

Systems Thinking in Quality Management

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Abstract

Purpose – The purpose of this paper is to discuss the ongoing developments of quality management systems theories and to summarize results of experimentations that the author has been conducting since 2003 on convergence of quality thinking and systems thinking and the value generation process in the systems perspective.

Design/methodology/approach – Techniques and technology are absolutely necessary, but they will not produce the necessary changes. Among the competitive factors, they are no longer the most critical. The fragmented view of management is not just a quality management problem, it is a general management problem. At the roots of the problem of approach and tool fragmentation there is a strategic fragmentation, the lack of systemic perspective, silos-type organizations, excessive specialization.

Findings – The first is the real incorporation of the modern systems view into quality management; the second is the key role of joint quality and systems thinking in value generation.

Originality/value – The paper consequently focuses on the value creation process and on how to revisit managing for quality in the systems perspective.

Keywords – Quality management systems, systems approach, quality awards, systems thinking, value generation clusters, fitness for purpose.

Paper type – Research paper

1. Introduction

This paper summarizes some results of a research and experimentation activity that the author is conducting since 2003, with the aim of contributing to the completion of the quality-based “revolution” that broke out in the 1980s and too soon came to a standstill. Commercial reasons took in fact the lead. Too low was the concern with bringing the quality-related concepts to maturity. Executive and entrepreneur interest in quality progressively faded. The author believes that the strategic role of quality in managing organizations can be perceived only if some major conceptual breakthroughs take place. The first is the real incorporation of the modern systems view into quality management; the second is the key role of joint quality and systems thinking in value generation. The paper consequently focuses on the value creation process and on how to revisit managing for quality in the systems perspective.

If today, after more than twenty years since the “quality revolution” started, we ask quality practitioners and quality scholars what they perceive as the core concept of quality management, we will most probably get a spectrum of answers that reflect fragmented and tool-oriented views. Had we monitored such perceptions in time, we would identify cycles of management fads, more than clear development paths. After the first, successful attempts to set the basis for the new TQM view – with the Malcolm Baldrige and EFQM Models - we had, for example, the Process Management, Process Reengineering (BPR), Self-assessment and Benchmarking periods. We also had some strange returns to the standard-based view of quality. In the recent years the scene was dominated by “Six Sigma” approaches, that focus on reducing variation (a clearly important but partial aspect of managing for quality), putting

however more emphasis, quite often, on cost reduction than on customer satisfaction (a clear sign that ways are continuously sought to regain executive attention).

Truly, the technical were the most tangible and easily understandable aspects of the new TQM models. However, the most critical aspects were those related to the organization, and the way of managing it. Unfortunately they were the most difficult to grasp, both because the way they were presented was still rough, unfinished; and because quality practitioners seldom have the necessary organization/management skills. Probably the most significant example of unfinished transformation is that related to process management. The intuition that, to achieve maximum quality with minimum use of resources, horizontal processes – not vertical functions – are the key, was good. But the next rational step was the understanding that processes are part of systems, and what that means. Such understanding reveals the fundamental role of *relations*. The brief annotations that we can find in both the ISO 9000 standards and Excellence Models, that “relationship among processes should also be taken into account” is the symptom of just perceiving that there is a problem, without understanding its real nature and importance. Improvement of individual processes can result just in sub-optimization. To optimize a performance, all the processes, as well as functions, project groups, committees etc that directly or indirectly impact on such performance, should be involved. Lack of the systems view was the reason for BPR poor results. Attempts to transform functional organizations into process-based organizations often failed because they jumped from one extreme to the other. In the TQM model that I introduced with my 1996 book “Organizational Self-Assessment” (conceptually derived from the European Award - now EFQM – Model - Conti, 1997), I felt the need of adding a new category before “Processes”, and its name was “Organizational Architecture”, to take into account the systemic nature of the organization, its relations, its subsystems.

What happened in the quality world in the 1990s was that, little by little, techniques and tools took the lead, while the organizational transformations that were supposed to be at the core of the new management philosophy were postponed, moved to the background and little by little almost forgotten. Only the issue of transforming the vertical, hierarchical organization into a process based flat organization remained in the agenda of the most advanced companies for a while, but quite often progressively downgraded, due to the difficulty of overcoming resistance to change and finding reasonable systemic solutions. The outcome was that little by little top executives returned to the old mentality where quality is a matter for specialists that does not imply their own direct involvement. Those responsible for quality less and less report to the CEO and statistical more than managerial and organizational expertise is requested of them. Consultants and academics focus more on packaging and repackaging old stuff instead of continuing the innovation wave that revitalized quality management in the 1980s. A symptom of the decline is the use of the preposition “beyond” instead of “in addition to” for promoting new approaches by making the old obsolete. Many approaches claimed to be “beyond TQM”, simply because the proponents had narrow views of TQM. Those (this author included) who give the TQM acronym the general meaning of strategic quality management approach aimed at continuous improvement and innovation, do not feel the need to change the name of the tool box when a new tool comes in.

In summary, we have two problems, however logically connected: the fragmented and low profile view of quality management and the resurgence of technical tools (statistical in particular) as the core of quality management. The second is a consequence of the first but, on its turn, reinforces it. There must be some reasons why, in concurrence with the exaltation of Six Sigma (especially in the USA, the sanctuary of technology) as the icon of quality

management, the word quality has almost disappeared from management journals (Rubbia, 2009). It is true that many CEOs, starting from Jack Welch, promoted its application, but that was in line with a technological view of quality that can be totally delegated; it did not imply any executive-led organizational transformation.

Techniques and technology are absolutely necessary, but they will not produce the necessary changes. Among the competitive factors, they are no longer the most critical. All the competitors have access to the same techniques, technologies, skills. The real differentiating factor is *to create an organization* that is able to set out winning objectives and meet them (obviously through an intelligent use of all existing technologies).

But the fragmented view is not just a quality management problem, it is a general management problem. In fact, at the roots of the problem of approach and tool fragmentation there is *strategic fragmentation*: lack of systemic perspective, silos-type organizations, excessive specialization. To take an example in the area of quality: the ISO 9000 Standards, by introducing the “quality management system” concept, reinforced the top management wrong opinion that quality is a separate matter, for specialists. Management for quality is an inseparable part of management instead, because quality is not a subject in itself, it is an attribute of whatever managers do.

We need then full integration of managing for quality into management, but we also need a strong injection of systems thinking into management. Only by doing that, quality concepts can be extended to the new areas that are made more and more critical by globalization. An urgent move, given the disorderly development of the social and physical environment in which humankind is living.

2. Systems thinking for a more integrated view of management

Systems thinking has emerged as the convergence point between sciences, as a fundamental way of interpreting nature and to master the ever increasing complexity of the products of human intelligence (Bertalanffy, 1968; Ackoff, 1972 and 1999; Churchman, 1979; Laszlo, 1996; Gharajedaghi, 1999).

While analytical thinking aims at separating variables to understand specific cause-effect relations, systems thinking considers the system’s global behavior and performance as a combined effect of all its variables and – most of all – of *their mutual relations*. Analytical thinking was key to scientific development and still remains one of its cornerstones. But too much of a good thing can be dangerous. Separation of variables leads to simplification and specialization. But sometimes it can lead to over-simplification, since specialists tend to lose the overall picture; we can preach interdisciplinary work but it seldom leads to the real capacity of reconstructing the entire patchwork from the pieces.

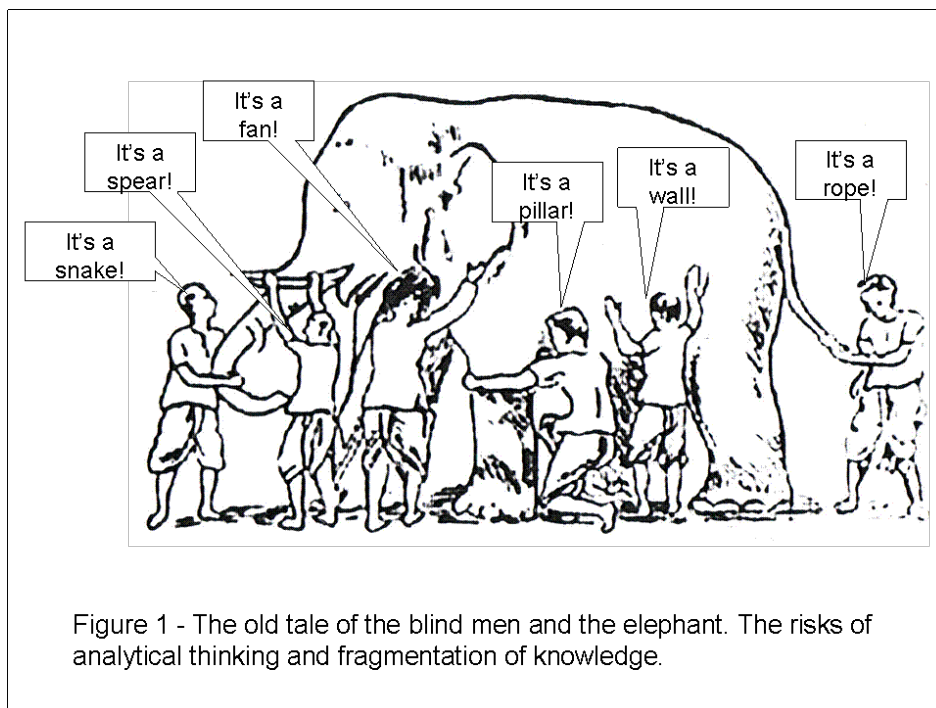


Figure 1 represents an old Persian apologue¹ recalled by J. Garajedaghi in his book “Systems Thinking” (see reference), where blind men are positioned in front of the different parts of an elephant and asked to touch it and guess what they are touching. Answers are different according to the specific sensations they get. Even putting together their different sensory experiences does not lead to results. Only when an enlightened sage makes them get out of their specific sensations and think in systemic terms, they recognize the elephant. It is exactly what happens to us, when we claim to understand complex realities without getting rid of our specialist perspectives.

Interdependence among the component parts is the main factor in determining the system’s characteristics, behavior and performance. Such relations give normally rise to *unique* properties – the so called *emergent properties* - that are not reducible to any combination of the properties of the constituent parts. Sometimes emergent properties produce exceptional results, like the appearance of life or that of human beings on Earth. Similarly, in human systems, they may produce outstanding cultures and civilisations. Enterprise excellence too looks as a rare and unstable emergent property. From a thermodynamic perspective we can say that move towards higher system complexity and uniqueness means moving farther away from equilibrium. No wonder that excellence is an unstable state.

When a system interacts with its environment we define it as an *open* system. Typically, open systems interact with other systems that, together with them, form a higher level system, a *supra-system*. What is a system from one perspective is a subsystem from another perspective – and a supra-system from still another. There is a progression from cellular to multi-cellular, to ecological systems, as well as from man to social/ethnic groups to states to mankind. In a world of interactions, closed systems are quite an abstract concept,

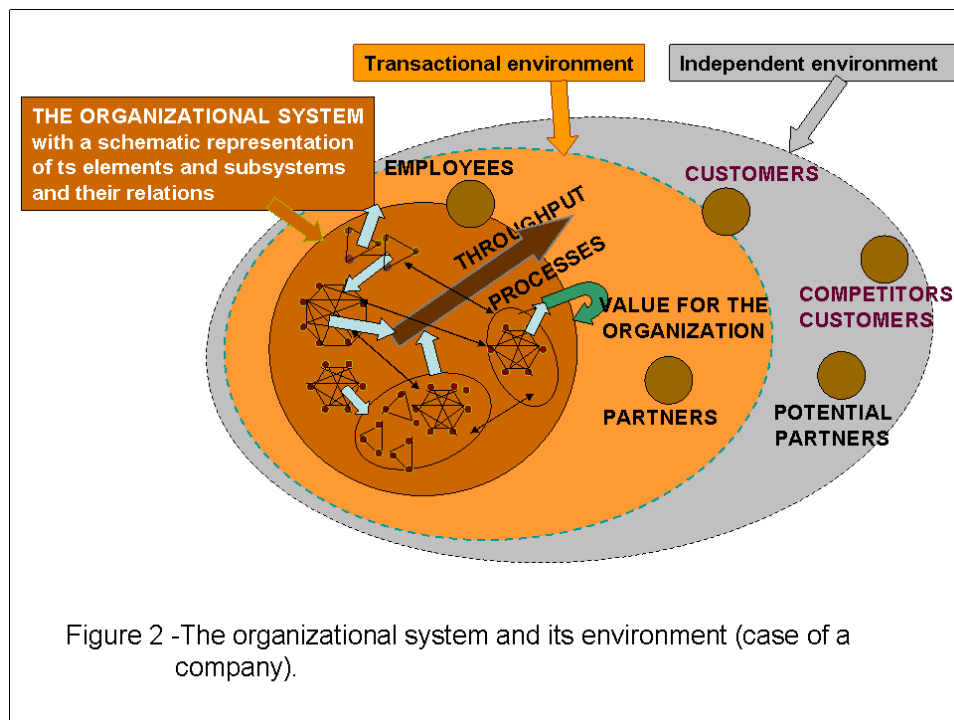
¹ I heard from a colleague of Indian extraction that the apologue originated in India. Being impossible for me to check the origin, I wish to leave the question open here.

but we can consider as closed systems those whose interrelations are negligible (for example: many ethnical groups and nations were till the recent past almost closed systems; now they, willing or not, open up and we call globalization such epochal transformation).

Among systems, social organisations are particularly important. Higher animals have social relations, but for sure the most interesting, rich and at the same time worrying are the relations between human beings. Intelligence, capacity of choice, make human systems unique, capable of mastering and even changing the rules of the supra-system which they live in. Organisations are multi-minded, purposeful systems with properties of their own (Gharajedaghi, 1999). In the past, consciously or unconsciously, mechanistic models – organic at best – were used to manage organizations. F. Taylor, H. Fayol, M. Weber theorized them. They matched their contemporary society models. Evolution of society makes such models obsolete now. In most developed environments, specially where a western type culture is diffused, even the organic model of organisations is inadequate, let alone the mechanistic; only the multi-minded, sociocultural model works. Culture is the DNA of such systems. It determines their identity and their ability to generate value for their members as well as for the external environment.

Centrality of relations is by far the main link between quality thinking and systems thinking. In previous papers (Conti, 2003, 2004, 2006, 2007, 2008, 2009) the author highlighted that the concept of quality is intrinsically linked to the concept of relations and to the value exchanged in such relations. Quality in fact means a feature, a property, that characterizes a person, an animal, an object, a situation. As such, it has neither positive nor negative implications. It gets such implications only when associated with the concept of value. It can be economic value in the case of economic relations; it can be moral or spiritual value in the case of personal, non economic human relations, it can be scientific or artistic value in the case of relations between man and nature or man-made objects. *Relations are the place where qualities are perceived and value is generated or exchanged*; on them quality management should then primarily be focused.

Figure 2 aims at schematically representing the organizational system (for example a company) immersed in its environment (the supra-system). The latter is subdivided into two parts: the *transactional environment* (the part that can be influenced by the organization) and the *independent environment*, that has got to be known and understood as better as possible, but can hardly be influenced. The reasons of being of the organization (the purposes) are normally found in the environment. In the environment the company customers, competitors, competitors' customers, stakeholders, are located. Flows of value characterize the relations of the organization with its environment. The most visible are the material and energy flows; the less visible, but most important are the neg-entropic (intelligent energy carrying knowledge, cumulated experience, cultural values). But the center of the value identification and generation processes should obviously be the organization itself. In the figure some value generation networks are represented, entities that are much more meaningful than the organization charts. They should be designed for maximum synergy. Top management concern should be more on managing interactions (internal and external) than actions (Gharajedaghi, 1999).



In this paper we will focus more on the system than on the environment. According to the systems view, we will look at the organization in terms of networks of persons and networks of networks. We will identify such networks as the places where systems create value.

3. Generating value: the fundamental value of any organization

Organizations' fundamental mission is to put together people to *generate value* for defined categories of subjects (customers, users, stakeholder, the organization itself). Not generic value, but value that will be appreciated by the target subjects, so that they will seek after it. Given the markets' dynamism, value expectations change in time and value propositions are bound to rapidly adapt to – or precede – market changes. Success in competition depends on the ability first to identify (possibly in advance with respect to competitors) attractive value, second to implement and deliver it with minimum defects (value losses) and minimum use of resources (so that the global value balance for the producer too is positive). We may say in other words, using the traditional quality jargon, that two are the fundamental conditions to be among the winners in the value-generation game: “*doing the right things*” and “*doing them right*”. While the latter is the traditional purpose of managing for quality (keeping defect rate as low as possible), the former is more neglected, also because its interpretation is often trivial: whoever does not strive to do the right things? But it is far from trivial. In business, making products and services that users do not appreciate is a frequent cause for failure; public administrations are not normally allowed to go bankrupt even if they make the wrong choices, but the resulting inefficiency is a burden for the economic system they are part of.

If quality is not locked in the realm of variation and defect reduction (doing things right) but opens up to the realm of identifying and planning competitive customer value (doing the right things), the following additional benefits will be reaped:

- top executives will more easily get involved in quality management , since new product and service planning is normally at the core of their interests.

- Systems scholars and practitioners attitude towards quality management may change², favoring the badly needed convergence between quality thinking and systems thinking

Value creation is the area where quality thinking can give the most significant contribution to systems thinking³. From the systems perspective (Ackoff, R, 1999; Gharajedhaghi, 1999) organizations are *purposeful systems*, that choose and pursue their purpose. Organizations' basic purpose should be to create value to satisfy the expectations of its target customers/stakeholders and guarantee its own sustainable development. On the other hand, the best definition of organizational quality is: *fitness for purpose*. The quality mission in the systems perspective could then be: *caring for the organization's fitness for purpose*; specifically, caring for *fitness in generating and delivering the expected values*.

We already noticed that quality is not a subject itself, it is an attribute of an object, a person, an organized ensemble of persons. Likewise, managing for quality is not an independent activity, it is part of management, with specific missions at different levels. It is not separable from the activities it refers to, and responsibility for quality belongs to the relevant operative managers. Since systems' global behavior, their value generating capabilities in particular, depend on the complex interactions between their component parts, quality management by necessity is an integrating factor. That means that, *in opposition to the present trend that puts emphasis on this or that tool, quality management should first of all look at the system, its subsystems, its internal relations*. The main subject for quality management is the socio-cultural system⁴: people and their relations. Within such global view, techniques, technologies, tools can find their specific allocation.

To better analyze the value generation process the author has enucleated the elementary value generation cell, calling it "Value Generation Cluster (VGC)" (Conti, 2006/2). VGCs are the protagonists of the value generation processes; success of organizations in meeting their own objectives depends on them. They are normally formal groups, sometimes informal. In excellent organizations informal groups are numerous and important to keep organizational fitness for purpose.

4. The value generation cluster

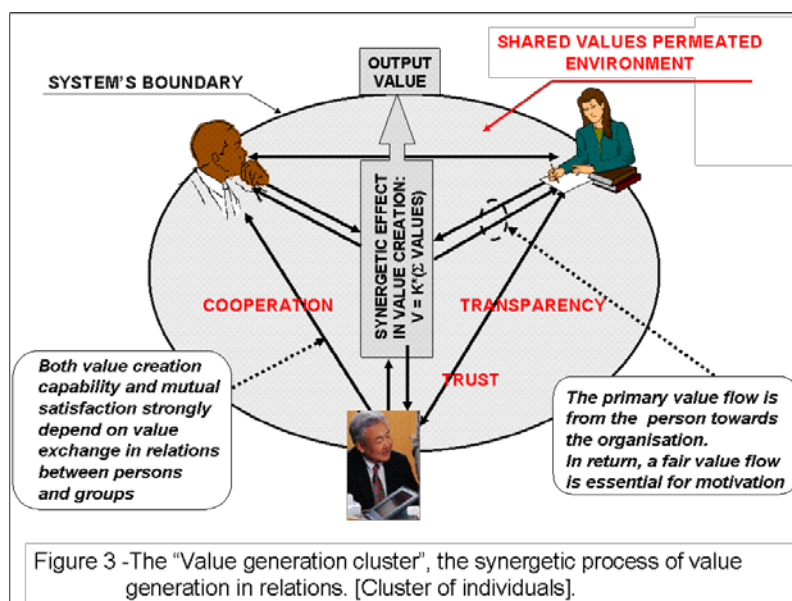
Figure 3 schematically illustrates the rationale of the "Value Clusters" (or "Value Generation Cluster"), a concept that I introduced a few years ago (Conti, 2006/2). Three elements only are represented in the figure, for simplicity. They can be either individuals or groups of individuals (sub-clusters). They co-operate to generate the expected value. From their co-operation – because of the synergetic effect typical of social systems – the value that is generated is different from the sum of the values that each individual could generate in isolation. It can be more – sometimes much more – and that is what is expected of a co-operative system; or it can be less, when people do not co-operate, when they destroy value. The synergetic (or "resonance") effect is represented in the figure by a multiplying factor N (in the central box, that represents the organizational structure involved, e.g. a process, or an

² That of focusing on doing thing right and neglecting doing right things is one the main imputations made to TQM by systems experts (Ackoff, 1999)

³ We are talking of value in general, not just economic value, and even in the latter case, of *use* value, not *exchange* value. The latter is a fundamental difference when talking of quality, ignoring which may lead to misunderstandings and erroneous conclusions. For a discussion of value and its relation with quality see Ref. (Conti, 2004), (Orestano, 1942) (Laszlo, 1973).

⁴ For a discussion on socio-cultural systems and their differences from mechanistic and organic systems, see Ref. (Conti, 2009).

ad hoc team). Such factor, that represents the effectiveness in generating the expected value, depends on a number of ethical/cultural factors, first of all openness, mutual respect and trust, willingness to cooperate.



Two types of relations take place within the Cluster. The first is the relation between each "element" and the organization: a bi-lateral relation, represented by a couple of radial arrows for each element, pointing in opposite directions. The primary value flow is from the person to the organization: the value that the organization has the right to expect from any individual who freely joins it. What is a fair contribution is difficult to say since, particularly in the case of intellectual activity, defining performance standards can be difficult. But it is here that the reverse value flow, from the organization to the individual, comes into play. People motivation to contribute to the collective value generation process is proportional to the gratification that they get in return. We can distinguish between external and internal motivation; however both important, the latter is key. Gratifications that drive internal motivation come mainly from the leadership-created environment. In the figure, the "shared values permeated environment" is highlighted: *it is the soil in which the seeds of creativity can grow.*

The second important type of relations illustrated in the figure is that between the members (elements) of the "value generation cluster" (bi-directional arrows between the elements). To enhance value generating capabilities, such relations should be based on trust, openness, willingness to share information and build knowledge together, mutual respect, empathy. Clearly, for these mutual relations too, taking such a character depends to a large extent on the values that are embedded in the environment.

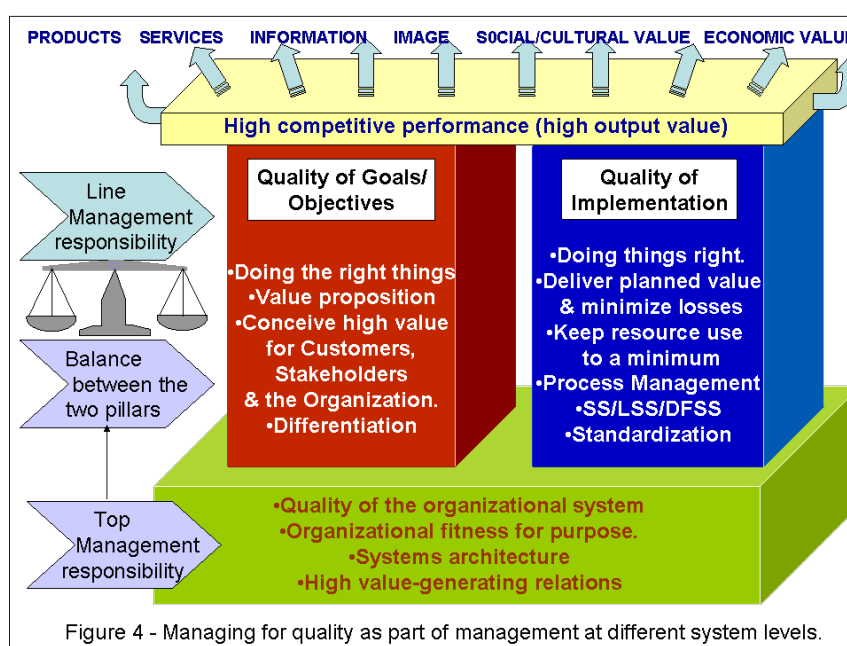
Since most organizational activities require cooperation among people, the concept of value cluster can be extensively applied. Processes in particular, but also high level research groups, cross-functional committees, all should be conceived and managed as value generation clusters. A person (or a group of persons) can be (and normally is) part of different clusters. Clusters can become the building blocks of the organizational architecture. They represent a systemic solution to the problem of organizational architecture aiming at creating continuous improvement and innovation propitious environments.

5. How quality concepts should be integrated

The systems view cannot but reverse the present fragmented perspective, that makes TQM just an aggregation of a number of specific approaches and tools. Managing for quality should then be first defined at the system level, then down, in a consistent way, to the lower levels (subsystems, techniques and tools).

Figure 4 aims at providing a conceptual framework for such approach. The main block (the basement) represents the “Quality of the organizational system”. It deals with those features of the system that guarantee its fitness for purpose in time. It deals with what David Nadler called “Organizational Architecture” (Nadler, 1992), the way the organization is designed to face the continuously changing environment. Nadler uses such expression to indicate the philosophy, the idea, the principles of the organization (we could use the term “concept” - or “paradigm” - as well). The chief architect should be the organization’s head, assisted by his/her team. The organizational architecture is people-based: people, their shared culture – values in particular – the way they interact and cooperate. Specific structures come later and should be designed in cooperation with the relevant operating managers, who better know the processes, the products, the technology and the environment. Obviously in defining this part, the holistic systems approach should be used; that is, organizational criteria that are focused on the value generation networks, with flexible and easily reconfigurable aggregation criteria - not on permanent functional divisions with rigid boundaries.

Moving (up in the figure) from the system level to the subsystems and specific activities, two pillars are represented in the figure, solidly placed on the organizational quality basement. The first, on the left, represents the activities aimed at identifying and planning customer/stakeholder value. It can be named “Quality of objectives”, or “Value propositions planning” since its mission is to transform the organization’s purpose and goals into the specific “objectives”, for products, services or whatever the organization does. The second pillar, on the right, is the more familiar “Quality of implementation”, with the mission of realizing and delivering the value that has been planned on the left, with minimum losses. Variation and defect reduction belong to this area, which is the more traditional, and still identified by too many as quality *tout court*.



The two pillars represent the operating side of quality, where quality specialists have an important role. However, quality specialists may tend to believe that their own area is the most important. It happens for example in companies with a long story of quality control and quality assurance. A virtue, reducing defect rate to a minimum before delivering a new product to customer, can become an obstacle to retain customers and win new ones, when getting new valuable feature is more valued by users than close-to-zero defects (Cole, 2008). If global customer value is considered, there will be cases where the balance should bend towards further reducing defect rate, and cases where it should bend towards innovation and reducing time to market. That means that a systemic, global view of the value generation process is needed; that the two functions should work together; and that top management should be the guarantor of the right balance between them.

6. An example of complex value generating network

For most companies, a very important, complex and critical value generation network is the new product development and commercialization process. It is not a single process, it is a flow of processes that share a common aim and crosses many functional borders. Figure 5 is a schematic representation of such process (that should be taken just as an example, since the new product development and commercialization process flow can vary according to the organization's nature, its functional subdivision and management preferences).

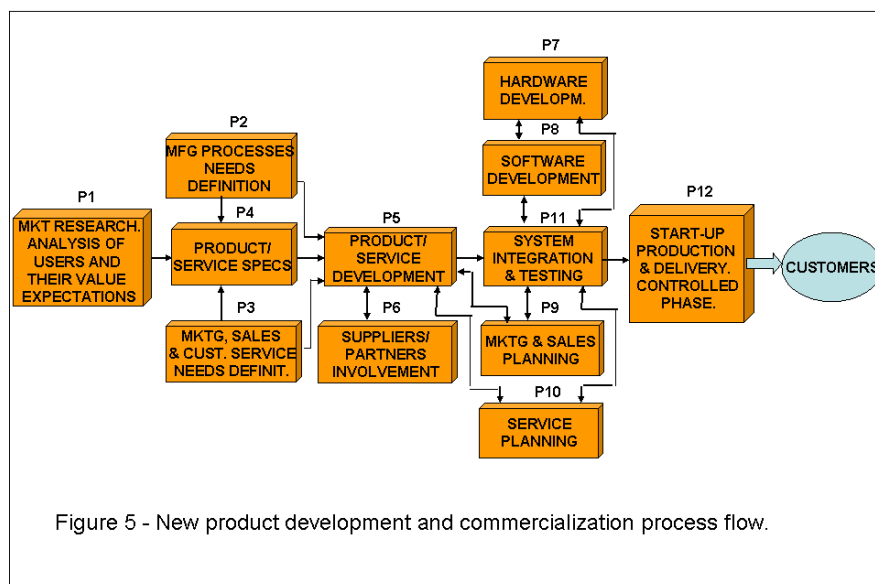
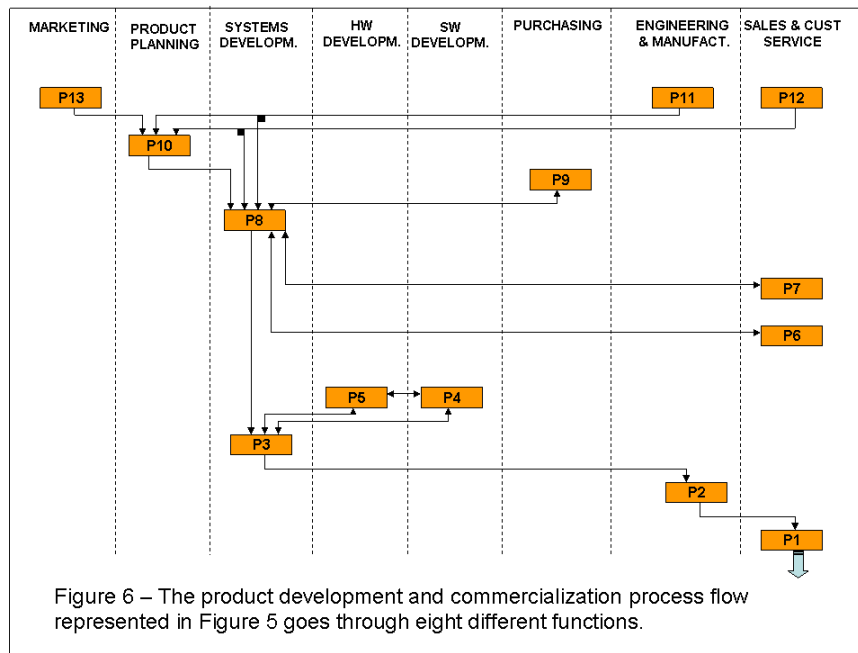


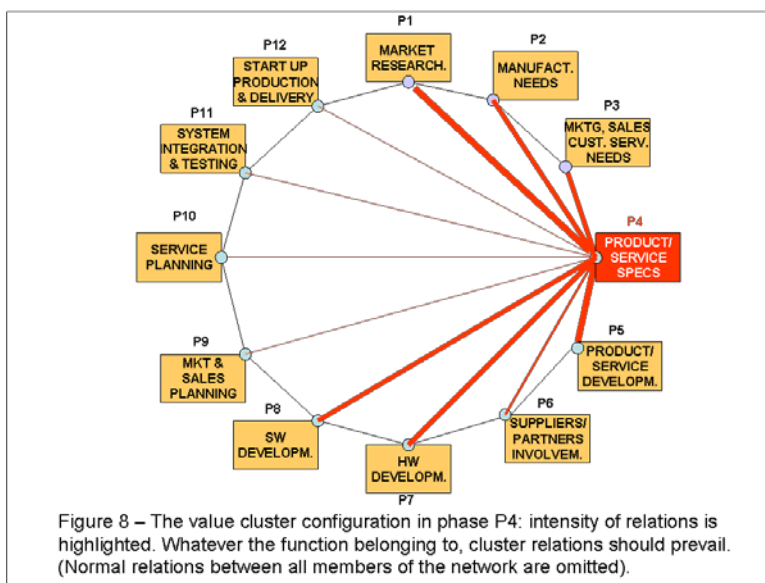
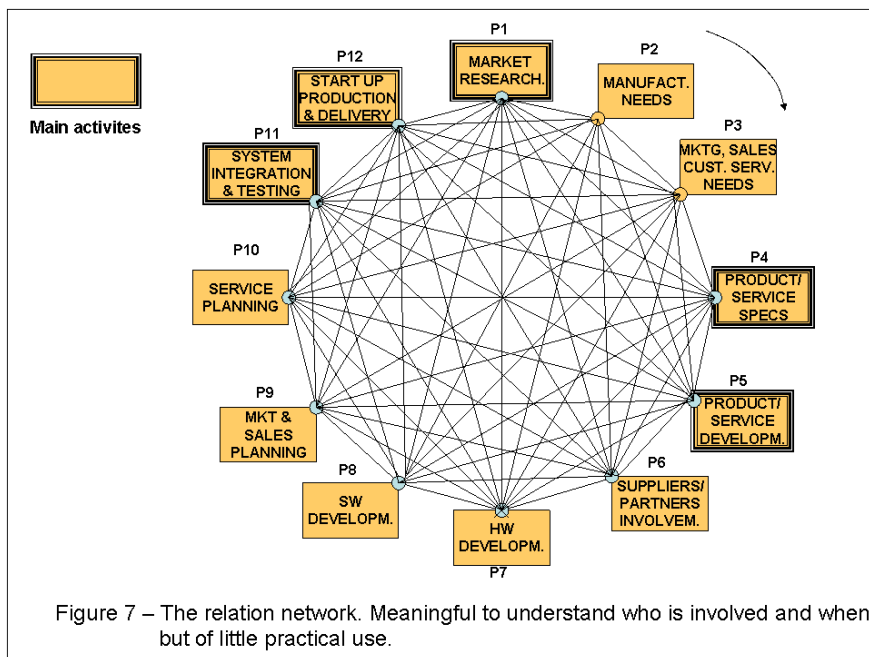
Figure 6 shows how meandering a process like that can be. Since in traditional functional organizations borders between functions are normally communication barriers that hamper cooperation, ways must be found to solve the problem. Close, stable organizational territories must lead the pace to open, flexible aggregations that can easily readjust themselves with the sole aim of meeting their mission in the most effective and efficient way. A frequently adopted solution is to appoint “process owners” or, in the case of new product development, “product managers”. Such – or similar – matrix solutions are good in theory but in practice they do not work where the teamwork culture is weak. If the organizational culture remains the same and the organizational architecture is not changed, if the functions’ power remains untouched, matrix solutions will only cause pain and frustration to the process owner or product manager. Also the radical, opposite solution (that some company attempted), with power moved from the functions to the processes, proved to be unsuccessful.

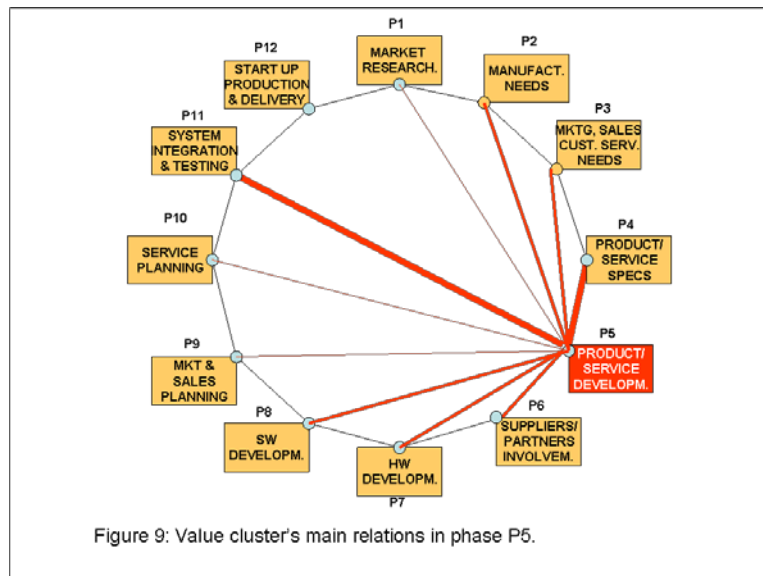


Let us try to apply the value cluster concept to our example. Each process of the figure 5 flow can be managed as a cluster and the entire flow as a complex cluster of clusters. What is the relation between the process flow (cluster of clusters) and the organizational functions? To avoid conflicts, it is better that the main stream of activities is carefully identified, and all the involved people report – in relation to the cross-functional mission - to the cross-functional process manager. Other people or sectors of the organization can supply value to the cross-functional process (e.g. specialist or staff functions), according to defined rules, both activity- and cost-wise. But when they are working for the process, they report to the process manager only. When not, they should be considered just as process-flow suppliers. In this view, the key organizational cross-functional processes are seen as the main places where customer/stakeholder value is generated - and the staff functions as efficient and flexible internal suppliers and supporters. Flexibility and the ability to rapidly re-shape the organizational trim according to the situation is a precondition for a cluster organization to be effective.

Figure 7 represents the flow of figure 5 in the value clusters perspective. The progression in the flow of activities that in figure 5 was left-right and in figure 6 top down, now is clockwise, starting from the upper vertex of the polygon. The cluster representation is useful because it gives evidence to the work relations. Figure 7 is of little practical use in itself, representing just a mass of interconnections, but is important from a conceptual perspective. Comparing it with figure 5, in fact, we perceive the passage from a mainly chronological sequence of activities under different responsibilities, where the important relations between the processes is hardly perceived, to a teamwork approach, where each process is evidently part of a closely interconnected system. The practical use of such perspective is visible in the following figures 8 and 9, which represent the main interrelations in two important phases of the flow: the definition of the system specifications (products and services) and the development of the system (similar figures can be made for the other phases, like system integration, or production and sales start up). The polygon representation with the individual processes on the vertices, allows to highlight, for example with line thickness, the relative importance of the relations. High intensity interrelation means high importance in the cluster

value generation mission, whatever the functions the two interrelated sub-processes may belong to.





In the figures, the customer/supplier type of relations between the examined cross-functional process flow and the rest of the organization are omitted, for simplicity (they must be carefully regulated, however, both activity- and cost- wise). In summary, each important value generating network (cluster of clusters) should be seen as a variable trim agile system sharply focused on its purpose, working in a cooperative environment where it can buy resources. And the environment, the specialized functions in particular, should have as their mission to take care of knowledge growth and to be ready to provide the right skills, resources, technologies to the customer/stakeholder value generating units.

The concept of owning resources as sign of power – still common in many organizations - should be replaced by the concept of value generation capability. That means knowing what value best fits own customer expectations and delivering it in the most efficient way. Managers should be evaluated on the basis of their ability to work together in small and large value generating teams and effectively contribute to the value generation processes.

7. Conclusions

In his book “The Future of management”, Gary Hamel rightly maintains that a change of management paradigm is urgent (Hamel, 2007). I doubt, however, that an effective change in the “management paradigm” may take place without first adjourning our “organizational paradigm”, that is, our view of organizations. We are bound to finally free our minds of the mechanistic model (and even of the organic model, where it no longer applies); we need to build and diffuse a systemic culture that fits the nature of socio-cultural systems, that is, of systems made of intelligent and free people.

About one century ago Taylor, Fayol and Weber interpreted the social situation of their time and conceived management paradigms that suited them. Their models led to dramatically improve the efficiency of industries and public administrations. The social costs were not apparent at the moment (only artists like Charlie Chaplin could prophesy them), but they started to appear when social development created increasing mismatch between the reality and the mechanistic models that were used to manage it. And some of those mismatches clearly contributed to the economic, social, political crises that characterized the 20th century (and continue in the next one).

Technology moves rapidly, strongly impacting on society's evolution. We are bound to build management models that fit the evolution of both technology and society. (think of the communication revolution and its effect on breaking down political boundaries). But we should engrave in our minds the following Einstein's words: "*Without changing our patterns of thought, we will not be able to solve the problems we have created with our current patterns of thought*". Sometimes we need incremental improvements, sometimes discontinuous innovation. I think that is the case now: we need a sharp paradigm change, based on the systems view of organizations.

As far as managing for quality is concerned, being it just an inextricable part of management, what we say for the latter holds true also for it. But, in the context of change, quality management (not as a separate but as a distributed function) can hold a general role, that of contributing to management integration, and a special role, that of presiding value generation and delivery processes. Important roles indeed, since integration means guaranteeing the systems perspective and value creation is the reason of being of organizations.

8. References

In the list below some of the authors who more influenced my views are provided, others can be found in my listed papers. I regret that the latter are so numerous, but I found it difficult to find other authors' papers dealing with the issues that I have addressed above (that is, convergence of quality thinking and systems thinking and the value generation process in the systems perspective). Notice of papers on that subjects are welcome.

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9. About the author

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