ABC – COSTING AS A TOOL TO EFFICIENT THE PROCESS OF TECHNOLOGICAL CHANGES AND DEVELOPMENT OF IT-ENTERPRISES

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1 THEORETICAL FRAMEWORK FOR CHANGE AND CHANGE MANAGEMENT

Charles Darwin shows that do not survive the most beautiful, smartest or the strongest, the future are of those who best adapt to change. Change is, in the opinion of McCalman and Paton, "a continuous process of confrontation, identification, evaluation and action" Kurt Lewin considers change as a dynamic equilibrium of forces pushing to change on the one hand, and on the other hand, forces resistance to change.

Equilibrium of change forces after Lewin K.:

Pressures for change	*Resistance to change*
▪ technological Change ▪ knowledge explosion ▪ product obsolescence ▪ Improving working conditions	▪ obsolete Mentalities ▪ mental block ▪ lack of interest ▪ fear of new ▪ fear of failure ▪ low degree of professionalism ▪ changing the force structure work

There are two categories of factors that influence change within the organization:

▪ External factors that can not be controlled by managers. (new products introduced by competitors, the amplification, advertising new products, price reductions in various categories, improving product or services offered to customers, change technologies supposing computer and industrial robots using, enabling rapid resolution of complex problems of production and management, contributing to reduce costs and improve quality, reflected positively in financial terms, the influence of specific external factors: international organizations, as the World Bank, International Monetary Fund and the European Union).

▪ Internal factors acting through changes in the organization. There are decision-making processes, communication, interpersonal relationships, leadership, management style etc.

The usual change management is defined as structured approach to shifting/transitioning individuals, teams, and organizations from a current state to a desired future state. It is an organizational process aimed at empowering employees to accept and embrace changes in their current business environment.

Looking through different sources we consider that there are three basic definitions of change management.

The first and most evident definition is that the term refers to the task of managing change. Managing change is itself a term that has at least two aspects. The first relates to making changes in a planned, managed and systematically way. This is the purpose - to implement more effectively new methods and systems in an ongoing organization. The changes which will be managing go in here and are controlled by the organization. However, these changes could come from outside. The second dimension of change management refers to managing changes, resulting from activities such as legislation, social and political upheavals, actions by competitors, changing economic currents and so forth. There are changes witch the organization carries little or no control. The first and second dimensions are usually characterized as being pro-active and reactive.

Change Management can also be seen as an area of professional practice and this is the basis for *the second definition* of the term. Independent consultants can act as agents of change in order to help their customers to manage facing change, or to help them to take a proactive approach to change management by taking on the task of inevitable changes. In almost all cases, the process is treated taking into consideration the characteristics of the situation. The consultants undertake the process of change management by working with managers and users who know the specifics.

A third definition of change management is based on matter of subject. It consists mainly of models, methods and techniques, tools, skills and other forms of knowledge involved in change management practice.

There are a lot of benefits of change management, as following:

- risk reduction and quality service improvement;
- improve communication. A better communication between users and organization will lad to a better understanding of individual needs and priorities, highlighting that business units don't act isolatable;
- contribute to simplify and to support the information and operation flux. The process of change process will help the organization to rationalize information flux, to maximize software utilization in order to reduce inutile rapports and to raise productivity;
- made analysis can help to reduce product /service costs. This can help enterprises to grow up and to concentrate to revenues and profits. The analysis include product cost analysis, service cost analysis which can be useful for decision making.

In conclusion, we can mention that the process of change management is a difficult one because it implies a great modification in the company activities, but the benefits are considerable for company evolution.

The purpose of Technology Change Management is to identify new technologies (i.e., tools, methods, and processes) and track them into the organization in an orderly manner.

Technology Change Management involves identifying, selecting, and evaluating new technologies, and incorporating effective technologies into the organization. The objective is to improve software quality, increase productivity, and decrease the cycle time for product development.

2 THE FIELD OF IT OF REPUBLIC OF MOLDOVA

In accordance with the OECD definition, 2007, the information technology is a part of Information Technology and Communication Sector, as also electronic communications (EC), the production of ITC equipment and commercialization of ITC equipment.

The imperfection of national statistical systems doesn't allow following up the evolution of quantitative indicators. Estimation made by regulatory organs show that in 2008, the turnover of the IT industry was estimated at 184.7 million lei. Thus, during 2006-2008, the turnover of IT industry has grown 2.8 times. During the period 2003-2008, the export volume of software products has increased 10 times, from 1.2 million up to 26.3 million U.S. dollars. This increase is a result of incipient public policies aimed at supporting the development of the ICT sector. According to ANRCETI (National Agency for Regulation in Electronic Communication and Informational Technology) in 2009 the agency give 36 license for service providing in the field of elaboration, maintaining and implementation of software, equipment an informatics systems, and 35 licenses for service providing in the field of designing, elaboration, implementation of automatic informational systems and resources with state impact (data base creation and using and services of information delivering) and services of their functioning insure.

On other hand, the expenses for IT in 2008 was about 833 million lei, showing an increase of 228 million compared to 2006. The structure of IT spending show the growth of advanced software purchases (23% of total spending); it has increased 2,5 times compared to 2006. The growth is due to the raise of licentiate software using. Last survey of Business Software Alliance (BSA) on pirate PC-software show that the share of illegal used software decreased from 96% in 2006 to 90% in 2008, and was about 40 millions dollars SUA. The illegal use of software limits the industry development and reduces considerably the IT market.

It is important to mention that IT expenses per capita are only 20 dollars, compared to the average of 725 dollars per capita in the UE.

In conclusion, we can mention that the IT sector is a relatively young sector for the republic, it is developing dynamically, but its potential is used insufficiently. The requirements of UE to respect copyright in order to use licentiate software, the estimation made by regulatory organs and the experience of foreign developed country show that the sector of IT has a great potential, which can be capitalized also by using properly technological changes management.

3 ABC-SYSTEM AS A TOOL FOR TO EFFICIENT THE PROCESS OF TECHNOLOGICAL CHANGES AND DEVELOPMENT OF IT-ENTERPRISES

As we mentioned in the theoretical framework change management can refer to managing changes made in ongoing companies, by introducing different tools and instruments, as to assure the implementing of change in other organization, as consultancy. At the moment, the IT

companies should take into consideration that if they want to be competitive on the market they should be very receptive to market change in order to use it in their activity in one hand and in other hand to be able to provide changes in partner companies. The technology used by IT-companies are success factor for their market position, but often the cost of the implementation and ulterior transfer to final products are non-defined. The specific of IT companies consist in the difficulty to estimate the direct and the indirect cost of elaborated software, due to the running in the same time of some projects. Other observation is that local IT companies are not only elaborating software program, they offer and other services as maintaining, implementation, functioning insure. IT companies don't have a cost system to calculate the product cost. Almost IT-companies have an accounting who is registering all costs made by the enterprise, so we can conclude that the cost system is the only evidence function. In this condition IT-companies doesn't know the real costs of their products.

As we mention the tendency is to increase the export of software products, which suppose that their product should be competitive on foreign market. To be competitive on the market means to be the best by assuring finest rapport cost-quality. In this order of ideas the cost of product/service became one of important variable in the client decision making process.

So, in order to improve cost calculation of final products, of maintaining, implementation, functioning insure service and to capitalize the tendencies of growing export it is necessary to improve cost systems of IT-companies. Modern cost system should offer relevant information for decision making, but in the same time it should register all process cost, so we can speak about integrated systems. Integrated cost system is an integrated cost management and financial reporting which allow getting all the needed information for cost decision in correspondence with the overall objectives of the company. One of the instruments of integrated system is the ABC (Activity Based Costing). Activity based costing is based on the following ideas. Firstly, designing, producing and distributing products and services requires many activities to be performed. Performing these activities requires resources to be purchased and used. Purchasing and using resources causes costs to be incurred. Restated in reverse order, the ABC logic is that resources generate costs, activities consume resources and products consume activities. Thus, a company's activities are identified, then costs are traced to these activities (or activity cost pools) based on the resources that they require. Then, costs are assigned, or traced from each of these activity cost pools to the company's products (or services) in proportion to the demands that each product (or service) places on each activity. In ABC, a measure of the relevant activity volume is used to trace each type of costs, rather than exclusively using measurements (or allocation bases) related to the volume of the products or services produced. Using this logic, ABC tends to solve the problems created by traditional cost (figure 1)

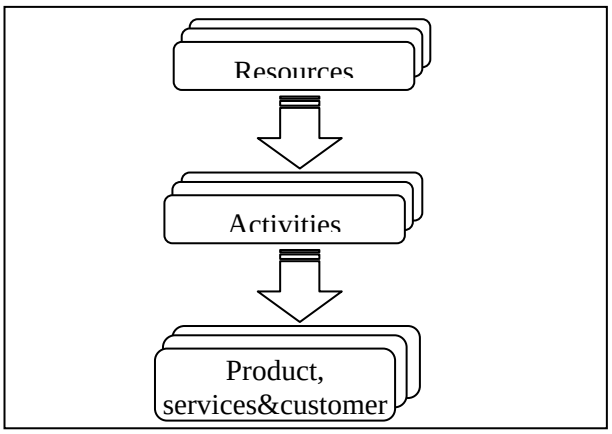

Figure 1. Cost assessment based on ABC-logic.

ABC systems was designed by Cooper and Kaplan, in the 1988 in a series of articles, they conceptualized the ideas of ABC for manufacturing companies which were confronting with the enlargement of production line, raising of indirect costs, wrong decision due to incomplete information for process making. For the begging, as Cockins mention, it was used as a superior product and service costing technique. Also he said that ABC removed the grotesquely distorting effect of broad-brushed overhead allocators, like labor hours or sales dollars. It replaced cost allocations with substantially more realistic cost assignments and consequently much greater accuracy. In the 1990s, managers discovered that the same data they generated to recompute their ABC product or service costs could also be used to gain better insights and manage their product design and process design costs. It could also be used for performance measurements that align with business processes.

In 1998 Cooper and Kaplan argued in a series of articles that service companies are the ideal candidates for ABC. Their justification was that most of costs in service organization are indirect, fact confirmed and by our IT company experience. Service organization must also supply most of their

resources in advance. Until recently many service organizations were either government owned monopolies or operated in a highly regulated, protected and non-competitive environment. These organizations were not subject to any great pressures to improve profitability by identifying and eliminating non-profit making activities. Cost increases could also be absorbed by increasing the prices of services to customers. Little attention was therefore given to developing cost systems that accurately measured the costs and profitability of individual services. But situation change, and the crisis of last years imposes the company to pay more attention to their product, to reconsider their financial statement in order to maintain desired profitability.

ABC systems rely on a greater number of cost centers and second stage cause-and-effect cost drivers. ABC systems provide more meaningful decision making information because they recognize that many of the so-called fixed overhead costs vary in proportion to changes other than production volume. By identifying the cost drivers that cause costs to change and assigning costs to products on the basis of cost driver usage, costs can be more accurately traced to products. This cause-and-effect relationship provides a superior way of determining the relevant costs.

An ABC system involves the following four stages:

1. identify the major activities which take place in an organization;
2. create a cost centre/cost pool for each major activity;
3. determine the cost driver for each major activity;
4. trace the cost of activities to products according to a product's demand (using cost drivers as a measure of demand) for activities.

In the following will try to explain in a basis of simple process the application of ABC-system.

Key problem: The client of company X wants to improve existent software, which was early developed by company X, in a period of 6 months. He wants that improvement to be done by the same team, in order to reduce errors. The team is already involved in other different projects; but the company doesn't want to lose its client. In this case it is important to evaluate how much will cost this project, and will it be profitable for the company if our client offers 30 000 valor units.

The manager decided to take into consideration the client offer, and create a work team (table 1).

Table 1. Project Team.

The function	Persons	Monthly Salary, v.u.	Cost/hour, v.u.
Team leader	1	700	4,3
Developer	3	500	3,12
Designer	1	500	3,12
Tester	1	450	2,8

In the team 2 persons will work only on this project, and others will be implied partial at project: one of them will be working for 6 moths by 4 hours per day, one of them will be only implied for 2 months (figure 2).

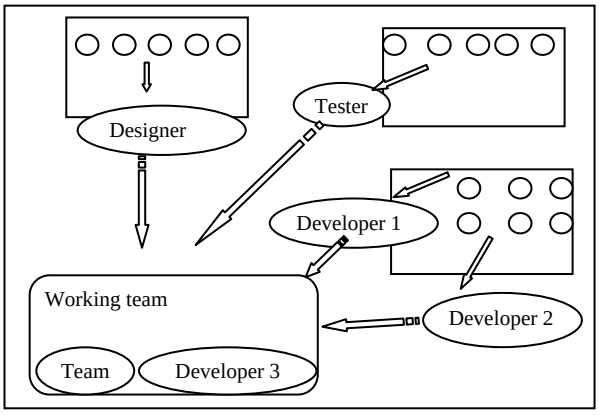

Figure 2. Working team

We have determined main activities in the process of soft were improving: project management, design, soft elaboration, testing. As cost driver was taken the indicator of man-hours needed for each activity. After resources evaluation, the costs were assigned. (Table 2)

Table 2. Costs of used equipment.

Equipment		Quantity	Price/unit, u.v.	Total price, u.v.	Depreciation (20% per year)	
					annual	per hour
PC	Dev 1 Dev 2 Dev 3 Tester	4	600	2400	480	0,23 (0,06)
Notebook	Team Leader Designer	2	750	1500	300	0,15 (0,075)

Chairs	6	110	660	132	0,07 (0,0117)
Tables	6	150	900	180	0,09 (0,015)
Activity	**Depreciation per hour, u.v.**				
Project management	0,1				
Designing	0,1				
Programming	0,087				
Testing	0,087				

Administrative expenses were evaluated taking into consideration that in the company work 80 persons on a estimated period of 6 months. (Table 3)

Table 3. Administrative expenses.

Administrative expenses	UM	Monthly quantity	6 months consume	Unit price (u.v)	Total (u.v)	Expences /men* hour (u.v)
Electric Energy	kW	5266,6	31600	0,1	3160	0,04
Thermo energy	-	-	-	-	4670	0,056
Rent	m^2	500	3000	15	45000	0,56
Security	month	1	6	500	3000	0.037
Clean services	month	1	6	250	1500	0.018
Internet	month	1	6	200	1200	0.014
Water	m^2	21	126	0,5	63	0.0008
Total, men* hour	**0.7258 u.v**					

Overall expenses was evaluated and there are presented in table 4.

As we can see the revenue of the company from this activity will be 30000-17080,2=12919,8 (u.v). Using ABC we distribute indirect costs on the basis of man-hours as cost-driver.

4. CONCLUSIONS

Actually, to change mean to be the promoter of innovation and to gain benefits from it. The innovation supposes to make supplement costs, and we need a proper system to allow costs to final products. The used system at the moment doesn't allow to evaluate and to transfer correctly the costs. We've argued that the ABC- system offered all needed instruments to calculate properly the costs of products and services.

Table 4. Overall expenses by activity.

Activity	Men* hour	Direct cost		Indirect costs (depreciation)	Administrative expenses	Total
		salary	foods			
Project management	992	4265	620	99,2	720	5704,2
Designing	320	998	200	32	232.3	1462,3
Programming	1763	5500	1102	153,4	1280	8035,4
Testing	444	1243	277,5	35,5	322.3	1878,3
Total	**17080,2**					

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