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CONCURRENT SESSIONS
KEMPINSKI HOTEL CORVINUS

Wednesday 8:30 – 12:30
Erzsébet tér 7-8, Budapest V.

REGINA BALLROOM I.

Wednesday 8:30 – 10:30

17.1. STANDARDIZATION AND THE NEW ISO 9004

Session Chair: *Kari Jussila, BIT Research Center, Aalto University of Science, Finland*

8.30 Standardization and Integrated Management Systems - Business-Practitioners' Viewpoints

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Mr. Jussila is a part-time worker as Senior Researcher at the Aalto University's BIT Research Centre. He is also entrepreneur having invested in a start-up company specializing in micro- and nanotechnology and a company specialized in sustainability related business. As Management Consultant he can also provide organizations with business consultation especially in Mergers & Acquisitions, Strategic Planning and Finance.

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Standardization and integrated management systems Business-practitioners' viewpoints

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Abstract

Practical business people have encountered conceptual, methodological, and practical problems in management systems standards and their applications because of the gaps between the standards and acknowledged traditions and established practices of the strategic and operational business management, and demands of today's business environments. The standards may, however, be useful and beneficial for competitiveness and sustained business success of organizations if their application is based on integration, responsiveness and innovation.

All organizations must base their business implementation and development on their business ideas and aims. They should, however, also balance their actions with statutory and regulatory frameworks and obligations, general standards, and different management practices and doctrines for their business benefits. Integration covers all aspects and subject matters of various expertise needed for managing an organization. A paradox in the application of the management systems standards (MSS) is that organizations' management systems may not be standardized.

Business leaders highly prioritize financial performance and legal aspects in their organizations business. These topics are considered in the contexts of business infrastructure, business processes and mutual partner relationships as examples in this paper.

Organizations and their business management must adapt themselves to the prevailing business realities including environments and situations. Today, business communities are facing particular challenges that relate to complex global partner networks and world trade liberalization. Networking and business ecosystems are concepts that are modern trends in all business areas.

Innovation is an important requirement when general standards are used for organizations' business benefits. Organizations must continuously strive for new organization-dedicated unique management solutions to support their business strategies for excellence, competitiveness, and sustained success.

Information and knowledge are essential ingredients in managing all organizations. The core of all management systems consists of means of acquiring data, processing, analyzing and storing data and information, and sharing, disseminating, and communicating-information and knowledge.

Introduction

Standardization as a global activity

Management systems related standardization is a part of the general international standardization. Therefore, general concepts, principles, and aims as well as pros and cons of the standardization apply to this standardization, too.

The following general definitions apply to the concepts of standardization and standard [17]:

- Standardization: *An activity giving solutions for repetitive application, to problems essentially in the spheres of science, technology and economics, aimed at the achievement of the optimum degree of order in a given context. Generally, the activity consists of the processes of formulating, issuing and implementing standards.*
- Standard: *A technical specification or other document available to the public, drawn up with the cooperation and consensus or general approval of all interests affected by it, based on the*

consolidated results of science, technology and experience, aimed at the promotion of optimum community benefits and approved by a standardization body.

Standardization includes international, regional, national, business branch and company standardization. Three standardization organizations operate for the general international standards: International Standardization Organization (ISO), International Electrotechnical Commission (IEC), and International Telecommunication Union (ITU). All these organizations have standardization also in the field of management systems. General standards are voluntary but they may become obligatory in certain contexts through reference to standards e.g. in the contracts, regulations, and legislation.

All standardization aims at bringing benefits to the organizations. Those benefits include:

- Improved performance and quality of products (goods and services)
- Decreased operational costs
- Facilitation to better communication between humans and organizations

The use of standards has been justified also by achieved monetary benefits. At a national level, these general effects have been estimated to run into even one percent of gross national product [11]. What might be the benefit out of management system standards at the national and organizational level?

Rather often people are not completely satisfied with the application and achievements in standardization. Typically this is originated from misunderstandings of the standards and their nature related to purpose, contents, language and phraseology, and validity and bindingness of the standards.

Nevertheless, there are also a lot of opportunities achievable for using the standards. In order to be able to apply the standards in the most beneficial way, we should understand the standardization process and practices. Problems related to problems in understanding and applying standards are often caused by the nature of standardization efforts and process.

The core feature in the standardization process is the consensus practice. Everyone involved in the activity has possibility to voice his or her opinion, and all opinions should also be taken into account.

International standardization has its benefits:

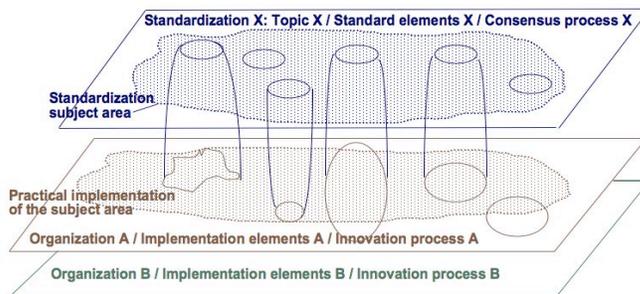
- Broad acceptance and distribution of the texts
- Extensive expertise in preparing and commenting the standards
- Global commitment and recognition
- No restrictions – at least in principle – for innovative implementation

and drawbacks:

- There are very uneven and unbalanced groups of voluntary people actively participating in the standardization work, and the management of the work is weak: “The mob has many heads but no brains.”
- Only communally interesting issues are accepted into the final standard texts.
- Only trivial means of implementing the standard clauses may be considered in the standards, or as is typical in requirement standards, there is not, and neither should be, any guidance for implementation.
- Handling of the issues in the standard texts is superficial.
- Standardization process is very slow compared with typical industrial development activities.
- Standard publications and participating in standardization – long meetings all over the world – are expensive.

The most important consensus practices in the standardization include: (a) Someone’s proposal is accepted although not necessarily understood similarly by different people; (b) A text is edited together (or by opposites) in order to get consensus; (c) “Competing” alternatives are included in the standard although they may be contradictory and therefore confusing; and (d) Disputed issues are not mentioned at all in the standard. Users of standards should be aware of these practices. Problems caused by the drawbacks in creating standards should be avoided when implementing standards creatively taking into account the real business needs (figure 1). Organizations must supplement the missing issues and rectify the inaccuracies and ambiguities.

It is hard to really understand the standards without participating in their preparation. Otto von Bismarck’s view “People who appreciate laws and sausages have never seen how they are produced” can be expanded also into the international management standards.



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Figure 1. Creating and applying general standards

Standardization for management systems

General international standardization for the management systems started in the beginning of the 1980's. The first standards were ISO 9000 standards for quality management and quality assurance. Later a lot of other standards have been created for many specialized areas of the business management, including environmental management, social responsibility management, risk management, occupational health and safety management, information systems/service management, information security management, etc. There are general standards for these areas but there are also sector-specific standards, e.g. for automobile industry, software industry, aviation industry, military applications, health care, etc.

There are many problems in applying management standards in practice in organizations. Specialized standardization is carried out by the experts of the different expertise who don't have necessarily close contacts or communication with business leaders or with each other. Those standards and also their application in organizations may become rather isolated from the business management system and from each other. However, even experts should understand and appreciate traditions and recognized practices of business management.

In order to avoid problems, ineffectiveness, and inefficiency, standards should be applied with integration, responsiveness, and innovation. That is also possibility to fulfill organizations' targets for competitiveness and sustained business success.

Organizations and their business management must adapt themselves to the prevailing business realities. The application of standards cannot be apart from the demands of organizations' particular business environments. Integration implies that professional practices are implemented seamlessly with organizations' normal managerial and operational activities, and that it covers all aspects and expertise that are needed for managing an organization.

All issues are not clearly articulated in the consensus texts of the standards. Those that are, should be understood as advisory guidelines for the organization-specific applications. The competitiveness of an organization's business call for the superior implementation ("excellency") of issues brought to light by the standard. That means innovations for implementation. In fact for organizational applications, it is useful to understand management standards as platforms for innovations ("A Trampoline Strategy" for the application of standards).

In the existing management system standards of the different topics, there are many structural and conceptual differences. That may cause difficulties when different standards are implemented simultaneously within an organization's business system. Now, however, an improvement is coming because ISO has defined a high level structure and identical text-parts and common core terms and definitions that must be used in all management system standards in the future [15, 19]. The proposed high level structure consists of key issues of the business management that is a significant issue for promoting the business-integration in applying the standards.

Challenges in management systems standards and their use

An organization as a legal entity

Financial performance and legal aspects are highly prioritized by the business leaders. Specialized management system standards are mainly originated from different professional expertise. However, the standards cannot be implemented or applied only by the experts. The top management must be committed for the effective and efficient integration of the standard-topics into the real business management and operational system (figure 2). Distinct management systems upheld by different organizational (support) functions and different specialized experts are inefficient and artificial, and will sooner or later entail negative effects to the business. Factually each organization can have only one holistic, i.e. integrated, business management system [15]. A requirement for the integration is that organizations' financial and legal foundations should be taken seriously in applying the management standards.

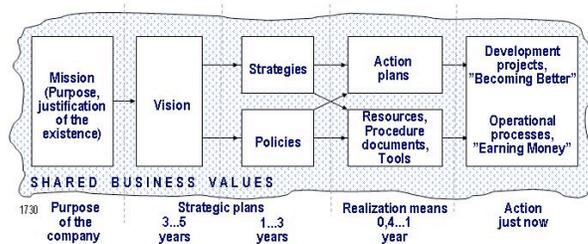


Figure 2. Typical managerial elements for running an organization

In society, a group of persons can establish an organization as a *juridical person*, which is a fundamental concept affecting how organizations interact with their business and social environment. Resembling human beings, they have legal personalities and distinct identities with the status of a person and a legal name. Organizations have their own specific rights, responsibilities and liabilities under law, depending on their juridical forms (a firm, corporation, cooperative, scientific association, governmental body, etc.). Legal personality allows organizations to be considered under law separately from their personal members, and hence may shield their members from personal liability. As juridical persons organizations are liable for their acts for the society and stakeholders [35].

A firm is represented by natural persons operating and making decisions at three organizational levels, i.e. shareholders at their General Meetings, the members of the Board of Directors, and Managing Director. Specifically, the shareholders' meeting is the highest hierarchical level in the decision-making process of a firm. In these meetings, the shareholders only represent themselves as individual persons and vote for decisions according to their interests.

The most important decision of the firm is the election of the Board of Directors to represent the interests of shareholders equally. The Board of Directors elects and nominates Managing Director for the firm. The Board Members and Managing Director represent the firm to other stakeholders and to the society, and are responsible for the strategic and operative management of the company.

By law, the Board Members and Managing Director hold an institutionalized status as juridical representatives of the firm. In these positions, they are juridical persons who are personally responsible for all decisions and acts they do or omit. Besides, the individual shareholders may not be considered personally liable for illegal decisions the shareholders' meeting may decide by voting; it is the personal responsibility of the Board Members and Managing Director not to implement any shareholders' decision, which is against the law or business idea and good business conduct of the firm.

As a juridical person, an organization cannot break law or otherwise behave badly, but the members of the organization may. They are only human beings, with virtues and vices, strengths and weaknesses, and individual motives derived from these, which direct their behavior in the organizational networks and the complex responsive processes of relating [31] of the modern society.

Structure/process polarity and dilemma

Firms and other organizations are systems, and business communities are networks of those interacting systems. It is beneficial to recognize and apply clear principles when considering organizations by the means of system approach and system management. Organizational systems consist of strategic business areas, business processes/activities, and different kinds of resources. Organizations interact with each other through relationship processes. Most management system standards emphasize the process approach.

At a given point of time an organization is a dynamic and dualistic composition of process and structure. This is analogous to well-known philosophical principles of mind and matter/body (Descartes), and emptiness and form (Buddhism). Process and structure are not separate, and considering an organization we should deal with them at the same time [22]. They cannot be replaced by each other.

Process approach [3] was used already in ancient plant and construction activities. The concept is often referred to in cases of natural development. Industrialization brought processes to an everyday issue in the so called process industry. From 1980's, process approach has been applied for describing computers' internal activities according to structured analysis and design technique (SADT), and later in connection with service oriented architectures (SOA). As early as in 1950, Deming [10] presented the whole production company as a system of processes. In a large scale, however, business process approach has been used comprehensively for the benefits of business management only for less than twenty years, and during that time a lot of practical means have been developed for that purpose. These approaches were created by learning especially from system theory and system dynamics. The process concept was introduced in the quality management standards ISO 9000 in the 1990's, and just in very recent years the methodology has been adopted from the ISO 9000 standards in the other management system standards.

In a business context, process means a continuous activity by organized resources for fulfilling organization's basic duties. A project is a singular or unique process. There are always processes in all organizations:

- Processes put into practice organization's business/action plan.
- Operational everyday work is carried out in processes.
- Processes produce outputs (results) to the stakeholders.

In general, processes adhere to all kinds of activities or operations made by human resources or automatic means. The process concept just denotes any kind of doing and getting some outcome. Basic activities that exist in all organizations, "elementary processes", typically include working for something, moving people, material or information, and interacting or communicating. When the elementary processes within an organization are linked to achieving organization's business goals, one may talk about business processes. An example may be the new product development process.

Organization's overall business performance is the result of managerial decisions both in processes and structures. Process/structure-solutions are always according to each organization's specific business needs. Naturally, the structures should support the processes. Management measures for process structures aim at increasing effectiveness and efficiency of business operations. Processes are the primary issues from the business performance's point of view, and structures should support that. However, we have recognized cases where structural aspects, e.g. organization charts and formal process diagrams, have been harmfully overly emphasized in process management. The principal importance of structures relate to the continuity or survival of the organization.

The processes are performed by the resources that consist of supply of money, materials, staff, and other assets drawn on by the organization in order to function effectively. Processes include business activities and tasks, which are either on-going or idle.

Organizational structure does not only include structural elements and constituents but their interrelations have an important role in organizations. Organizational structure, "infrastructure" as stated in some management system standards, include the fundamental facilities and systems, (e.g. buildings, workspace and associated utilities), process equipment (both hardware and software), and supporting systems (such as for transport, communication or information) that form the basis for any business operation. Structure has close relationships with assets, property owned by the organization, regarded as having value and available to meet debts, commitments, or legacies, items of ownership convertible into cash. Assets include physical, human, financial, information, and intangible assets. [6]

The structure of an organization is based on the management's decisions and often relate to agreements and other commitments the organization has made with natural or other juridical persons in order to

perform the activities required for meeting organization's strategic and operational goals. These commitments can be categorized into agreements for acquiring organization's own productive resources [36] in the form of labor and capital, and those for acquiring goods and services from outside the organization.

Prahalad and Hamel [28] introduced the concept of the core competence of the firm as a means for the firm's competitive advantage over its rivals. This led organizations to define their own core competences and streamline their structures by focusing their internal activities in these competences and the organization's core business issues. Outsourcing non-core business functions by contracting them to external providers transformed the traditional division of resources into own and rented ones.

An "outsourced process" is a process that the organization needs for its business realization and which the organization chooses to have performed by an external party [16]. An outsourced process can be performed by a supplier that is totally independent from the organization, or which is part of the same parent organization (e.g. a separate department or division that is not subject to the same management system). It may be provided within the physical premises or work environment of the organization, at an independent site, or in some other manner, like e.g. as off-shore outsourcing.

Coase [8] searched answers to fundamental questions of the firms' existence and forms: Why did firms form at all? Why were they of the size they were, and not larger or smaller? How did entrepreneur decide which functions to bring inside and which to leave to the open market? He found basic influencing factors from transaction costs, e.g. search costs, information costs, bargaining / negotiating costs, decision costs, policing costs, enforcement costs, and failure / maintaining costs.

Firm boundaries have been defined by the organizational structure of agreements and commitments between resources. However, today the boundaries are not any more clear because resources may serve also other organizations (e.g. through outsourcing), and the situation may change according to rapidly changing business needs. Networked business communities bring new challenges to the management of the business systems. This is not yet covered explicitly in the management systems standardization.

System approach in management, management of a system

System is a set of interrelated or interacting elements (processes) [26].

- A system is an entity that maintains its existence and functions as a whole through the interaction of its parts.
- A system has always an aim or purpose defined by the system's creators or owners. The system is just created to accomplish its aim.
- A system has interactions and transactions with its environment to get input from and to provide outputs for system's stakeholders. Stakeholders may set requirements to the system.
- A system is managed as a whole. Management is based on knowledge and information and a feedback function.

ISO 9000 quality management principles (QMP) [18] are fundamental truths or propositions that serve as the foundation for a system of belief or behavior or for a chain of reasoning for good management. These eight principles are derived from the collective experience and knowledge of the international experts and they include (1) customer focus, (2) leadership, (3) involvement of people, (4) process approach (5) system approach to management, (6) continual improvement, (7) factual approach to decision making, and (8) mutually beneficial supplier relationships. These principles are all closely related and they are relevant for all areas of organizational business management including also all expert disciplines.

Principle #5, system approach to management, says that "identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives". This principle emphasizes both system and process approach. Key benefits to be obtained by this principle are:

- Integration and alignment of the processes that will best achieve the desired results
- Ability to focus effort on the key processes
- Providing confidence to interested parties as to the consistency, effectiveness and efficiency of the organization

Applying the principle of system approach to management typically leads to:

- Achieving the organization's objectives in the most effective and efficient way

- Understanding the interdependence between the processes of the system
- Structured approaches that harmonize and integrate processes
- Providing a better understanding of the roles and responsibilities necessary for achieving common objectives and thereby reducing cross-functional barriers
- Understanding organizational capabilities and establishing resource constraints prior to action
- Targeting and defining how specific activities within a system should operate
- Continually improving the performance through measurement and evaluation.

This principle is relevant for all areas of organizational management. An organization is managed as one single system.

A system is always created and owned by somebody. The system is managed on behalf of its owners (shareholders). The system has its internal structure and process architecture, and it is operating within a certain business community (system environment) and interacting with other systems. Systems have also partners and competitors in its business community.

In the management system standardization for specialized management topics typically consist of different kinds of standards: (a) Standards describing comprehensively the topic in question (e.g. ISO 9004) to be taken into account for the development of organization's business management system, and (b) Standards describing requirements, i.e. needs and expectations, (e.g. ISO 9001) for the topic in question. However, these standards may not describe any management system itself because according to the well-known Russel's paradox "whatever involves all of a collection of objects must not be one of the collection". The first category (a) of the standards are guidance documents for organizations' internal use. The requirements standards are factually general standardized models of organization-external requirements that may become obligatory in a contractual context or that may be used for auditing purposes for quality assurance and certifications.

Business systems are managed according to the decisions of its owners. Management system covers organization's whole business system and its all features, and it is also always an organization-dedicated solution. A well-known general model for all areas of management is so the PDCA (Plan-Do-Check-Act) model or Deming / Shewhart cycle.

The PDCA model became popular from USA especially through Deming's lectures on managerial quality during several decades (from 1950's to 1990's) [10, 34]. However, originally the model was created by Shewhart [29]. Shiba has made remarkable work by combining the original PDCA model with the ideas of managing knowledge and of Buddhist philosophy [30]. Also Juran's Trilogy Model [20] contains the same elements as the PDCA model. The PDCA model has also linkages to traditional systems theory and systems dynamics. PDCA model has a great variety of different applications, possibilities, and uses in the different areas of business management. PDCA model is a basis of many management system standards.

PDCA model describes how a consistent management consists of four consecutive activities:

- P: Planning business activities what should be done and what results should be achieved
- D: Doing business obligations according to the plans
- C: Checking what was done and what results achieved
- A: Acting rationally for taking into account the observations and results of the checking

In organizational environments the PDCA model is applied in three different management scopes ("Triple" PDCA model):

- Control: Managing daily operations in business processes in order to achieve the specified results. Normally rectifying non-conformities is carried out in connection with control.
- Prevention and operational improvements: Solving acute problems, preventing non-conformities, and finding / implementing operational step by step improvements in business processes
- Breakthrough improvements: Innovating and implementing strategically significant changes in the way of doing business, transforming organizations' business processes

From business systems to networked business communities and ecosystems

All organizations operate in business networks consisting of different kinds of stakeholders. Also the broader networks of regional or global operators and business clusters should be taken into account in the business of an individual organization. Even competitors are members of these networks. People of

organizations operate in networks internally and are involved with external networks, e.g. expert networks and science communities. [1]

Genuine business networks are primarily unplanned, emergent entities. Their growth is sporadic and self-organizing. All network-members are independent actors and they have their own needs and expectations. Networks as a whole are managed by nobody but each actor has its own impact in the network. Traditional application of the management system standards is not appropriate within networked business environments.

In networked business environments there are new forces that are wreaking havoc on value chains of even superior companies [7]. Company's strategy can no longer be based on tinkering with today's value chain - but on finding ways to alter it radically. Achieving competitive advantage is more demanding now. Surrounding the traditional five forces of Porter, i.e. buyers, suppliers, substitutes, competitors, and new entrants, there are three new forces, digitalization, globalization, and deregulation [12].

The idea of the business ecosystem is that each business of the ecosystem affects and is affected by the others, creating a constantly evolving relationship in which each business must be flexible and adaptable in order to survive. Much like a biological ecosystem creates and maintains conditions that allow biological organisms to live and propagate, the business ecosystem furnishes the environment necessary for the development and success of the organizations.

The concept of business ecosystem first appeared in 1993 [23] and is now widely adopted particularly in the high tech community. An economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world. This economic community produces goods and services of value to customers, who themselves are the members of the ecosystem. The member organizations also include suppliers, distributors, customers, competitors, government agencies and so on.

By their very nature ecosystems are exceedingly complex networks of organizations. Today, the business ecosystem replaced traditional concepts of industry and market with business communities of interacting organizations that together create, deliver and consume goods and services. These ecosystems consist of complex networks of players, that go far beyond traditional competitors, customers, and suppliers.

S. Elop, CEO of Nokia: “The battle of devices has now become a war of ecosystems, where ecosystems include not only the hardware and software of the device, but developers, applications, ecommerce, advertising, search, social applications, location-based services, unified communications and many other things. Our competitors aren't taking our market share with devices; they are taking our market share with an entire ecosystem. This means we're going to have to decide how we either build, catalyse or join an ecosystem.” [14]

Ecosystem approach has been adopted also in the management system standardization. G. Cort, Chairman of the standardization committee ISO/TC 176: “ In considering the large collection of the management systems standards that is existing today we should look beyond individual standards and acknowledge the pre-eminence of a dynamic web of interconnected, mutually supporting standards, guidelines and associated collateral that collectively enable and sustain the standards. This is the interdependent network, the management system standards ecosystem.”

Networking and ecosystems also increase strong impacts of new technologies, especially information technology (e.g. social media and cloud computing) [33], biotechnology, and nanotechnology, to the formation and operation of the business models and management systems.

Today's modern business environments

A real crisis in the management system standardization today is that it is not creating innovative solutions for modern business environments that are distinguishingly emphasizing speed, changes, agility, complexity, diversity, immaterialness, and variety [13]. All these aspects are big challenges also in all specialized areas of the business management.

Management system standards have evolved over the years. Evolutionary development is a development through small steps. No significant innovation contributions have been implemented or are not expected in the near future in these standards, in their structures or contents. This has led to a serious crisis in the international management system standardization, since the standards will not be able to track the organizations and their operating environments in real-world development.

All specialized managerial aspects are born in practice at organization's business processes through their activities [3]. Today organizations and their business processes are, in accordance with Stacey [31], *complex responsive processes of relating*. This means that all processes operate in networks with many

other processes or activities. Some of those processes may also be in entirely different organizations and thus may not even in principle be under a shared operational or strategic business management. Organizations have tried to resolve the situation with different types of contracts and management systems, but the possibilities are very limited. Further complications are caused by the complex nature of the process operations as a result of, inter alia, that they are singular or unique at least in the details. Also process activities are always operated by a wide range of people whose actions are virtually impossible to control by detailed instructions.

Stacey examines management of the complex responsive processes of relating and their activities through identifying management decisions on two dimensions: the degree of certainty and the level of agreement. The organization's business processes are functionally multifaceted and all aspects of the Stacey Matrix [31] come up in all processes in all organizations (figure 3).

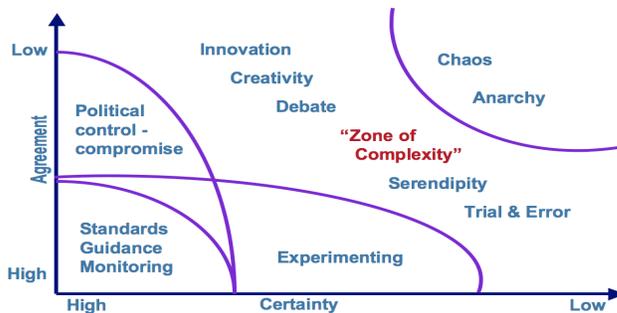


Figure 3. Stacey Matrix

Rational control is typically based on the managerial structures that is also a basis of the current management system standards. Rational control may be effectively and efficiently functional only in a small part of real process activities. Rational control is carried out by various management systems and documented procedures. Operational control is a fact-based activity. Too tight rational control does not give respect on situational solutions, not even the use of "common sense".

Political decision-making and control highlight various alliances, negotiations and compromises, which are very typical of organizations' business management. Instead of rationality, management is often based on power position of leading people, intuitions and post wisdom or explanations afterwards.

Rational risk-based decision-making is often related to different kinds of experiments. This area is the traditional area of structured and continuous development. In this case the future is built on traditional models and rational knowledge-base. Issues are generally agreed, although there is no clear certainty about the achievement of results.

The complexity area is very important for the success of organizations. Creativity and innovation originate in this area and transition to the new forms of activity is made possible. Operation in complex situation can not only be lead by rational control and fact-based. According to Ashby [5], a successful operation in complex circumstances require acceptance of differences and diversity ("Requisite variety"). The organization can get benefit of such effects particularly through communicating with wide range of external networks.

Chaotic phenomena are burdensome for management in many organizations, because they can not be managed by traditional means or not even completely avoided. In modern business process networks we are always accompanied by the agents and operators, which we are not even exactly aware about and which may even be hostile. Individuals' awareness as well as management flexibility and speed are useful in these difficult situations.

For a sound development, a new culture in the specialized management areas and also in the corresponding standardization should be recognized by accepting the existing realities according to the Stacey Matrix, and new principles, and operational and organizational procedures should be developed on this basis. The corresponding standardization should adapt itself to this development by creating appropriate new solutions for all areas of the Stacey Matrix. These should also take into account in practical application of the standards in organizations.

Information and knowledge in managing an organization

Business information and knowledge are the most essential and crucial issues in managing an organization. Core of a management system consists of management of information and knowledge. Major part of the knowledge is tacit knowledge. In fact, the management system is highly a mental system.

Information technology and systems

Many existing management system standards emphasize the importance of the documented information. Practices for documentation for managing an organization have developed from passive and separate documents to dynamic and flexible systems for leveraging usage of information and knowledge in collaborative group work. Tacit/explicit knowledge conversions happen effectively and efficiently in practice in organizations through collaboration and organizational learning [25]. Traditional documentation practices, formal training and education programs/activities, or information technology may not much help in this process. [2]

In order to manage the situation more efficiently organizations have invested in IT solutions. However, the development and use of these solutions have been problematic. IT applications with data sources, systems, and applications located throughout the organization have often made the jobs of people more complex and difficult rather than simplified their work. [9]

Corporate-wide IT systems are often complex and designed for a specific purpose and function, hence the IT experts or departments are required to deploy the different and often unrelated applications and modules to fill the information and processing needs of the entire organization. A lot of training is needed for employees to learn how to effectively use such a complex suite of applications to complete their assigned responsibilities.

Corporate intranets were originally designed and implemented to meet the needs for shared information. Using the intranet, employees are able to access corporate information using web browser to find forms, applications to perform their jobs, and review a customer's project status, and for many other activities. The intranet solution provides navigation to different enterprise systems and documents. As intranet sites grew larger, a new set of problems was created due to chaotic situations with information access, knowledge sharing, and security.

Modern Web-operated social networking applications (Web 2.0 [27]) are simple, easy to use and cheap (or free of charge) solutions of disruptive IT ("Interactive Technology") innovations. These solutions have a wide variety of management system related uses such as personal management, collaborative learning, carrying out cooperative projects, and supporting collaboration in networked business environments among business stakeholders. [2]

Collaborative communication

People need to act and make decisions in situations in which causality is poorly understood, where there is considerable uncertainty and people hold different beliefs and have personal biases. Knowledge workers - factually today all employees and business leaders - have to negotiate in order to understand what they face. [21]

A mix of stimuli always surrounds people. The stimuli have no meaning apart from what the individuals make of it. In other words the environment is a product of the persons, not something outside of the persons. The reality is not an objective set of arrangements outside us, but is continually constructed in daily interaction.

If people want to create shared meaning, they need to talk about their experience in close proximity to its occurrence and have common platforms for conversation. Many meetings that are directed to the problems of ambiguity fail to handle it because potentially rich views are silenced by autocratic leadership, norms that encourage harmony, or reluctance to admit that one has no idea what is going on.

Leadership language has an important role in organizations [32]. An organization is a living organism. It is a set of conversations among people. Language is the defining environment in which an organization lives. It is how the members of the business system reach agreement. Language is a medium for organizational growth and change. Narrowing language increases efficiency. A common shared language helps the organization arrive at decisions more efficiently. However, narrowing language increases

ignorance. Constrained by a limited vocabulary, the organization becomes unable to adapt to fundamental changes in its environment. Unable to change, the organization eventually declines. Ignorant of our own ignorance, we cannot ask questions outside our own language experience. It is possible for an organization to learn and grow only if it creates conditions that help generate new language. Using new language, an organization may create new paths to productivity, and regenerate itself.

The conversations that are necessary for generating new opportunities come from outside the system, from the language that has a different history. This is often technically and intellectually demanding and, consequently, often dismissed.

Managing organizational business performance

Business performance management is an important area of all management systems. Performance of a management system is a fuzzy issue.

Organizations should be interested in their overall business performance that is a broad concept including four categories of performance [24]:

- Customer-focused performance: Organization's performance seen by the customers
- Operational performance: Organization-internal performance including hard business processes performance (e.g. cost efficiency, throughput or lead time) and soft performance (e.g. workforce skills)
- Product performance: Characteristics of the products (goods and services)
- Financial and market performance (e.g. competitiveness and market share)

An important phenomenon of all business organizations is their financial and market position. Financial and market performance refers to performance relative to measures of cost, revenue, and market position, including asset utilization, asset growth, and market share. Examples include returns on investments, value added per employee, debt-to-equity ratio, returns on assets, operating margins, performance to budget, the amount in reserve funds, cash-to-cash cycle time, other profitability and liquidity measures, and market gains. [4]

The organization's internal accounting supports the organization's decision-making by delivering relevant financial information to the organization's management. The external accounting produces the organization's legal bookkeeping, which gives a snapshot of the organization's profitability, financial position and liquidity as a juridical entity. Financial indicators calculated from the organization's profit and loss statement, balance sheet and cash flow serve needs for quantitative financial information of various stakeholder groups.

Conclusions

Management system standards cover many different specialized knowledge areas of the business management that are important and in some cases even crucial for organizations' sustained business success. General system standards may have a significant role in developing organizations' managerial and operational practices and also in providing confidence among organizations' stakeholders and other interested parties.

Application of the management system standards is, however, much more than to only to build a special system, e.g. quality management system, environmental management system, etc., within an organization. Successful implementation of the standards is based on integration, responsiveness, innovation, and collaboration. This is a challenging managerial responsibility and requires to adopt standards clauses with legal and financial aspects, and different management teachings into organizations own management practices.

For implementing any specialized management area X that may be quality, environmental protection, information security, occupational health and safety, etc. Theses of for applying X management and related standards includes the following:

- Striving for flexible realization of X in management and leadership instead of distinct X management by using effective managerial methodology
- Applying innovative "systematicity" (systematic approach) of the X in management instead of formal and distinct X management systems

- Recognizing performance excellence instead of a narrow X conformity thinking
- Using business-related X management principles and actions instead of fulfilling formal and general X assurance requirements only
- Setting stretched business objectives instead of minimum standard requirements
- Aiming at innovative and unique solutions instead of stereotyped systems
- Relying on internal business performance self-assessments and advanced X assurance communication instead of third party audits and certifications of “artificial” X systems
- Getting advantage of tacit knowledge instead of only records of explicit data and information • Networking with partners and recognized world-wide communities of multifarious expertise • Supporting various ways of collaborative learning instead of narrow-minded continual improvement
- Reinforcing and using company’s own internal awareness and expertise instead of passive use of external consultant

Consensus process of standardization has a detrimental influence on the clarity and ambiguity of general management system standards. However, standards must not hinder creative applications of the standards by responsible organizations. Performance of a management system is a fuzzy issue, and a management system must be always ready but never finished.

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