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## **“Integrated Quality Management“ As a Subject in Higher Education Curriculum**

**Abstract:** *The importance of introduction of “Integrated quality management” into higher education curricula arises from the need for students to grasp synergetic application of new and advanced approaches to theoretical and practical management, quality and process based management in particular, as well as understanding a unified concept which improves conformity and linking of all levels in management hierarchy (normative, strategic and operational) toward accomplishment of successful business performance. A curriculum is proposed (as a contribution to a map of necessary knowledge to be expected from prospective quality personnel) with appropriate topics in accordance with studies objective and chosen up-to-date options of management concepts and methods.*

**Keywords:** *quality, management, integration, education, concepts, methods, business success*

### **1. INTRODUCTION**

*Education in the field of quality is a key link in the chain of creation of new knowledge necessary for successful development and implementation of philosophy of quality in organisations and in society. There is a growing need for education, in particular related to process based quality management, which would result in competency for understanding issues and relations in the processes of value creation so that processes can be controlled effectively and efficiently through description, explanation, forecasting and application.*

*Acceleration of changes due to technological, economic and social progress resulted in key importance of competency (knowledge application, proficiency and work ethic) for competitiveness of modern organizations. Importance of competency brings knowledge acquisition through*

*education into the focus, particularly in university setting. Emphasis is on improving effectiveness of that process - purposeful education which is fundamentally effective with regard to organizational objectives.*

*In a situation where knowledge of management and quality is inadequate, education curricula need constant innovation and improvement. Surveying the curricula of management schools in the region, it has been found that many fall short of sufficient emphasis of advanced management concepts utilized in developed world and in particular their synergetic integration. For quite some time, among experts and scientists, and also at some prestigious European universities (St. Gallen – Switzerland), sights have been redirected from quality management towards integrated quality management - IQM.*

## 2. INTEGRATED QUALITY

### MANAGEMENT CONCEPT

Change management becomes central problem at the dawn of the third millenium, in an environment ever more turbulent and economy ever more complicated. Which management philosophies, strategies, approaches, concepts, programs and methods to use – becomes the key question for enterprise survival and growth. New operational and transformational strategies are formulated and steadily improved, through programs and methodologies, to satisfy the needs of enterprise for sustainability and success.

The recurring theme of so-called quality revolution refers to regarding quality not as a pure formality but indeed the central notion of managing. Quality Management (QM) is a business philosophy aiming at attaining improved business performance. QM application assures product quality consistent with user requirements, high efficiency in business process management, higher conformance of strategic and operative management as well as suitable framework for application of other advanced concepts in attaining business objectives.

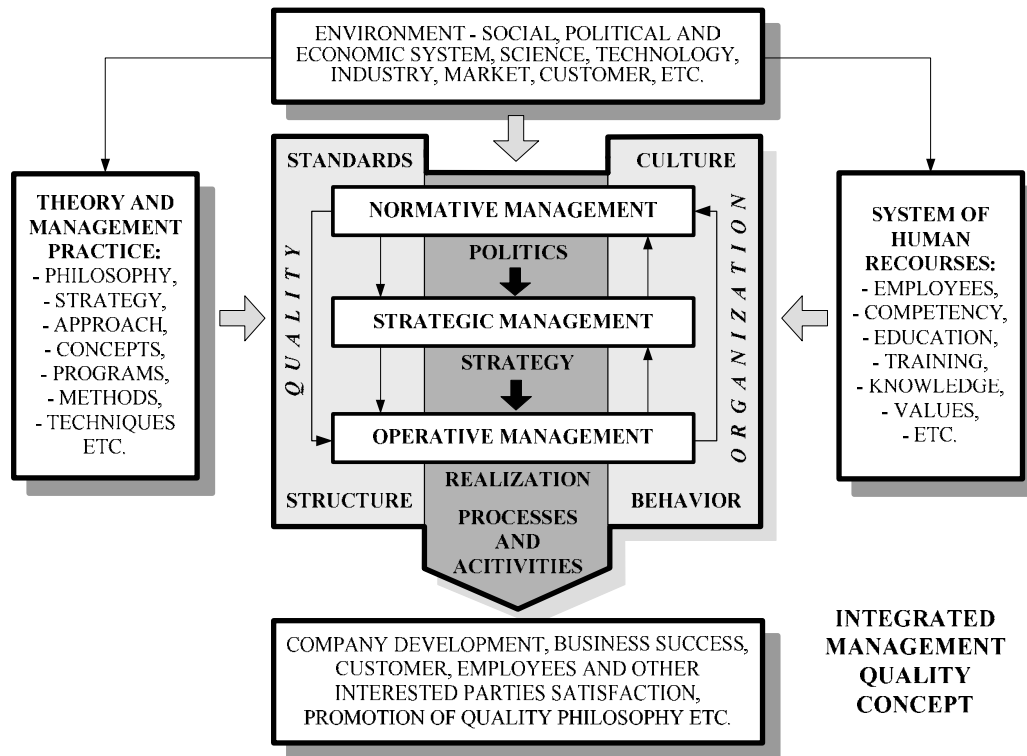
Survival and growth can be attained by businesses which readily adapt to the requirements of the demand, offer appropriate quality with justifiable price, and deliver to the customer just in time or faster than others. Strategic steering and holistic approach to success factors – quality, cost, time and flexibility – have the ability to improve competitiveness and business performance.

Numerous approaches to management aimed at attaining the basic business objective of the organization – better business performance – being not contradictory but complementary, their integration first resulted in integrated management concept [1] (as

focused management or business performance management [9]) and later integrated quality management concept [11]. IQM is focused on the importance of attaining business results through synergetic integration of advanced approaches and good practise, under “conceptual umbrella” of quality management.

Within itself, it comprises all accumulated experience of management development, as the practise teaches us that utilising several managerial approaches results in a more complete business success, such as [2-8, 10, 12-15]:

- Marketing strategy requires and emphasizes orientation to market and consumers;
- Just-In-Time (JIT) concept underlines the importance of process management and quality through information integration, production segmentation and synchronization of purchasing;
- Quality Management Systems (QMS), based on international standard series ISO 9000, provides a baseline for future improvements;
- Total Quality Management (TQM) is oriented to customers, processes and people, requiring employees to be competent and to also be suppliers and customers simultaneously;
- Lean management is oriented to no-value activities, forming enterprise networks, constant quality improvement and cost reduction;
- Business Process Reengineering (BPR) includes fundamental improvement of entire business using information technologies;
- Six Sigma concept is continuous improvement by defect elimination;
- Balanced Scorecard (BSC) concept is aimed at holistic view of business performance geared toward vision and strategy and



- Knowledge Management and Intellectual Capital Management is focused on creation, acquisition, transfer and use of knowledge as well as intellectual property value.

IQM concept is based on dynamic management principles, which entail constant business improvement on the one hand and consideration for management hierarchy on the other, making the organization responsive to unexpected demands from customers and business environment.

Application of IQM concept results in connecting and alignment of all organizational management levels, regardless of differing planning horizons, complexity and competency, to fundamental orientation and business objectives. Management hierarchy refers to:

- normative management – philosophy, dynamics, organizational structure and culture (survival and growth abilities),
- strategic management – customer

demands, market standing and key success factors (new and existing potentials) and

- operative management – product realisation, profit, cost and investment (solvency and business success).

Each of the three management levels contributes to harmonization of quality factors, price, time and flexibility (product diversity, scale variations and time to delivery, etc.) and simultaneously correlates with the environment, business strategy, organizational structure, management systems, human factors and business performance.

Complexity and multidimensionality of process oriented IQM is reflected in striving for achievement multifaceted goals by multidisciplinary effort in empowering the organization to respond and even originate changes toward effective and efficient alignment to market conditions, customer requirements and other interested parties.

### 3. FUNDAMENTAL OBJECTIVES OF STUDYING IQM SUBJECT

Every educational curriculum starts from study objectives to be achieved during the learning process. Students of “Integrated quality management” should:

- get acquainted with the fundamentals of up-to-date approaches and recent tendencies in management theory and practise, and thereby gain a perspective on the importance of integrated quality management for attaining the fundamental goal of the enterprise – business success,
- understand the role of modern manager, i.e. to manage ever more complex and dynamic business environment, and which management concepts (programs, methods, etc.) to synergetically use, to enable the organization to survive and grow,
- acquire integrated knowledge of advanced management concepts, as a synthesis of good practise within quality framework, which are indispensable in problem solving and successful leadership of the organization through alignment and connecting normative, strategic and operative management, and
- grasp the aspects of process oriented integrated quality management, to encourage and develop a basis for effective application in building internal capability of the enterprise to efficiently adapt to environment and customer requirements.

### 4. IQM SUBJECT CONTENT

Literature in subject area covers more or less similar content related to QMS (ISO 9001:2000 standard implementation) or process approach.

IQM subject content presented in this paper is similarly formulated and adapted to meet expectations and stated studying goals, with more emphasis on various advanced

management concepts and methods. Within basic divisions, detailed content of topics is provided as a contribution to the map of necessary knowledge expected from quality personnel – managers and experts.

Literature list provided at the end can serve as a starting point in surveying the subject of IQM.

#### 4.1 *Integrated quality management and business success*

##### • **Definition of concepts and theoretical directions in management**

- Management as a phenomenon, management systems and quality, hierarchical levels of management, basic management functions in general, fundamental role of the manager;
- Classical, neoclassical and modern theories of organization and management,
- Current options of management in improving competitiveness and efficiency, concept of agility (Agile Enterprise and Agile Production);
- Business system, its environment and technology
  - System and contingent approach, organizational adaptation and contingent factors;
  - Environment and technology, trends, general and specific environment,

#### 4.2 *Development of advanced management concepts and methods*

- manufacturing and information technology, social responsibility of management;
- Environment and technology influence on strategy, organizational structure, management systems and performance, management reaction;
- **Organizational model and integrated quality management concept**
  - Model of relations between

- organizational variables (situational, strategic, structural, process and behavioral) and business performance;
- Change management paradigm and exposure to „time scissors“ effect, operative programs and transformational methodologies for sustainable and successful business;
  - St. Gallen concept – integrated management and process oriented integrated quality management;
  - Practical guidelines for management concept and method application through basic quality management principles for attaining financial and economic effects;
- Marketing strategy
    - Marketing concept, strategic and marketing management, market and customer orientation, total quality in marketing, marketing information management;
    - Market opportunity identification (SWOT analysis), market analysis, customer behavior and loyalty, demand forecast, added value, product quality;
  - JIT concept
    - Logistic systems and management (purchasing, manufacturing and distribution);
    - JIT concept of timely manufacturing and logistics as a program of improvement in productivity and competitiveness (basic principles, goals, modules and elements);
  - **Lean management**
    - Fordism (traditional manufacturing) and postfordism (Toyota manufacturing system);
    - Japanese manufacturing philosophy principles (no-cost, elimination of loss and dispersion in all parts of the process, zero quality control, rationalisation system, etc.);
  - Lean management (criteria, network enterprise creation, constant quality improvement and cost cutting, “20 keys” for successful enterprise creation);
  - Specific management systems – for quality (QMS) and other management systems
    - QMS (in accordance to international standard ISO 9001) – principles, terms, process model, general requirements, top management responsibility, resource management, product realization, measurement, analysis, improvement, etc.;
    - Environmental management (ISO 14001), Health and safety management (OHSAS 18001) and other management systems, standardized or non-standardized (social responsibility, risk, financial, etc.);
  - Total quality management (TQM)
    - TQM (importance, goals and principles, customer satisfaction, customer, process and people orientation, quality costs, internal and external customers, etc.); Total Quality Leadership (TQL) methodology;
    - National models of business excellence (European – EFQM, USA – Malcolm Baldrige National Quality Award, Japanese – Deming Prize);
    - Quality methods (tools) and techniques: Ishikawa diagram (cause – effect), SPC (Statistical Process Control), FMA (Failure Mode Analysis) – potential design error detection, QFD – customer perspective on quality planning, Pareto chart etc.;
  - **Business Process Reengineering (BPR)**
    - BPR (importance, phases, characteristics and principles, application of BPR in TQM), integration of existing



concepts: RE-TQM (BPR-based TQM re-engineering), ITQM (integrated TQM);

- Management tools for improving business efficiency (processes and activities): Benchmarking – comparison with best-in-class (concept, BPR and TQM application approach, etc.), Activity Based Costing (ABM) – cost disposition to activities and resources, etc.;
- **Six Sigma concept**
  - Six Sigma business concept (goal, essentials, phases, practice, advantages to other concepts, benefits, project implementation and maintenance of Six Sigma quality);
  - DMAIC (Define, Measure, Analyze, Improve, Control) model in Six Sigma concept and process approach implementation, SIPOC (Suppliers, Inputs, Process, Outputs, Customers) diagram, statistical instruments in measurement and analysis;
- **Balanced Scorecard concept (BSC)**
  - Performance management, business success measurement and control models: PP – performance prism, APL (Action Profit Linkage) for profitability, HOB (Heart of Business Model) – for process competence, i.e. value-adding activities, etc.;
  - BSC (four perspectives, BSC on enterprise levels, information technology in BSC application, aligning BSC to strategic management and award system), BSC strategic map concept;
- **Knowledge Management (KM) and Intellectual Capital Management (ICM)**
  - KM and ICM (importance, models, contents, advantages, key factors, knowledge and intellectual performance measurement,

knowledge as organizing principle and application to various levels, activities geared to improving competency and dedication, correlation);

- Learning organization and intelligent organization concept (characteristics, knowledge base, relations to other concepts, digital interconnecting);

#### 4.3 Normative and strategic management

- **Vision, mission and strategy**
  - Quality and competitive advantage, quality in strategic management model;
  - Focusing on success factors – quality, cost, time and flexibility;
  - Policies, strategies, programs and quality plans;
- **Organizational structure**
  - Organization design, models and parameters of organizational structure (work specialisation, unit grouping – departmentalization, authority distribution and coordination);
  - Standardization of business elements and behavior formalisation;
  - Flexible organizational structure development (matrix, innovative, team and entrepreneurial structure) and network organization (modular, virtual, boundary-less);
- **Modern manufacturing organization models**
  - Classical and flexible approach (fractal model);
  - Manufacturing segmentation (capacity separation, flow optimization and group organization), synchronization of purchasing and manufacturing, partnerships, etc.;
- **Human resources and organizational behavior**
  - Human resources in building a

- flexible enterprise;
- Involvement and growth, competency acquiring, work dedication, training and education for quality, motivation, satisfaction and compensation of employees;
- Organizational culture, organizational learning, leadership, teamwork, quality circles;

#### 4.4 Operative management

- **Process management**
  - Process approach or Process Based Management;
  - Process typology and properties, holistic business orientation, main and continuous flow, goals and principles of process management, process owners and managers;
  - Continual process improvement, process mapping, PDCA (Plan, Do, Check, Act) methodology, model of process maturity – capability (Capability Maturity Model);
  - Transformation from functional to process organization;
- **Planing and control system**
  - Multilevel approach, operative planing and control, function plans, manufacturing and distribution planing, quality control;
  - Business indicators and their classification, execution tracking, indicator comparison, corrective and preventive measures;
- **Methods and techniques of operative planing**
  - Methods and techniques for planing and control cycle support,
  - Material Requirements Planing (MRP) and Manufacturing Resource Planing (MRP II) concept – “Push” principle,

- KANBAN system – “Pull” principle.

- **Information and decision system**

- Management information system MIS (types, needs, computerisation, information-communication decision - and QMS - support system, MIS in TQM environment, etc.);
- Computer Integrated Manufacturing (CIM) concept (development, goals, structure, subsystems, advantages), MIS integration in CIM.

## 5. CONCLUSION

It is important to point out that the content of proposed IQM subject is characterised by the need for continual update and adaptation, having in mind emerging concepts in management and organizational science, and also constant improvement aiming at integration and harmonization of all fundamental notions, principles and methods pertaining to various managerial approaches into a unified concept.

*We can conclude that the need for “Integrated quality management” subject in higher education arises for at least two reasons:*

- *acquiring a perspective at synergetic application of new and advanced approaches in management theory and practise, and in particular management based on process and quality, and*
- *understanding an integrated concept which, when applied, can improve conformity and linking of all levels in management hierarchy (normative, strategic and operative) toward achieving business success.*

*The concept of the subject is coherent with modern approach to management studies in which vertical approach dominates – with the advantage of integral studying of subject matter, as opposed to partial or horizontal approach which has dominated educational institutions in the past. Instead of being introduced to individual disciplines important for management, the student would get a wide perspective, according to the level in organization, from operational to top decision-making level.*

Introduction of new subject in curricula of undergraduate and / or graduate studies, as a contribution to improvement of business and multidisciplinary studies, would result in:

- *improvement in effective satisfaction of the needs for competent employees needed by organizations,*
- *wider promotion of quality philosophy, and in particular process based quality management, and*
- *attraction of more students to management studies in higher education.*



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