

MANAGING KNOWLEDGE AND INFORMATION IN THE PROCESS OF CUSTOMER NEEDS IDENTIFICATION

Elżbieta Skrzypek

Maria Curie-Skłodowska University, Poland
elzbieta.skrzypek@umcs.lublin.pl

Grzegorz Grela

Maria Curie-Skłodowska University, Poland
grzegorz.grela@umcs.lublin.pl

Agnieszka Piasecka

Maria Curie-Skłodowska University, Poland
agnieszka.piasecka@umcs.lublin.pl

Mariusz Hofman

Maria Curie-Skłodowska University, Poland
mariusz.hofman@umcs.lublin.pl

Abstract:

The paper presents the role of managing knowledge and information in the process of customer needs identification. In conditions of knowledge economy knowledge and information determines competitive advantage, where knowledge on consumer and their requirements and needs is key. Findings conducted in 2011 by authors indicate that from 8 principles of the quality management expressed in ISO 10014 the most correlated with the subjective evaluation of examined economic performance of the organizations is the one with involvement of people.

Keywords: Customer focus, knowledge and information, ISO 10014.

The research is financed from the Polish science budget resources in the years 2010-2012 as the research project N N115290439.

1. MANAGING KNOWLEDGE AND INFORMATION IN BUILDING THE COMPETITIVE ADVANTAGE

In conditions of knowledge society, information and knowledge have become the source of the competitive advantage. Innovation and skills have their roots in information and knowledge and are thus contributing to lasting competitive advantage in the long run. Competitive advantage is embodied in value, efficiency, effectiveness, costs, quality, competence and customer care.

Knowledge underpins all undertaken actions, decisions and organizational behaviour. The success of the company in the 21st is being evaluated on account of successes with respect to how effectively it manages its information and knowledge resources. Knowledge is a source of competence and effectiveness. The nature of knowledge is qualitative. Knowledge is a source of creativity, competence, efficiency, effectiveness, inspiration for new solutions and processes. Knowledge is determining the intelligence of the enterprise. It's a sum of all credible information about reality and know-how.

Awareness of the role of knowledge and information is reflected in numerous attempts to create knowledge management systems. Knowledge management in its strategic dimension includes strategy, leadership, technology, culture, measurement and knowledge itself. In operational dimension it consists in locating, collecting, transfer, implementing and retaining knowledge. Managing knowledge in organizations brings realized economic and financial benefits: overall improved effectiveness, higher qualifications, skill-sharing, improved quality of products, improved image, expanding the infrastructure, implementing innovation and improving satisfaction of internal and external customers.

In today's changeable and competitive surrounding enterprises must intensively concentrate on seeking efficient and effective ways of managing their intellectual capital resources. This principle is very much true in organizations carrying out unique projects generating new knowledge and intellectual assets. Therefore organizations should customize systems approach to knowledge and intellectual (Ksiewicz, Rogowski & Kicińska, 2006, p. 109) capital management in order to improve their efficiency and effectiveness. The following knowledge management strategies are commonly applied:

- *codification strategy*. It is focused on systematic and scrupulous collecting and codifying of knowledge. Knowledge is entered and stored in enterprise's databases and computer systems. The codification is being backed-up by a system of reporting in projects which records managing a team, the course of the plan and the realization of purposes, the assessment and analysis of risks as well as ways of dealing with risk in the project and of experience gained by a team and the organization.
- *personalization strategy*. It is focused on managing people and continuous learning and development of individual competences of managers and their teams and improving organizational behaviours by shaping the organization's culture (Kogut & Zander, 1992, pp. 383-397). Enabling and developing networking is a fundamental element of this strategy of connections between people.
- *transformation strategy*. It is focused on transforming created or acquired knowledge into active intellectual capital, and then into intellectual property preventing unauthorized outflows of knowledge to rival organizations. The transformation consists in the codification of tacit knowledge into open knowledge and converting it into patented solutions, patents, technologies, brands or computer software.

Knowledge management literature distinguishes three main approaches to managing knowledge: Japanese model, asset model and processes model.

The Japanese model of creating the knowledge in the organization. There is this most innovative approach being based on concept of the knowledge spiral (Nonaka & Takeuchi, 2010, p. 79). This model is establishing the conversion of the tacit to explicit knowledge which allows knowledge to be easily verified, disseminated or copied.

Asset's model acquiring knowledge on an assumption of its strategic character, knowledge is regarded as a source of competitive advantage for the enterprise (Conner & Prahalad, 1996, pp. 477–501). The asset model relies on two categories: core competences and core capabilities.

In processes model managing knowledge in the organization is as the set of processes of among others acquiring knowledge (knowledge creation and development, purchasing know-how, employing specialists), disseminating (locating and sharing) knowledge, applying knowledge.

In conditions of new (knowledge) economy customers have access to information and knowledge and are conscious of their rights and duties. Therefore the need to manage the quality of knowledge and information. Organizations must demonstrate care about its current and prospective customers. Customers are an important, observable piece of the organization therefore they should be treated in the very responsible way. Knowing customers and their needs, requirements and expectations as well as rights is a condition of keeping your customers for long. The customer of the new era is called prosumer meaning an educated, well informed, with higher requirements with respect to the market offer as well as expecting individual service. Satisfied and loyal customer is of great value to the company. Research carried out by the Juran Institute in the USA into likings and tastes of customers prove it necessary to listen carefully, observe and be aware of customers' changing lifestyles.

2. CUSTOMER FOCUS

In contemporary turbulent surroundings organizations are continuously seeking sources of competitive advantage. In order to achieve success they should be able to fulfil needs and expectations of their customers in the long run which entails right actions of top management executives (ISO 9004, 2009, p. 13): strategic planning, continuous monitoring and regular analysis of surroundings, risk identification in short and long term, predicting future demand for assets, corrective and repair actions and implementing processes serving continuous innovation and improvement.

Fulfilling needs and expectations of customers is a base for customer loyalty. The loyal customer is satisfied from the quality of service or products of the enterprise. One should however remember that fulfilling expectations isn't enough for many customers. Instead of giving satisfaction, products and services only remove dissatisfaction. According to Kano, customer delight is characterized by additional features pleasing the customer and providing satisfaction and joy from using the product or service (Dahlgaard, Kristensen & Kanji, 2000, pp. 35–36.). In order to trigger off customer satisfaction, the organization should identify the current and future needs and expectations of both current and prospective customers as expressed by customers. Customers value benefits accompanying the purchase (Urbaniak, 2010, p. 176) including: technical level of the product, the brand, costs, the form of placing an

order, the possibility of getting bonuses, rendering the services connected with the sale, the service under the terms of the guarantee.

The identification of needs and expectations of customers is essential because customers are more often involved into the process of creating the product. Moreover, the increase in the loyalty of customers of about 5 % can cause a rise in profits of the enterprise even about 25–85 % (Skrzypek, 2010, pp. 13–16).

Describing customers needs and requirements is the first step in building customer satisfaction. The next are developing orientation for streamlining processes to oversee the requirements of customers and improving techniques of satisfaction measurement, strengthening relationships with customers and building customer loyalty (Haffer, 2000, p. 284).

Creating long-lasting relations with customers requires permanent improvement of products. The continuous improvement of products or services is one of the conditions of building Quality Management System in compliance with ISO 9001 norm requirements. This norm pays attention to establishing processes connected with customers, grasping such aspects as (ISO 9001, 2008, p. 14): describing requirements concerning the product, reviewing these requirements and implementing effective communication. One should add that with reference to establishing formulated requirements by customers, the enterprise should also take into consideration requirements essential for producing the product not pointed out by customers but essential from a point of view of the company.

For improving quality management eight principles are used. Customer focus principle states that the position of the enterprise on the market is depending on its customers. As Deming put it: Don't get used to the product. Get used to the customer (Skrzypek, 2010, p. 14). Implementing this principle can bring financial and economic benefits to the enterprise including rise in profitability, improvement in functioning of the supply chain, raising organizational productivity, credibility, increase in the competitiveness. It requires the following actions (ISO 10014, 2006, p. 19):

- analysing feedback information from the customer,
- building the system of managing customer relations,
- carrying out regular examinations and market analysis,
- describing strengths and weaknesses and defining opportunities and threats,
- identification of the customer and customer needs,
- applying methods of quality management e.g. FMEA, QFD.

Taking above actions breeds the loyalty of customers which is nowadays one of key indicators of achieving market success.

3. MAKING DECISIONS BASED ON FACTS

All decisions within QMS should be made in connection with previous examinations and analyses. To this purpose, the organization should determine what input data is essential for taking routine decisions and then identify spots where measurements and the processing of information take place, then describe methods of storing and analysing data also taking into consideration electronic methods. One should assure that data is credible, accurate and accessible to those who need it. To this purpose, methods of assessing the frequency, credibility and precision of measurements should be worked out. Depending on the size and

the level of computerization in organization methods allowing possibly shortest time delays are favoured. If needed, the organization should use statistical methods of providing hard-to-measure data. In the majority of production companies where the fragmentary control of products is conducted, statistical methods of taking samples is mandatory as required by ISO norms so that the management is able to demonstrate they are using collected data in decision making. Not only collecting data but exploiting it in the process of decision making and improving organisation is the chief aim of measurements. The costs connected with the poor quality of data are very high. Data of high quality is fit for operating, planning and decision making activity only when it is accessible, understandable, cohesive, correct, complete and useful. The access to the right quality data is often made hard because of confidentiality, lack of consistency, handicaps in access, processing and analysis of data. Amongst reasons for mistakes it is possible to point at misconceptions of users (faults in the application, the lack of the suitable knowledge of users, bad interactions with users and introducing new systems (migrations and integration of data). Decisions are usually made based on accessible facts. In the process of decision making, the accuracy of decisions relies heavily on accessibility of data and information. Quantitative and qualitative aspects are equally important.

Using data and information is possible when we possess available tools which enable us to fast and effectively conduct crucial analyses (e.g. of financial reviews, forecasts of the demand, analyses of processes, and the like). Individual experience and the intuition of the decision-maker are extremely important as well. The level of managing customer-related data and information including managing organizational memory influences accuracy of decisions to a considerable degree. Competent management of product/service-related data and information is vital and possible when the company has the system enabling archiving and searching of information of past actions and results.

4. RESEARCH METHOD AND EMPIRICAL RESEARCH RESULTS

100 enterprises from the Lublin Region were selected. The research questionnaire form contained questions concerning the degree of meeting criteria described by 8 principles of the quality management:

1. Customer focused organisation;
2. Leadership;
3. Involvement of people;
4. Process approach;
5. System approach to management;
6. Continual improvement;
7. Factual approach to decision making;
8. Mutually beneficial supplier relations.

Questionnaire used 5 stages scale of achieving excellence for the 8 principles of QM. The scale was described in table 1.

Table 1: Description of number used by scale

Number	Description
1	Generally speaking, the practice isn't still established or has not yet been taken.
2	At the minimum, approximately 25 % of events, practice is noticeable only in some areas.
3	At average level approximately 50 % of events, practice universally established, but not in the majority of areas.
4	To a large extent, approximately 75 % of events, practice is universally used, with minor exceptions.
5	Top level, nearly 100 % of events, practice is implemented and developed in the entire organization.

Based on collected data, rates of the degree of achieving excellence in the individual framework of criteria were drawn up. On the significance level of $\alpha < 0.01$ it is possible to assume that all indicators are correlated between themselves on the level of above 0.6. The strongest correlations (0.923) were observed between process approach (cr_4) and system approach to management (cr_5).

Table 2 presents Spearman correlations between all indicators meeting described criteria set out by 8 principles of the quality management and the subjective evaluation of examined economic performance of the organizations. All correlations are statistically significant on the level of $\alpha < 0.05$. Strongest correlations were observed in case of involvement of people.

Table 2: Spearman correlations between the level of meeting the criteria of 8 principles of QM and subjective assessment of economic performance as given by enterprises

	Cr_1	Cr_2	Cr_3	Cr_4	Cr_5	Cr_6	Cr_7	Cr_8	How do you grade your organization's economic performance?
Cr_1	1	.694**	.597**	.647**	.658**	.623**	.631**	.672**	.347**
Cr_2	.694**	1	.754**	.673**	.673**	.681**	.600**	.664**	.385**
Cr_3	.597**	.754**	1	.725**	.675**	.728**	.564**	.662**	.450**
Cr_4	.647**	.673**	.725**	1	.923**	.756**	.512**	.679**	.224*
Cr_5	.658**	.673**	.675**	.923**	1	.759**	.522**	.660**	.204*
Cr_6	.623**	.681**	.728**	.756**	.759**	1	.634**	.672**	.321**
Cr_7	.631**	.600**	.564**	.512**	.522**	.634**	1	.717**	.327**
Cr_8	.672**	.664**	.662**	.679**	.660**	.672**	.717**	1	.337**
How do you grade your organization's economic performance?	.347**	.385**	.450**	.224*	.204*	.321**	.327**	.337**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.01 level (2-tailed).

In assessing the degree customer focus respondents answered the following questions:

- Q.1. What is the degree of identification of segments of external customers?
- Q.2. What is the degree of ranking segments of customers in terms of the level of generated profits?
- Q.3. What is the degree of comprehension of customer needs and expectations?
- Q.4. What is the time needed to deal with customer complaints. Is it appropriate?
- Q.5. What degree of involvement in collection and assessing customer satisfaction data?
- Q.6. What is the degree of excellence of meeting requirements of external customers?
- Q.7. To what degree does organisation monitor actions of competitors?
- Q.8. To what degree is the supply chain stable, thus allowing keeping satisfied customers?

Table 3 contains chosen results on customer focus. At 97 % the highest result was recorded in case of prompt dealing with customer complaints (median and dominant 5). Dealing with customer complaints promptly in 100 % cases were reported by 60 % of examined organizations. Most poorly assessed was the degree of segmentation of customers into groups of profits generators. It was reported in 44 % of examined enterprises, graded 3 or less.

Table 3: Chosen statistical data for customer focus criterion

		Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Q. 6	Q. 7	Q. 8
N	Important	100	97	100	100	100	100	97	97
	No data	0	3	0	0	0	0	3	3
Mean		3.93	3.49	4.08	4.48	3.78	4.17	3.56	3.99
Median		4.00	4.00	4.00	5.00	4.00	4.00	4.00	4.00
Dominant		4	4	4	5	4	4	4	4

In frames of the assessment of the degree of the frequency of the decision making a posteriori respondents answered following questions:

- Q.1. To what degree is information accessible in the process of the decision making?
- Q.2. To what degree is data and accessible and information credible and accurate?
- Q.3. To what degree organization tools enable fast and effective performance of crucial analyses (e.g. of financial reviews, forecasts of the demand, analyses of processes, and the like)?
- Q.4. To what degree crucial decisions are based on individual experience and intuition of the decision-maker?
- Q.5. To what degree does the organization manage data and information about its customers (has an enabling system, archiving and information retrieval about actions and their results in the past)?
- Q.6. To what degree does the organization manage data and information about its products (has an enabling system, archiving and information retrieval about actions and their results in the past)?

Table 4: Chosen results for factual approach to decision-making criterion

		Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Q. 6
N	Important	100	100	100	97	100	100
	No data	0	0	0	3	0	0
Mean		3,93	3.89	4.13	3.90	3.75	3.82
Median		4,00	4.00	4.00	4.00	4.00	4.00
Dominant		4	4	4	4	4	4

Table 4 presents chosen statistics for factual approach to decision making. At 97 % the highest result was recorded in case of accessibility, credibility and accuracy of data and information and the degree the organization manages data information on their products with median 4. 33 % of examined organizations replied ranked the criterion with 5. Remaining components describing this criterion were on the same or statistically similar level.

5. CONCLUSIONS

Intensified competition for customers requires winning customer loyalty and trust which takes a long time to build. As P. Drucker put it: to be or not to be for enterprise is whether the customer is in focus or not. In conditions of knowledge economy knowledge and information determines competitive advantage, where knowledge on consumer and their requirements and needs is key. The satisfied and loyal customers constitute the considerable value for the company. The value of information generated by computer systems depends on human interpretation. Knowledge, by contrast, resides in a social inter - subjective context and the human capacity for action based on that information (Damaskopoulos, 2005, p. 189).

Findings conducted in 2011 by researchers of Quality and Knowledge Management Department in MCSU in Lublin indicate that from 8 principles of the quality management expressed in ISO 10014 the most correlated with the subjective evaluation of examined economic performance of the organizations is with involvement of people. It means that people are the most valuable asset in the organization. Knowledge and information are worth as much as the action taken because of them. Any knowledge and information management systems in organization should help in the process of customer needs identification and thus to help making better decisions by committed employees.

REFERENCE LIST

1. Conner, K., & Prahalad, K. (1996). A resource-based theory of the firm: Knowledge versus opportunism. *Organization Science*, 7.
2. Dahlgaard, J. J., Kristensen, K., & Kanji, G. K. (2000). *Fundamentals of Total Quality Management*, PWN, Warsaw, Poland.
3. Damaskopoulos, P. (2005). Toward a Network Topology of Enterprise Transformation and Innovation. In W. H. Dutton et al. (Eds.), *Transforming Enterprise: The Economic and Social Implications of Information Technology*. MIT Press.
4. Haffer, R. (2000). Consumer satisfaction and its measurement, In S. Sudoł, J. Szymczak & M. Haffer (Eds.), *Testing of the products in marketing*, PWE, Warsaw, Poland.

5. ISO 10014:2006 *Quality management — Guidelines for realizing financial and economic benefits*.
6. ISO 9001:2008 *Quality management systems –Requirements*.
7. ISO 9004:2009 *Management to achieve lasting success of the organization - the quality management approach*.
8. Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities and the replication of technology. *Organization Science*, 3.
9. Ksiewicz, S., Rogowski, W., & Kicińska, M. (2006). *Intellectual capital*. Oficyna Ekonomiczna, Krakow, Poland.
10. Nonaka, I., & Takeuchi, H. (2010). *Knowledge-creating company*. Poltext, Warszawa.
11. Skrzypek, E. (2010). A customer of a new era in the market. In E. Skrzypek (Ed.), *Customer as a determinant of organizational success*, Proceedings of the conference, Lublin, Poland, 6–7.
12. Urbaniak, M. (2010). *Directions of improving quality management systems*. Uniwersytet Łódzki, Lodz, Poland.