

KPI APPLICATIONS FOR IT&C USED IN NATURAL GAS SECTOR

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ABSTRACT: This paper is an analysis of the complexity in interpreting instruments to measure the effects of implementing an information system in the utilities industry, specifically in the natural gas sector. Specificities of the sector imposed reviewing the conditions and ownership diversification agents operating in the system, without detailing the contribution of each economic agent on each floor of the sector: exploration, production, gas transmission, international transit, supply, distribution. The impact of implementing an information system of performance indicators for the relevant activities for natural gas require studying a data volume from a relatively taut period of time, noting that some data are protected by the provisions of trade agreements in force.

KEYWORDS: Key performance indicator for IT.

1. INTRODUCTION

Romania was among the first countries where liberalization and free movement of goods and services in the gas sector was possible in the first years after 1989, opened gradually and applying the principle of access to the third parties TPA (third party access) to the transmission and distribution of natural gas [1].



Figure 1. Romanian gas market

This principle has allowed customers to choose their gas source (import or domestic production) and the point of delivery.

Amid the evolution and maturation of the market were drafted new regulations trading that led to the need to establish the regulator in the field, initially ANRGN - National Regulatory Authority in Natural Gas (January. 2000 - approx. 2007) currently ANRE - National Authority Energy regulatory.

"The Authority is an autonomous public institution, having as main tasks required rulemaking officials' electricity market, namely natural gas, in terms of efficiency, competition, transparency and consumer protection, and the application and follow up of regulations issued" [2].

Restructuring gas sector has been paved increasing competition in the sector and privatization process of companies and eliminate the monopoly hitherto by companies in which the State was the majority shareholder.

Currently, according to information published by ANRE, the gas market in Romania registered the following participants:

- 6 manufacturers: Petrom, Romgaz, Amromco, Toreador, Wintershall Medias, Aurelian Oil & Gas
- 3 underground storage operators: Romgaz, Amgaz, Depomures
- a National Transmission System Operator - Transgaz S.A. Medias
- 34 companies for distribution and supply of natural gas to captive consumers - the biggest Distrigaz Sud and E. ON Gaz Romania
- 76 providers on wholesale market

Majority of capital structure involved in the gas market is as follows:

Company	State Shareholding, %	Private Shareholding privat*, %	Major Shareholder
•OMV Petrom	•20,639	•79,361	•OMV
•Romgaz SA	•70,01	•29,99	•Statul român
•Amromco	•-	•100	•Amromco
•Toreador	•-	•100	•Toreador
•Wintershall	•-	•100	•Wintershall
•Aurelian Oil&Gas	•-	•100	•Aurelian Oil&Gas
•Transgaz	•58,5097	•41,4093	•Statul român
•Amgaz	•informatii indisponibile	•-	•-
•Depomures	•-	•100	•GdF Suez
•Distrigaz Sud	•37	•63	•GDF Suez
•E.ON Gaz	•37	•63	•E.ON Gaz românia Holding
		•* end of 2015	

Figure 2. Capital structure of Romanian gas market

2. ROMANIAN GAS MARKET LIBERALIZATION

"From 1 July 2007, the market is fully opened to all consumers, if they have the freedom to choose a natural gas supplier of the licensed by the regulatory authority and to directly negotiate terms and price for natural gas supply" [2]

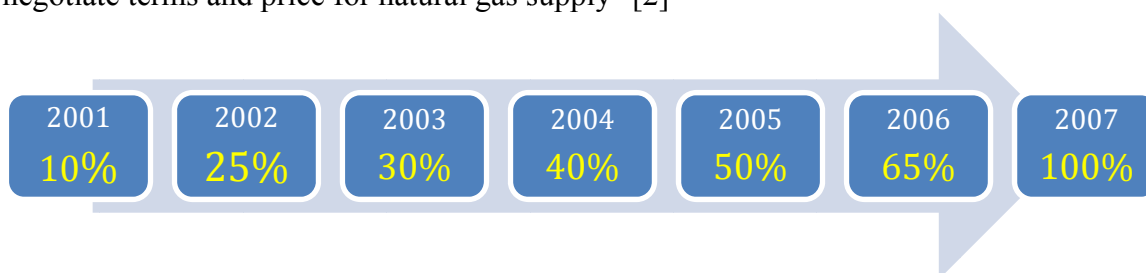


Figure 3. Evolution of the liberalization of the gas market in Romania

In the competitive market, prices are formed freely, based on supply and demand, as a result of competitive mechanisms. In the regulated segment of the market, prices and tariffs systems are established by the regulator based on methodologies issued in this regard.

3. KPIS

Key indicators for performance, KPIs, are the most popular now management instruments. Using them can be seen in various activities: National Museum of Australia, National Bank of Nigeria Administration Panama Canal, the Association of American Medicine. KPIs are used to understand, learn and improve the performance level of industries, departments and teams [3].KPIs are seen in top 3 in the tools most used by management.

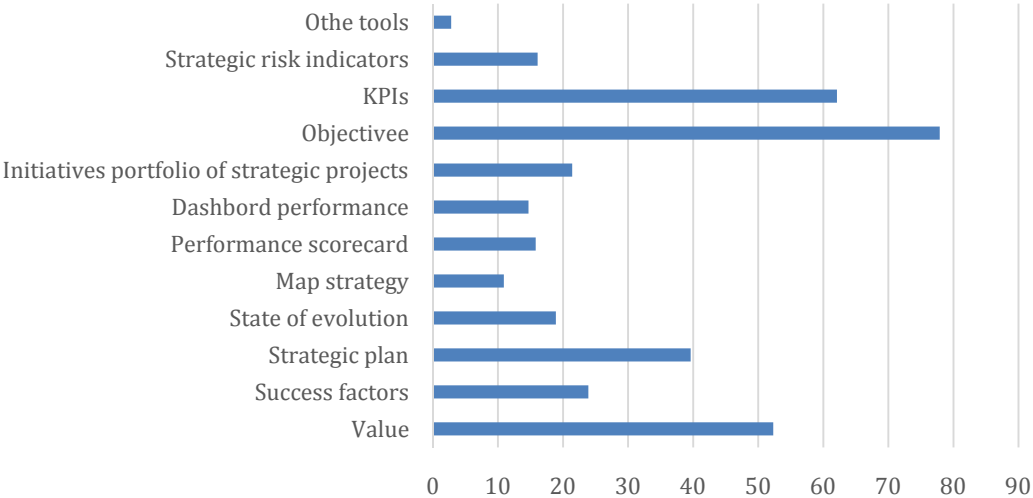


Figure 4. Which tools of performance management is used in your organization, %[4]

Diversifying ownership of gas company, namely the need to synthesize business results to ensure transparency of management, and implementation of Community legislation required the introduction of performance indicators based management with the following objectives:

- Transformation strategies measurable indicators;
- Defining the processes and actions needed to achieve the indicators defined
- Tracking indicators and their trends
- Reporting on indicators
- Identify ways action to maintain the indicators within certain limits, etc.

Natural gas is defined as the strategic economic importance and it is assumed that the provision of gas supply to consumers, both industrial for continuity of supply ensures proper conduct of the manufacturing process and for commercial customers and households to interrupt gas supply can generate a state of danger.

Depending on the model adopted by management may establish basic levels of business management mode by defining the scope and strategy, targets and indicators.

A suitable model allows the measurement objectives in an appropriate strategy based on performance indicators, key. You can also opt for setting responsibilities and targets for each level of activity and tracking progress through a comparison tables - scorecard.

Performance indicators are used for the main areas of impact: financial, customer, internal processes and personnel. For each zone defines a number of key performance indicators that determine performance indicators for each level achieved.

Currently the software applications are used at all levels of activity of a company, so its related indicators directly affect the performance indicators for a certain level.

In previous years' privatization IT activity was monitored by two performance indicators:

1. The availability of the system, representing one of the levels of performance for information technology services, as determined by the number of hours that the computer system is available to users, based on the number of hours a year, respectively,
2. The share of investments to modernize the system, representing total expenditures for upgrading the computer system compared to the total capital expenditure, both indicators are expressed as a percentage.

In the period 1990-2000 the energy system of benefits for a secured loan guaranteed by Romanian Government for Restructuration activities in the field, one of the components represented by introducing specialized systems (SCADA - Conpet SA, Financial Management - Accounting - RA Romgaz, Transgaz respectively SA or assisted introduction of modern technologies - welding of polyethylene pipes - Distrigaz SA).

By restructuring the energy sector following the implementation of a new vision of the economy and the emergence of new knowledge-based management functions [5]

The concept of knowledge-based economy has been defined as the economy based directly on the production, distribution and use of knowledge and information. The integration of information technology in management processes, command, communication, control and obtaining information is one of the general principle of knowledge management [6]

Under this funding it was possible to equip the different levels of activity with computers, mainly personal computers that used integrated applications installed on central servers.

This step has changed the assumptions for the use of informatics applications from local client applications, and enabled the introduction of performance indicators on the components of the new system: local area network, server, application, remote communication:

Table 1. The most common KPIs

With general purpose	With effects on business
<i>Indicators for application development</i>	
Enterprise applications used per employee	Number of platforms for application development
Strategic investments in it costs	Number platform for running applications
Web applications complying with enterprise architecture	Business interruptions caused by lack of appropriate it capabilities
Electronic financial management processes supported	Frequency independent assessments of compliance in IT
New features per release software	Enterprise architecture update frequency
Timely completion of software applications	Improving data quality
Compliant software applications	Updates to the application software successfully completed
The rate of resolution of the problems it applications	
Complying estimated budget	
Compliance software development schedule	
<i>Indicators for infrastructure availability</i>	
Availability Data Network	The maximum fluctuation way Internet access
The availability of remote communication	The ratio of printers and employees
Availability of applications	Servers managed by a system administrator
The duration of interruption hardware / software	

With general purpose	With effects on business
Indicators for continuity of services	
Average response time for an application for a Quality of Service Agreement (SLA)	The maximum number of users
Incidents remedied by the service provider	During the installation of the software
Timely implementation of new technology, proper business requirements	Penalties for service delay delivery
IT budget spent on service delivery	Resolving a service request using principal IT support department
The average duration of a service request fulfillment	IT recurring incidents
Indicators for security	
It security goals aligned with organizational goals	The frequency of assessments and analyzes of risks in it
Successful backup operations	Incidents of violation it policies
Incidents of security breaches or outages systems	Security events affecting business operations
Security events affecting business operations	The detection time of the incident
Policy compliance passwords	It security budget
Downtime due to security incidents	Security awareness
Network attacks detected	
Indicators for general aspects	
Budget investment in technology consumption	Time dedicated IT creative activities
IT asset efficiency	New initiatives generated by IT business

4. CONCLUSIONS

In a market economy system in which the number of competitors is steadily increasing customer access to information has led to diversification and present them directly to the consumer. [5].

With the relocation of several activities in the online environment, systems can no longer be considered the secondary level by managers to perform multiple functions at strategic level: assistance in making management decisions, contact between the company and the business environment, access to information allow communication and transfer of documents etc.[7]

There are many variants of defining and many performance indicators related to activities of natural gas sector, for service quality, both technically and from the economic point of view, although version many cases the return on investment is difficult quite justified version of the report on usage of certain services.

But the character of strategic importance can change the hierarchy of indicators versus theory, so that certain components "vital" information System, economic performance can be significantly influenced by the nature of security.

Lately site www.elicitatie.ro were identified a series of acquisitions aimed at increasing security objectives in the field which will certainly affect computer systems or communications system.

To define performance indicators that will improve services necessary to use objective criteria for their determination and elimination of subjectivity in interpreting the results.

It also requires greater transparency in the publication of indicators in the annual reports of companies, which would allow the adoption of a common standard for all providers of services to companies in the gas sector, the model used by community associations, ENTSOG (European Network of Transmission System Operators for Gas), ENTSO- E (European Network of Transmission System Operators for Electricity) or EASEE -gas (European Association for the Streamlining of Energy Exchange - gas)

Company management cannot become effective without knowledge center location managerial processes and relations and maintaining communication and information infrastructure to modern standards. Managers must have the necessary knowledge and appropriate use of technology to ensure the realization of projects and applications for performance in the company [6].

To the question "How can will be justified as investments in IT and computer applications, can be determined contribution to the development of the business?" Is not a simple answer, and maybe is not enough the calculation of some of the indicators listed above, for the following reasons:

- Productivity expected after implementation of an IT system can only be determined after processing a large data set, in terms of quality, customer service, data availability, individual quantifiable parameters, but difficult to aggregate [8]
- There are many factors affecting business performance and impact it is difficult to identify given that IT managers do not recognize or currently use tools for data analyze. [8]
- The audit of a computer system generally issued only results regarding limitations on data and instruments used, but not really the basis for investment decisions.
- Motivation to modernize IT infrastructure must be as introducing new tools for new business, the wrong approach to produce the same data in larger quantities. Statement to be adopted (Watts,1986) that " investment in information technology can not only be justified by reductions in production cost, managers should aim primarily increased flexibility and adaptability"
- Planning the investment budget is based solely on calculation of financial ratios determined following formulas established, although today all activities are dependent on IT systems.

These are only some of the arguments to show how difficult it is to measure the benefits of information technology in terms of productivity. IT's benefits must be identified in the quality of services, utility products, namely a qualitative and quantitative analysis of business results by increasing the variety, quality and efficiency to changes in the economic environment.

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