

## Knowledge Management And Intellectual Capital Management Coupled To Quality Management System Lead To Business Success

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**Abstract:** From the vantage point of contemporary management paradigm shift and new knowledge-based economy, we underscore the importance of relations and support of quality management system – QMS (according to ISO 9001 standard) for management of knowledge and intellectual capital. QMS implementation, documenting, application, maintenance and continuous improvement, as a catalyst of effective organization management, provides a foundation for effective knowledge management and intellectual capital enlargement, via knowledge, skills, management systems, procedures, information and product flow, culture, innovation, relations with customers and other stakeholders. Simultaneous implementation and dynamic interaction of these advanced management concepts intended to attain competitive advantage can result in synergic effects and improved performance. From the perspective of knowledge, as a central unifying notion, organizational behavior based on learning influences long-term business success, process effectiveness and customer satisfaction.

**Keywords:** management, concept, knowledge, intellectual capital, quality

### 1. INTRODUCTION

As a consequence of social development dynamics, technical advances, especially information technology, increasingly intensive market development and rising customer requirements, increased pressure from competition, value-change in organisations and environment, a new paradigm of management has emerged – so-called knowledge based economy. The new paradigm points out that the only surviving enterprises will be those which continually strive toward acquisition of knowledge, learning and business improvement, characterized by flexibility in the sense of rapid accommodation to changes in the environment, from buyers and competition or from within.

Numerous enterprises still struggle to accommodate new requirements and one of important opportunities to attain business success is the implementation of new, advanced management concepts – Knowledge management (KM), intellectual capital (IC) as well as quality management system (QMS).

These concepts represent key factors in contemporary business, in searching for ways to improve, maintain and utilize proprietary nonmaterial resources, including managerial skills, employee abilities, internal know-how, innovations, etc. Fundamental characteristic of employees is the knowledge they possess, which coupled with creativity generates quality, product innovation, processes (manufacturing technologies and management) etc., resulting in improvement in intellectual value and performance.

## 2. MANAGEMENT PARADIGM BASED ON KNOWLEDGE

New paradigm assigning more importance to intellectual, not physical and financial resources in value creation, necessarily lead to changes in managers' thinking and management practice, which must be undertaken in the struggle for survival and

competitiveness.

Central to the new management paradigm is knowledge, it is of immeasurable importance and we often hear of knowledge economy and knowledge-based society. Knowledge is necessary for management and functioning of the organization, one can say knowledge is generally necessary, in the economy of a country, region and the world.

Table 1: Two management paradigms [1]

Old paradigm	New paradigm
Discipline in the organisation;	Organisation learning;
Rigid organisation;	Flexible organisation;
Low trust;	High trust;
Command and control;	Empowerment;
Hierarchy;	Markets and networks;
Strategy as a perspective plan;	Strategy as a process – building consensus and unity;
Technology lead by strategic business units;	Technology lead by key competences;
Functional structure;	Business process structure;
Knowledge used periodically, owned by minority of employees.	Knowledge is key source of competence, its creation and dissemination is stimulated within the enterprise.

Knowledge economy brings about new models, criteria and measures of business success and behavior. It requires considerable changes in business philosophy, concepts and techniques.

Employees become focal point of interest as a key resource, and the notion of "human capital" gains its full meaning in the organisation. They possess knowledge, ideas, creativity and other properties which nowadays become most important source of competence and competitive advantage.

Knowledge is in the very core of economic development, representing one of the key enterprise abilities, and also the key to organisational development. Knowledge management relates to the processes and practices by which the organisations create value based on knowledge.

## 3. MANAGEMENT MODELS IN ATTAINING COMPETITIVE ADVANTAGE

### 3.1 Knowledge management

Knowledge, i.e. KM is increasingly assumed to be the area critical to attain business competitive advantage, a matter becoming visible in the actions of entrepreneurs, managers, business associations where knowledge gains the status of basic resource of contemporary information economy.

Knowledge is a multifaceted phenomenon variously defined in literature, seen as: unbounded business and action resource with potential to improve organisational performance, object that can be memorised and manipulated, process of

simultaneous gaining of knowledge and action, state of mind of the fact of knowing – understanding gained through experience of learning, etc. [2]. KM implies the development, transfer and application of knowledge within the organisation so as to attain and maintain competitive advantage [3]. KM follows the classical management system in setting goals, implementation and control, which makes it compatible to varying management approaches.

Key KM activities are: knowledge goals definition, knowledge identification (analysis and description of knowledge in company environment), knowledge acquisition (from customer, supplier, competitor and partner relations), knowledge development (directed toward creation of new skills and products, better ideas and improved processes), knowledge distribution (exchange and dissemination of knowledge from an individual to a group or the organisation), knowledge utilisation (productive use for the benefit of the organisation), knowledge retention (selection, storage and updating of information, documents and experience) and measurement and assessment of knowledge [4].

Knowledge goals determine KM direction and which skills are to be developed and at which levels. Normative (institutional) knowledge goals are aimed at creation of company culture nurturing the awareness of knowledge, in which individual skills are disseminated and developed. This creates an environment for effective knowledge management. Strategic knowledge goals define key knowledge of the organisation and determine the skills the organisation will require in the future in detail. Operative knowledge goals relate to the implementation of KM, turning the normative and strategic goals into competitive goals.

### **3.2 Intellectual capital management**

In the “new economy” era, intellectual resources of the organisation are considered vary important for improvement of business performance and value for the owner. IC has a longreaching importance for the enterprise. Future performance of the enterprise, less than its present performance, will depend on its invisible property.

IC is not easily defined due to its

multidimensionality: it is “knowledge that exists within the enterprise and can be used to create competitive advantage” or “a set of everything the employees know and can sharpen organisation competitiveness” [5].

It has been demonstrated that IC resides in abilities and talents of managers and employees customer loyalty, brand value, management systems and techniques, collective knowledge imprinted in organisational culture.

This includes creativity, inventiveness and intuition of managers and employees, as well as electronic networks for high-speed information transfer so that enterprise can react to market demands before the competitor, as well as cooperative learning with customers that fosters relations and loyalty.

IC of the enterprise consists of human and structural capital. Human capital is so-called “thinking” capital and education of employees enlarges its value. Structural capital consists of the results of employees’ intellectual activity, information and data-bases. It also consists of relations to external stakeholders, organisational and developmental component. It can not renew itself, but requires active participation of employees, their knowledge and skills. [6]

At its core, IC represents the ability of the enterprise to utilise its resources so as to create satisfactory value for the enterprise and its interested parties, in present and especially in the future. For possible results to become reality, it is necessary to undertake continual activities through effective IC management (ICM), as well as on the maintenance and renewal of human resources on which the results depend.

ICM has a goal to renew and maximise the value of enterprise intellectual value, on which future performance and future efficiency improvements depend. ICM is focused primarily on strategic aspects (and less on tactical aspects) of management of this specific property. In this manner, employees themselves become aware of their role in the chain of value creation. It helps in inducing their loyalty to the enterprise and motivates them for better collaboration in teams where they work, learn and share knowledge, thereby increasing enterprise value. ICM facilitates discovery of hidden or unused knowledge within the enterprise.

Key activities necessary for effective IC relate to improving employee competence and their dedication to work, i.e. to their appreciation of the enterprise business [7]. Some of important activities stand out: 1. ways to improve employee competence – training and skills development for existing employee structure, and 2. activities aimed at improving employee dedication – reducing work requirements (priority definition, focus on most important activities, reengineering), improving employee capacity to satisfy the requirements (work completion follow-up, teamwork, communication, work culture, care for the people) etc.

ICM becomes the hallmark of contemporary management model, closely related to KM, knowledge being the common characteristic. ICM and KM are two distinct processes with certain similarities and differences, that can be treated integrally.

### **3.3 Quality management system**

Enterprise management through quality is a business philosophy aimed at attaining improved business performance, a management concept formalized as QMS in ISO 9000 international standard series.

QMS is defined as „management system (for setting and attaining policy and goals) which leads and manages the organisation from the quality point of view“ [8]. It is based on quality management principles: customer focus, leadership, employee participation, process and system approach to management, continual improvement, factual approach to decision making and mutually beneficial supplier relationships. Process approach is oriented toward results and added value creation for the customer and other interested parties (employees, suppliers, owners, society). Successful application of this approach requires „plan-do-check-act“ methodology.

ISO 9001 standard represents the specification of requirements for the QMS, aiming at:

1. demonstrating the ability of an organisation to continually supply the product conforming to the requirements of the customer, as well as to the stipulations of the law, and

2. attaining customer satisfaction by establishing efficient QMS with implemented mechanisms for elimination of nonconformance and for continual improvement.

QMS establishes quality policy and goals, management responsibility, documentation, process evaluation and continual improvement in product realization. It contains systemis requirements based on many years of experience in global business system building.

An organisation which adopts the approach to development, application, maintenance and improvement of QMS creates trust in the ability of its processes and quality of its products and creates a foundation for continual improvement. This may lead to increased customer and other interested parties' satisfaction and thereby to organisation's success [8].

## **4. RELATION BETWEEN KM AND QMS**

Due to the fact that we live in a knowledge-based economy, KM is key to business success. Management assignment of paramount importance is improvement of planing, directing, coordination and control of knowledge, which if carried out well can bring about superior performance. This points out the importance of QMS support of KM and ICM application and interconnections.

Numerous aspects of QMS concept – competency, education and training, communication, leadership, business processes, improvement (inovation) and relations with external interested parties (customer, supplier, partner) are closely connected to KM and influence IC elements.

QMS requires that employees have to be competent: educated, trained, knowledgeable and experienced. In other words, the organisation has to: define the required level of competence for employees discharging duties that affect product quality, furnish training, ensure employee awareness of their actions' relevance and importance, etc. [9]

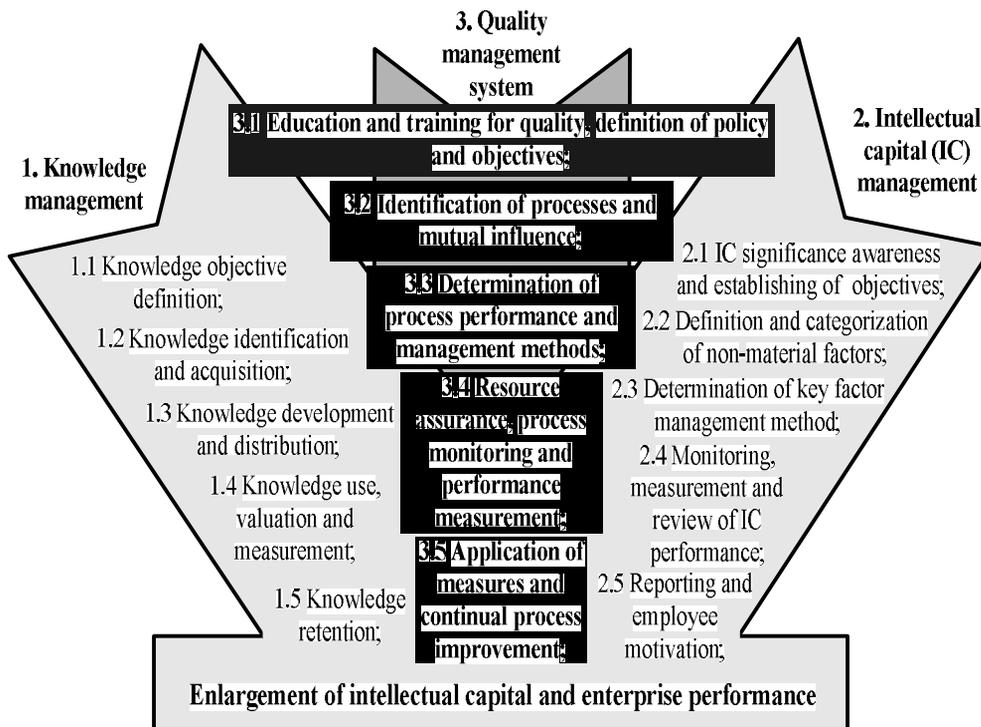


Figure 1. Relations and complementary activities of KM, ICM and QMS in attaining success

Building employee competence requires investing in enlarging the potential of existing employee structure via improving their knowledge and skills. Investing in employees will be justified only if improvements in competence relate to improved business results. Simply building and improving employee competence will not suffice, true dedication and interest in enterprise objectives is necessary.

Employees whose emotional, intellectual and physical energy are directed toward enterprise success are devoted to the enterprise. This is not easy to achieve, as numerous difficult tasks and goals are handed to the employees. Maintaining the balance of requirements (flexibility, productivity, customer responsibility, team work and learning, etc.) and employee abilities necessitates reduction of requirements:

- prioritizing activities, whereby most important activities are designated and given full attention,
- focus of attention is kept on the most important activities that make

competitive advantage (quality, product price, etc.) and

- reengineering, whereby activities are simplified, automated and made easier. [7]

Top management, as required by QMS, has to ensure appropriate communication processes within the organisation [9]. Communication and information become additional employee energy source when employees are informed of all changes and all facts relevant to conducting business (strategy modification and the like), and if such information is exchanged, they will have no difficulty understanding what is going on. This will result in heightened interest and work performance. Likewise, developing a culture conducive to creativity and in which success is celebrated boosts employee motivation to meet the plethora of requests they receive.

According to QMS, the organisation has to plan and develop processes required for product realization: establishes requirements and customer communications, evaluates and

selects suppliers, plans and performs manufacturing and servicing, monitors and measures (user satisfaction, process performance and product conformance), analyses, takes action and improves, etc. [9] All these activities affect the components of IC (human and structural) by enlarging their value.

Related to competency, as a component of human capital comprising knowledge, skills, management and employee talent, is the important role of explicit knowledge in the form of databases helping managers in implementing the chosen strategy under heavy competition. This is represented by the contents of documented QMS, in procedures and operating instructions, whose activities are reviewed and innovated. Dispositions related to the value generated through employee behavior are developed via building culture of quality, application and improvement of QMS. Leadership role and employee motivation to attain objectives is also prominent.

In structural capital, the value of relationships to external stakeholders is in relations the enterprise nurtures with interested parties. This pertains to „the capital in developed and nurtured relations“ to customers, suppliers, other business partners, investors (owners) and the community. Organisation value sources are related to internal structure or everyday business operations in product manufacture and service rendering. It consists of the value of created processes, such as organisation diagram, management practice, technical manuals, planning and control systems, databases, information, product and service flow, etc. which are materialized in QMS procedures. Developmental component relates to non-material side of anything that can generate value in the future, via performance improvement. In that sense, developmental capital, from QMS standpoint, comprises anything that will influence future value: reengineering and restructuring effort, new training program development, R&D activities, as well as documented knowledge related to innovation in product and process, operating practice, databases, product and service design specifications.

When correlating elements of advanced management concepts – KM and IC with QMS, various dimensions and aspects of knowledge based business success can be

pointed out:

- *Innovation and development* imply the influence of innovation to the market and the way it leads to new products and services, growing results of research and development, new business opportunities, new markets and innovative abilities;
- *Organisation's responsiveness* includes achievement of enterprise integration and flexibility, exchange of ideas and organizational learning and accelerated decision making;
- *Customer focus* implies customer retention, good service, satisfaction of customer needs and high quality products and services.
- *Purchasing network* focuses on improved efficiency of purchasing chain, logistics connections, strong relations with suppliers, market share maintenance and time-to-market reduction.
- *Quality of business* is oriented toward innovative processes, ability to accommodate change, operation efficiency, effective manufacturing management, improved project management and decision making, improved employee relations. [10]

Similarities between QMS and KM are as follows: both support organisation's mission, long-term strategy and objectives, both have (internal and external) customer focus, both encompass culture change and possibly organisation change, both require substantial training programs (especially if the goal is learning organisation), top management support is crucial for both and development, implementation and maintenance of either requires support from leadership, processes, culture, information technology and measurement systems.

As an integrating concept, KM points out the new type of organisation and becomes part of contemporary model of a learning, innovative organisation based on QMS, which continually reviews all business processes with the aim of improving competitiveness. Knowledge-based QMS will inform, lead and facilitate continual improvement and learning, thereby helping the organisation to in the best possible way satisfy ever-changing needs and

expectations of customers and all interested parties.

### 5. LEARNING - BASED ORGANISATIONAL BEHAVIOR

The concept of organisational learning, i.e the model of organisation that learns or learning organisation is becoming more prominent nowadays and it relates learning and organisation (enterprise) performance. This novel management concept, which supplies knowledge to everyone along the value-chain – employees, customers and suppliers, is closely related to KM and ICM, and indirectly also to QMS.

All organisation's processes are considered learning systems and organisational learning can be defined as a continuous process of creation and improvement of organisation's ability to change [11]. It is an organisation where everyone is problem identification and solving, enabling continual improvement and performance enhancement.

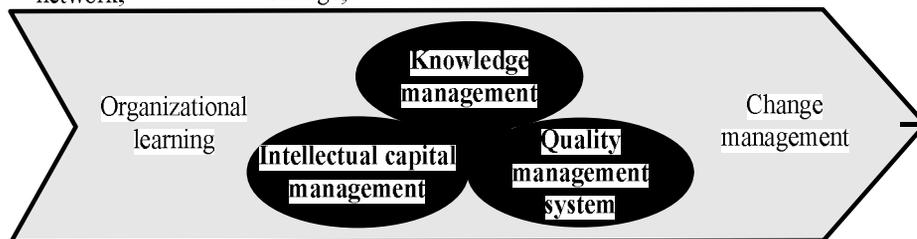
Organisational learning process model is practically identical to KM activities. Knowledge source can be internal or external, learning focus can be the product or the process, the way organisation learns can be

accomodation or innovation. The storage of knowledge should facilitate inclusion of knowledge into collective memory, knowledge dissemination can be formal (written procedures) or informal (dialog within groups and teams), while knowledge utilization can be based on fundamental competencies (design and manufacturing) or marketing, efficient production, providing help to other organisations and the like.

Organisation that learns, as a system where a continuous learning process takes place and influences improvement in competitiveness, modifies its behavior so that it reflects new insights. It never ceases to explore, collect information, create, memorize and utilize knowledge interacting with employees, customers, suppliers and even competition. Its objective is to be an organisation which functions harmoniously and achieves high performance, and which always compares itself to equal and better organisations (benchmarking).

Employees in a learning organisation are characterised by innovativeness, creativity, considerable freedom of action, ability to make independent decisions, they feel as a part of a team, conscious of shared responsibility for organisation's success, constantly strive toward personal improvement, draw useful conclusions from past experience, etc.

- Individual, teams, organization and network;
- Knowledge acquisition, development, distribution, use and storage;
- Competency, dedication, communication, culture;



- Human, organizational and relational capital;
- Mission, objectives, leadership and process management and continual improvement;
- Satisfaction of customer and other interested parties, effectiveness and efficiency;

Figure 2: Most important factors of KM and ICM related to QMS

Learning organisation continually furnishes information and other resources needed by employees for improvement in knowledge and ability, every successful

initiative is rewarded, a powerful conviction that people are the most valuable resource is nurtured. Special importance is put on information, which are gathered and selected

wherever they happen to be available, modern communication system and specific information flow and use is developed, all employees have free access to information, learning and knowledge of others.

Advantages provided by the concept of organisational learning can be briefly summarized: long-term success of the organisation is assured, continual improvement becomes reality, success and best practice are disseminated and copied, creativity, innovation and adaptability, attraction and retention of people willing to learn and succeed, assurance that people are ready to satisfy present and future needs of the organization [12].

Learning is a continuous process and a prerequisite to attainment of quality and implementation of effective QMS in an enterprise. World-famous quality guru E. Deming, in his program, underscored the importance of education, training and self-improvement, as a necessary instrument for continual improvement through constant strengthening of abilities of all employees.

## 6. CONCLUSION

KM and ICM concepts can be unified with QMS into a unified management system, through strong culture focused on change, which can facilitate planning of activities, resource allocation, setting complementary objectives and assessing total effectiveness of an enterprise.

In a summary of relations among KM, ICM and QMS, the following can be said:

- KM is focussed on management of activities related to creation, adoption, transformation and utilization of knowledge in an organisation;
- ICM objective is renewal and maximisation of IC value of the enterprise;
- QMS is focussed on the customer, satisfaction of his needs, business processes and their improvement;
- QMS supports effective development of KM and ICM, knowledge

generation, learning process and knowledge dissemination throughout the organisation;

- QMS facilitates roadmapping for enlarging the value of intellectual capital;
- KM, ICM and QMS are coherent with organisational learning concept.

Numerous advantages can be realized through coupled KM, ICM and QMS:

- assurance of product quality which continually satisfy the customer,
- focussing the employees on fulfilling customer requirements and requirements of other interested parties,
- improvement of present processes and the entire enterprise, as well as strengthening the present practice,
- assurance of acquisition and storing, as well as generation of new knowledge in the enterprise,
- renewal and enlargement of human potential, information and organisation capital,
- encouragement of communication in the enterprise and creation of holistic focus,
- development of employee competencies and awareness through training and learning,
- inclusion of all employees, which encourages identification with the objectives and
- creation of foundation for future improvements applying the concept of learning organisation.

In the end, we conclude that all three processes represent integral parts of modern management concept, parts which can not be viewed separately. They can only be viewed integrally, in a constant dynamic interaction, since this is the only way to realize synergy, resulting in competitive advantage and improved enterprise performance.

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