Tigáz was the largest natural gas service provider in Hungary, employing 5,370 people, and had a vertical structure with a broad spectrum of separate departments and directorates involved in great variety of activities. The main activities of the company encompassed the provision of natural gas to the general public (not to the public sphere) and its distribution through natural gas pipelines within distribution areas belonging to the company. The company operated in the form of a public limited company. It had a Directorate General with a president CEO who managed the company's operations. Under the CEO there were directorates and main departments that directly reported to him (see Figure 1).

The territorial units that directly belonged to the Director of Services performed the main activities of the company. However, all territorial units operated completely independently. They were 'autonomous

companies'. The term 'line of business' may be used for characterising the operation and clearing system of the territorial units of that time. The territorial directorates within the company structure were independent clearing units. This organisational structure resulted in a broadly vertical and decentralised company operation (see Figure 2).

After the company's privatisation, the corporate objectives -- which already included investors' needs and expectations -- were incorporated in the company's operation and became one of the inductive factors of high priority in the motivation elements for innovation. However, investors' expectations were primarily aimed at achieving increase in the invested capital. This increase in value could be measured by share prices. However, the changes in share prices did not always reflect the company's performance. Realising this fact, the company management looked for a model for measuring the company's performance. In the early 1980s, the Economic Value Added (EVA) model was adopted, which measured companies' performance more accurately than the natural value of share prices. The EVA metric offered by Stern Stuart Management Services creatively linked the corporate accounting data and performance with the company's performance on the Stock Exchange. Unlike share evaluations, EVA is continuously applicable to performance evaluation.

EVA is calculated from the net operating profit after tax minus 'suitable' alternative costs of the invested capital ($WACC \times \text{invested capital}$). Contrary to market-based evaluations like MVA (market value added), EVA is calculated at division or sector levels (a strategic economic level). Contrary to the accounting-based profit like EBIT, Net Income and EPS (earnings per share), EVA is an economic indicator that covers both operating and capital costs.

The Economic Added Value calculations at Tigáz presented in this paper have always produced negative numbers since the company's privatisation. This economic indicator proves that the corporate management has faced serious challenges in order to improve efficiency and increase business results. The reason for such an extremely negative EVA was the high financing costs invested by shareholders during and after privatisation of the company. The return on this huge investment does not seem to be ensured even at present, which makes the current management face exciting challenges (see Table 1).

A positive value for EVA in the examined period was achieved only in 2007, which was the period of legal separation. However, this value is not relevant if the available Tigáz-DSO Ltd data are taken into consideration, since this figure shows the effect of capitalgrouping between the two companies.

Another aspect of the investors' approach is the increasing market competition and globalisation, which has placed corporate adaptability and initiative skills in the focus of attention through turbulent market, technical

and environmental changes in order to stay competitive. Thus, since 1990 the term ‘innovative organisation’ has been linked with the company’s ability to change, rapidly adapt and take the initiative. The direction of structural changes can be considered to be systematic efforts made towards decentralisation, which involve reduction of organisational levels, setting up divisions and using market-based external and internal services. Special attention is paid to integration processes, mainly to the systems supporting company management (VIR, ERP, BSC). Organisational processes have changed since the company became both vertically and horizontally integrated, which is primarily experienced in IT and process management.

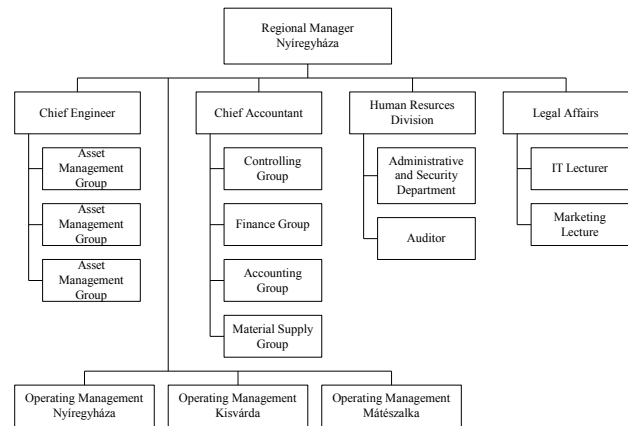


Figure 2. Tigáz territorial directorate organisation in 1996

Table 1
Tigáz’s derived economic value added

Data in million HUF	1996	2006	2007	2009	2010	2011	2012
Revenue+other revenue	46 834	234 037	294 564	325 770	312 714	292 598	287 618
Total cost	45 795	234 503	273 859	322 681	310 739	294 529	304 739
EBIT	1 039	-466	20 705	3 089	1 975	-1 931	-17 121
Tax	185	0	0	0	38	0	0
Earnings after taxes net income	854	-466	20 705	3 089	1 937	-1 931	-17 121
WACC	n.a.	6,0%	6,6%	8,5%	8,0%	7,5%	7,9%
Equity	27 228	35 118	158 603	144 498	145 077	138 083	62 191
Cost of Capital [WACC*(Equity+Debt)]	n.a.	2 104	10 420	12 282	11 606	10 356	4 913
EVA (million HUF)	n.a.	-2 570	10 285	-9 193	-9 669	-12 287	-22 034
Staff	3 572	1 814	586	567	583	585	563

In the past a division or a department was operated for strategic reasons and acted as a potential source of development or flexibility, or for historical or sentimental reasons, as in the case of Tigáz. At present this policy does not fit in with tough financial pressures.

THE FIRST STEPS OF PRIVATISATION AND THE EVOLUTION OF A MODERN CORPORATE FORM

Since the investors’ objectives changed, the company with its vertical structure concentrated its efforts on implementing disintegration. The company’s profile was changed to increase the company’s profitability. The activities were redesigned to recoup the losses. The organisation was streamlined and middle managerial and some other positions were eliminated. The amount of the long-term tied-up capital was decreased. The profitability was improved. Due to modularization of services, the logistics and IT systems rapidly developed. The scarce resources were concentrated on the activities which were drivers of real competitive advantages. As Arun Maira, a product manager at Arthur D. Little, Inc., formulated, “structure is an old paradigm and we have to forget the description of an organisation. We are actually speaking about organisation – organisation of a process and not about the structure.” (Szintay, 2011:4)

Centralization and Cost Efficiency

In terms of organisational optimisation processes, the main objectives are as follows:

- > establishing independent sectors of industry for operating natural gas distribution;
- > separating natural gas trading and service provision from the organisational structure
- > establishing an independent ‘Customer Service Directorate’ to meet the existing and emerging market and customer needs more effectively in a very competitive environment (see Figure 3).

After reviewing the business activities of the gas industry, it becomes clear that trading with natural gas starts from purchasing the gas through selling it to consumers and finishes with its distribution, which means ‘transmitting’ the natural gas to consumer points. This process encompasses two completely different business activities in terms of character and content. Trading activities are of service character, whereas distribution activities have a considerable technical content since they involve operation, development, measuring and gas meter reading activities. The listed main activities provided bases for measuring their value-added skills and establishing independent organisations to perform these activities.

The priority given to trading with natural gas resulted from the core character of this activity. The company’s fundamental activity was determined and separated from

the other core sectors, namely from distribution as well as from supporting units (HR, legal and financial activities).

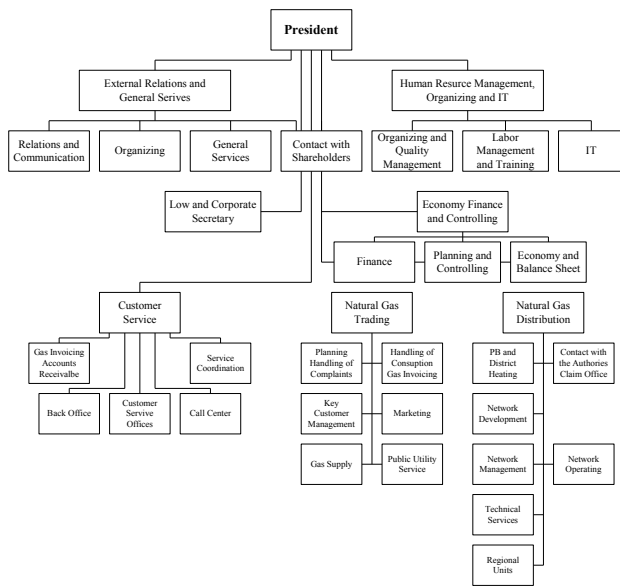


Figure 3. Organizational structure of TIGAZ Plc. in 2007

Putting a 'Customer' in Corporate Objectives is a Response to Market Competition

Liberalisation of the natural gas market and increase in market competition resulted in a new need, namely the need to provide 'modern' services to customers. New natural gas service providers operating in a competitive market are not only trying to set customer-friendly prices in order to increase their own sales, turnover and customer base, but they also attempt to provide a broader range of services to achieve higher customer satisfaction and convenience and to ensure customers a better access to more information as well. Thus, a Customer Services Directorate was formed to respond to customer enquiries and provide customer service related to the following areas:

- invoicing and collecting the outstanding dues on the accounts,
- offering back office functions,
- operating customer service offices,
- operating call centres.

Another aspect of increasing efficiency of an organisation is to promote centralisation and cost efficiency. In order to achieve this goal, the activities supporting and assisting the work of core organisations are concentrated and delegated to directorates which directly report to the president.

Model Changes in the Natural Gas Market and Legal Separation

The Model Oil and Gas Conservation Act entered into force in 2004 and was facilitated by Act XLII of 2003 on natural gas supply. The fundamental principles and the

model change formulated in the Model Act were further amended by a new Gas Act in 2008. Thus, the regulations of the Hungarian natural gas sector complied with the EU directives. Following this Act, the TIGAZ Group shifted from vertical integration towards networking and strategic outsourcing processes, which triggered the development of the organisation in a completely new legal environment.

Customer Services Directorate, as a Supporting Organisation and Lean Management

Both the ever increasing and diversified competition and the competitive market environment made TIGAZ review its internal processes and organisational structure in 2008 and 2009 in order to improve its operation and to adapt the lean management practices.

LEAN management is a strategy which helps organisations operate more efficiently and optimize processes. LEAN management means 'creating value with no waste'. Its objective is to optimize all the activities required for value creation and eliminate *muda*, a Japanese word for waste. LEAN thinking results in creating customer-oriented processes. Descriptions of processes and interface, clearly-defined responsibilities, early reactions to committed mistakes and application of simple organisational methods promote stable processes resulting in offering high quality products. (Szintay, 2008)

Organisations fundamentally rethink processes of corporate operations and form a new supporting organisation in order to operate more flexibly, faster and in a more standard way, which leads to increase in efficiency and lays bases for making the first step towards corporate modernization.

New ideas in companies' lives are taking shape. Apart from a 'customer' who is actually a consumer in the core corporate business activity, a 'partner' is emerging. The 'partner' is an organisational unit which uses the services of another organisational unit. An internal service provision emerges since services are ordered and provided; partners' needs are identified and met within corporate processes and operation.

One of the tasks of the new supporting organisation is to ensure services and provide assistance to core organisations in the areas which do not belong to a non-direct core activity. As for TIGAZ, its core organisations are Sales and Distribution (DSO). As for the supporting organisation, it is Customer Service, since this organisation was engaged in performing activities related to customers after a great variety of changes had been introduced in the company. Thus, the processes which were centralized after the core areas had been identified were integrated the most efficiently.

The company restructured these functions and integrated customer services in the organisation (see Figure 4). A new supporting organisation was established with the following activities:

- managing customer accounts starting from taking the reading of gas meters to billing customers,
- ensuring uniform collection of outstanding dues on the accounts starting from managing customer accounts through collecting outstanding dues to terminating services,
- promoting customer and communication areas (Office of Complaints, Back Office, Front Office, and Contact Centre),
- establishing an advanced technical and IT background and service coordination.

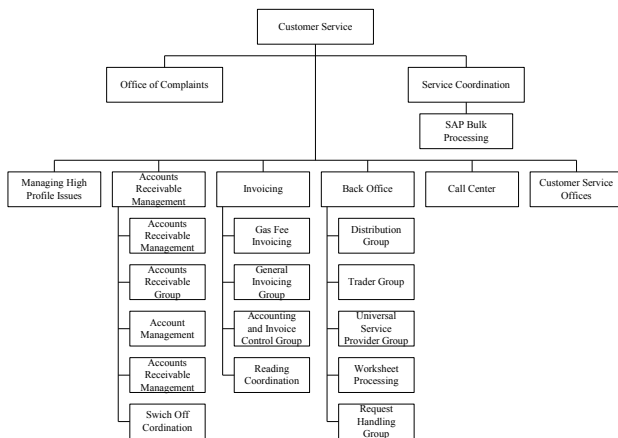


Figure 4. Organisational chart of Customer Services Directorate at Tigáz Plc. in 2009

Outsourcing, a New Organisation Development Method at Tigáz

Tigáz is dedicated to preserving its traditions and corporate culture, which are rooted in large organisational structure, direct management and organisational principles in terms of ‘remaining within the boundaries of a sleeve’. As for the further development of the company, there were favourable signs showing that the company still had some activities and processes under its sleeve. There were inefficient business operations and unprofitable investments that caused the company to incur significant expenses and other costs. The return and the efficiency of these activities were not measurable (see Figure 5). At first, Tigáz concentrated on in-company skills, on its strengths and on the ‘what are we strong at?’ category. Then the company shifted towards external or market factors in order to remain competitive within the national grid. An accurate systematisation of outsourcing objectives was done on the basis of internal and external competencies. The Insigna-matrix provided an outsourcing strategy that the company adopted.

According to most researchers, outsourcing has been given much attention in the past few years because it has been realised that ‘it is not the possession of capabilities that counts, but rather the company’s ability required to control and build majority of critical capabilities’. Instead

of possession companies must strive for capability outsourcing to strengthen their market position, cut costs, streamline the organisation and improve quality. (Szintay, 2011) Outsourcing at Tigáz followed the classical outsourcing processes and was performed in two phases.

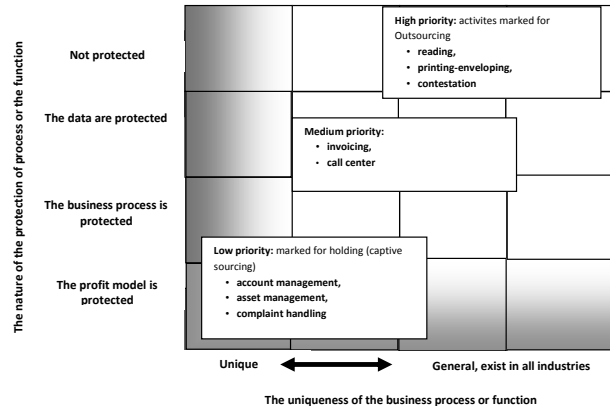


Figure 5. Protection assessment of functions and processes in customer service offices at Tigáz

Classical Outsourcing Practices at Tigáz

Informatics operations and data processing services were the first areas that were outsourced by Tigáz. Tigáz, being a natural gas service provider with the largest area coverage in Hungary, served over 1,200,000 customers. The informatics operations and data processing services of such a huge number of customers involved tasks related to mass data processing (SAP MM, SAP ISU), which could be resolved by ensuring back support. Thus, the Customer Master Data Management as a support to Back Office organisations was outsourced.

Another huge task of mass data management was to handle fact sheets which contained the nature of the work carried out at the consumers’ place, such as taking the reading of gas meters, inspecting and exchanging them, etc. All data were registered on paper fact sheets by workers at territorial units and forwarded to the headquarters. The company generated about 450,000 fact sheets a year. Transferring the information from the fact sheet to the SAP business system also belonged to the company’s basic activities which were not of strategic importance. Thus, the operation activities related to shipping the fact sheets from territorial units to the processing centre on a daily basis and uploading the information on the fact sheets to the VIP system were also outsourced and supported by an outsourcing agreement. This outsourcing decision resulted in saving costs (see Table 2). In addition, the time that the fact sheets spent in the pipeline was decreased; since they were delivered to the processing place faster, their processing time became shorter, their processing was performed in a concentrated way and the data required for

billing were uploaded to the SAP system in a shorter period of time. This resulted in a more efficient billing procedure and revenue generation for the company.

Table 2
Impacts of Master Data Outsourcing on cost effectiveness

Cost before outsourcing (fictive figures)		
Master data management	number of staff	15
	number of worksheets	350 000
	specific human cost (HUF/person/year)	4 208 800
	overhead (HUF/person/year)	162 400
	total cost amount (HUF/year)	65 568 000
Work order processing	number of staff	20
	number of worksheets	600 000
	specific human cost (HUF/person/year)	4 208 800
	overhead (HUF/person/year)	162 400
	total cost amount (HUF/year)	87 424 000
Total (HUF/year)		152 992 000
Cost of the outsourcing activities (HUF/year)		118 250 000
Total cost reduction (HUF/year)		34 742 000

Outsourcing Decisions *Improving Cost Effectiveness at Tigáz*

In 2007 the second phase of outsourcing decisions targeted such non-strategic business operations as optimization of processes and promotion of organisational efficiency. Reading gas meters represented a key challenge to Tigáz since utility workers carried out the reading of the gas meter and inspected it on site each monthly billing cycle. Before 2007 this work was done by people who had valid temporary contracts with Tigáz and were directly managed by the company. This work was extremely labour intensive and was not really efficient. Outsourcing gas meter readings could be considered to be an attractive decision of business process management. The contracted external parties, whose core activities involve visiting consumers, carry out meter readings cost-effectively. The outsourced reading activities ensure that the contracted parties actually physically visit and read the meter and prove this by taking photos of the meters, which are uploaded to the SAP system and improve process efficiency. In addition, photos of gas meters help discourage utility theft and enable the company to inspect actual natural gas usage. The natural gas provider would like to concentrate its activities on inspection and not on execution of it. However, the company pays special attention to liaising with strategic partners who generate the company revenues by providing accurate and reliable gas meter reading services (see Table 3).

Table 3
Comparison of meter reading services before and after outsourcing

Indicators of meter reading effectiveness		
	Before Outsourcing	After Outsourcing
Status of readers	self-employed trustee	entrepreneur
Reading frequency	monthly	yearly
Documentation of reading	data sheet (meter balance)	data sheet (meter and consumer data) + photo
Effectiveness of reading - meter	100%	97%
Effectiveness of reading - photo	0%	97%
Checking of reading	telephone (based on a sample)	documented with photos

Future Directions in Organisational Development- Integration of Processes

The primary objective of Tigáz Group is to further develop by adapting to the ever changing internal and external challenges and to optimize its operations to achieve sustainable development. The current economic and market environment imposes strict requirements on natural gas industry and natural gas service providers. The current difficult economic situation requires that Tigáz continually focus on customer retention and broadening the customer base. The serious deterioration in the economic situation makes the collection of the outstanding debts on customers' accounts extremely difficult. Tigáz should develop special incentive programmes to motivate customers to meet their contractual requirements and in this way to generate more stable company revenue. Apart from these extrovertal interactions, the company also concentrates on intra-company processes, cutting costs and further increasing efficiency to achieve sustainable development.

Tigáz is making every effort to nurture and grow customer relationships and reacts to this challenge by integration tools and organisational development. The primary aim of integration is as follows:

- implementing integration of tasks and human resource management to improve performance, maximize efficiency and cut costs,
- showing more flexibility in delegating tasks while taking into consideration workload to increase work efficiency,
- setting customer service standards in customer service operations and performance measurements to foster customer satisfaction,
- introducing technological developments to provide support to the aforementioned operations. Customer Services is aimed at establishing two interactive units (see Figure 6):
- the Contact Centre will manage tasks related to 'external customers' (consumers) through both

- electronic and face-to-face communication channels,
- back offices supporting business processes will be integrated in a single organisation to improve efficiency.

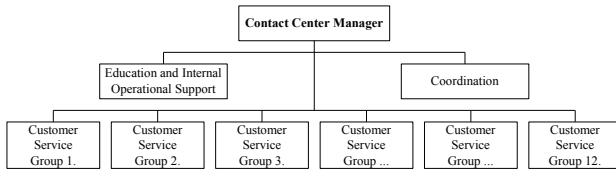


Figure 6. Contact Centre in 2012

The planned measures are expected to result in a more optimal utilization of available resources, flexible delegation of workload and saving resources and costs.

The development of IT management and governance will provide a basis for implementation of integration to enable the organisational units and groups to perform

their work supported by electronic communication and a work-flow system.

CONCLUSION

An organisation of the future is an integrated organisation that has sophisticated IT support, continuously measures performance and keeps the organization in balance to achieve the best performance. The future vision of the integrated organisation formulated in the objectives places Tigáz Group among modern companies and channels it into paths where the company can fully meet the requirements of sustainable development.

This analysis is a basis for further research work aiming to identify and analyse corporate synergies. Identifying and defining the benchmarks and synergies will lead to determining the potential benefits of further integration of the organisation.

REFERENCES

- BKL Kőolaj és Földgáz 140. 2007/3: 70 years of the Hungarian oil and gas mining,
 BORBÉLY SZILVIA (2006:) EU: gas market liberalization and unbundling, MARMOL,
 SZINTAY ISTVÁN (2011): The theoretical limit - Unlimited organizations
 SZINTAY ISTVÁN (2008): Network and Cluster
 SZINTAY ISTVÁN (2011): The outsourcing as one of the defining trends of innovative organizations streamline Start of the competition in the gas market, Index 2008. január 30.
 VINCE PÉTER (2009): Model Changes in gas supply
 Tigáz Zrt.: internal documents, studies
 eni Strategic Plan (2012): www.eni.com
www.tigaz.hu
www.eni.com
www.hungas.hu