

1 Fundamentals of Process Management and Business Process Reengineering

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1.1 Process Management at the Origin of Customer Satisfaction

Process management can be considered by all means a powerful catalyst for programmes aimed at customer satisfaction. It has in fact been designed to overcome problems related to the rigid structure of function-based organisations, where the different units and departments often have discordant performance goals. Consequently, it is easier to co-ordinate all efforts to pursue contemporaneously the variety of performances required by the current competitive world.

The intrinsic nature of process management is such that effectiveness in granting customer satisfaction assumes greater importance than the efficiency of the single functions. Traditionally, each function tries to maximise its result in relation to its goal-parameters, but this may be in contrast with the overall objectives of the enterprise: e.g. quality improvement programmes may be in conflict with productivity aims, or may result in excessive production standards.

Process management – without undermining the functional structure, which preserves its doubtless advantages of an efficient resource management – *overlaps* with it so as to focus more clearly on the customer, who becomes the main driving force for the business, inspiring the coordination logics of all the company's activities. The goals of every function must integrate in a synergic manner in order to achieve the objective of customer satisfaction.

The processes, by exploiting the resources of the company's functions, define, co-ordinate and target the activities towards the satisfaction of the external customer, who conversely, in a rigorously functional organization, risks being scarcely “visible” by those functions that are not in direct contact with them (e.g. purchase departments, technical offices, production units, as compared to trade and sales offices).

Figure 1.1 shows the integration between processes and functions (each function rectangle – or functional business silos, so as to stress how, at the lower levels in particular, communication problems may arise with the other functions – covers part of the organizational chart). An example of a process is shown, spanning the organization to reach its targeted external

customer: in order to do so, it is necessary to co-ordinate a variety of activities (depicted as oriented polygons) exploiting the resources of the different functions. Human resources can be therefore grouped *according to skills* (with respect to functions) *and goals* (with respect to processes). Consequently, a single human resource necessarily belongs to only one organizational unit (and has therefore a unique position in the company's organizational chart), but may contribute to a multitude of processes.

Already back in the early Sixties, various authors (e.g. Chapple and Sayles, 1961) maintained that organizations should be based on workflow; however, their focus was more on production efficiency than customer response. The concept of process management was first defined by Zeleny (1988), and later developed by Davenport and Short in *Sloan Management Review* (1990), Hammer in *Harvard Business Review* (1990), Kaplan and Murdock in *The McKinsey Quarterly* (1991). These articles, along with the book by Rummler and Brache (1990), can be regarded as turning points in the history of business management, and indeed the titles of two of these contributions (by Hammer, and by Rummler and Brache, respectively) are particularly significant, as, paraphrased, they enclose the philosophy of process management: "don't concentrate too much on automating, reconfigure instead your way of working!" and "improve your business performance by filling in the empty spaces between the elements of the organizational chart!"

An organizational chart simply depicts a vertical hierarchy line, but no horizontal links between its various elements. Yet it is these relations that keep an organization "alive". Indeed, like a living being, a company is born and grows. The company's functions can be compared to the organs of a living organism, which can only survive and carry out "vital processes" (breathing, eating, moving about...) thanks to the harmonious functioning of its various parts. It is therefore important to analyse and subsequently develop these processes, in particular those that are carried out implicitly and are therefore often underestimated (a scuba diver, for example, knows how important it is to learn to breath properly and save air when underwater!). In a company, acquiring customers, covering and managing orders, developing products, innovating technology etc. are vital processes involving, to a different extent, various functions and therefore requiring a transversal approach. The same is also true for Public Administrations, providing services or supervising works where various Ministries or Councils are transversally involved.

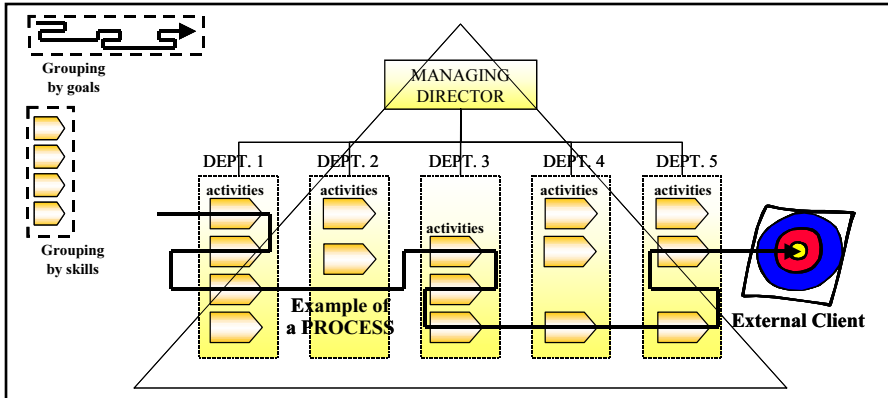


Fig 1.1 Integration between functional organization (by departments) and process management: a process is a set of activities requiring resources which belong to departments

1.2 The Basic Concepts of “Internal Supplier / Customer” and “Process Ownership”

According to the Oxford English Dictionary, a process can be defined as “a continuous and regular succession of actions, taking place or carried on in a definite manner and aimed at achieving some result”. A business process consists of a set of activities; each activity is formed by elementary operations, requires specific resources and is aimed at a goal that concurs, with those of all the other activities, to achieve the objective of the process, an objective that integrates all the goals of the different activities. It must be stressed that all these activities have a synergic effect on the process (i.e. the overall result is greater than that sum of the single partial results) and involve a variety of functions/units (which can be considered as reservoirs/incubators of the expertise needed to carry out the process) within the organization. In order to produce outputs destined for downstream, the activities forming a process require upstream inputs, besides the competency of the resources carrying out the activities (resources “loaned” by the functions/units of the company) (Figure 1.2): upstream and downstream can coincide – as described in more detail in the next pages – with other sub-processes within the company or with external suppliers and customers, respectively.

This type of schematization will also result in:

- a better measurement of performances, after distinguishing between output (or “resulting”), internal, and input (or “received”) performances, and identifying with precision where to take the measures,
- a better selection and management of the portfolio of improvement projects: by assessing the output and taking into account the cause-effect relationships between received and internal performances, it will be possible to identify where to intervene in the most effective manner.

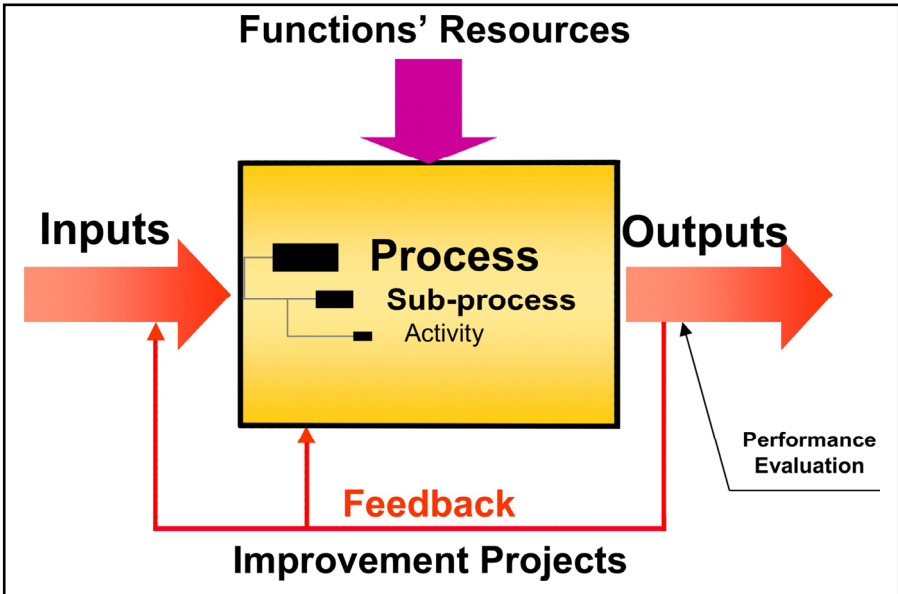


Fig 1.2 A process consists of activities transforming inputs into outputs, thanks to resources loaned by the functions/units of the company

A process can also be viewed as the place where value added is created, or, in other terms, every process generates value added (Keen, 1997). Therefore, process logics combine the typical input/output approach of the system theory, with an economic approach, taking into account that “a process is a combination of activities requiring one or more inputs and creating an output with a value for the customer” (Hammer and Champy, in their “Manifesto” published in 1993) and that “processes constitute a network where the activities of a certain process serve to add value to the inputs deriving from the previous process” (Armistead and Rowland, 1996).

Each process is ultimately targeted at the customers and contributes, with all the others, to their satisfaction. The aim of each process is to *create value added*: this occurs along the entire “value chain” (from design to post-sale assistance), which is therefore entirely focused on the customer.

Table 1.1 The three managerial “hats”

Authority	Skills	Activity / Performances
director of an organizational unit	<ul style="list-style-type: none"> • Ability to maximise function results in relation to objective-aimed parameters • Technical specialisation 	<ul style="list-style-type: none"> • Preside over technical quality • Comply with function budget • Manage resources efficiently
process owner (process management)	<ul style="list-style-type: none"> • Ability to act as entrepreneur of one’s process • Responsibility for results • Relational skills with up- and downstream • Team leadership skills 	<ul style="list-style-type: none"> • Satisfy downstream customers • Involve / motivate human resources • Manage resources effectively
project manager (project management)	<ul style="list-style-type: none"> • Ability to manage change • Forecasting talent • Wide knowledge (even if not in depth) • Team leadership skills 	<ul style="list-style-type: none"> • Achieve project objectives • Comply with project budget • Comply with project time schedule

The “visibility” of the final customer is one of the strongest features of process management. Even those employees who are not in direct contact with the final customer (workers, technicians, maintenance staff) share the common goal of customer satisfaction and perceive the importance of their contribution, which is aimed at satisfying those “customers” inside the

company who benefit from their job. The value chain is in fact formed by *customer/supplier links* existing within the boundaries of the enterprise, and each work group operating in a process or a sub-process interacts with a customer (another sub-process) and is in turn customer of another upstream sub-process. Thus not only are all the efforts focused on the (final) customer's satisfaction, but also – thanks to the concept of *internal customer* – there are better work conditions, as everybody is also somebody's customer.

The second fundamental concept of process management is that of the *entrepreneurial employee*: it is embodied by the *process owner*, who operates transversally with respect to the company's functions (but may however also be in charge of a specific function). The process owner has a number of tasks: to define the goals of the process (i.e. customer satisfaction, both inside and outside the company), co-ordinate the activity (either full- or part-time) of the functions/units and define the resources in the process, establishing criteria and ways of action, identify the characteristics of the process and the performance indicators, chair all activities aimed at improving the performances of the process. In other terms – within the well-established boundaries of the process – the process owner acts as an *entrepreneur*.

The process owner differs, in expertise and tasks (Table 1.1) from both the organizational unit (function/board/department/office) manager and the project manager, although, at least in theory, it could be the same person playing different roles. It deserves mention that if a project responds to the definition of process given in this paragraph, not all *processes* are *projects*, as the latter are a combination of activities with a beginning and an end.

1.3 Importance of Objectives and Consequences on Performance Measurement

As mentioned previously, process management, by identifying precisely the supplier/customer links and the ownership of each activity, sheds light on the genesis of output performances, which emerge from the analysis of received input performances and those of the activities forming the process. By mapping the processes, it is possible to improve performance measurements, knowing *what* (inputs, internal activities, outputs) and *where* (at the upstream or downstream interface, or within the process) to measure, and clarifying the cause-effect relationships at the basis of the managerial action (“When executives observe their companies, they don't

see structure, they see processes” – Ghoshal and Bartlett, 1995; “Reengineering has allowed managers to look beneath the ‘surface structure’ of their organization, and focus on its fundamental objective: to serve value” – Hammer and Stanton, 1999).

In this sense, if it is legitimate to state that “one can manage what one measures” and therefore, without underestimating experience, intuition, good luck (factors that, however important, only play a marginal role in “scientific” management), process management doubtlessly represents a key to business success.

A process approach extends the concept of “working by objectives” from the top management to the entire organisation. Originally deriving from “Management By Objectives” (MBO), a theory formulated by Peter Drucker in 1954, process management revises it completely, overcoming its two main limits:

- MBO focuses on the objectives and goals of an activity rather than the activity *in se* (i.e. responsibilities regard more the results than the activities),
- MBO is a managerial technique involving only the highest levels of the organisation.

MBO emphasizes the manager’s ability to define the objectives, be motivated and endorse performance-oriented plans thanks to his/her authority, the knowledge of the motivations within his/her group and personnel, the cycles of top-down analysis and bottom-up synthesis, and possible “trade-offs”, as instruments to divulge and clarify the birth and development of the performances.

An “objective” is a clear and formal description of an “end result” which one intends to achieve through well-defined intermediate “goals”; particular care must be given to indicate “what” must be achieved, why, for whom and within what time limit (there will be relative freedom concerning “how”). The objective must be: clear, comprehensible, motivating (it must be seen as a challenge) and inherent to the specific competency. Moreover, it must be achievable with the available resources and expertise, measurable and assessable (for an example, see Odiorne, 1965).

Process management is aimed at introducing and spreading throughout the *entire* company the idea of operating by objectives, following the new strategic trends that have shifted the focus of companies from mass production to “mass customization”: this way, the enterprises can exploit the traditional cheapness of wide-scale production to meet the specific and pressing demands of the customer.

Briefly, process management postulates an organization (thus, the involvement of the *entire* company) oriented towards objectives/results rather than on one based on tasks, and makes a leap from “control-order-prescription” to “acknowledge-create-empowerment” (Evered and Selman, 1989). Functional and hierarchic structures are thus superseded: a task-based aggregation leaves space for objective/competency aggregation; responsibility is empowered by role and not necessarily by authority.

The consequences for all the workers are remarkable: there is an *empowerment* that leads all the employees to take on greater responsibilities and understand the effects of their actions on the global performance of the company; there is a continuous quest for improvement, expertise (in the sense of technical knowledge, reliability and personal character) which may service various processes is highly regarded, careers become transversal and linked to role rather than level. Work within the process is firmly organized in teams, into which flow different, specialized competencies, and the sense of belonging to a work group is enhanced, since teams are encouraged by the management to make decisions regarding the process. Moreover, the objectives of the work groups act as integrating mechanisms: *team working* creates a fertile ground for learning and adapting continuously to external stimuli. The group is headed by the process owner, who must possess leadership qualities and an enterprising spirit (Youkl, 1981).

From a performance viewpoint, the attention is placed on the *interfunctional effectiveness* of the process (e.g. customer satisfaction in terms of perceived product & service quality), on the *global efficiency* of the process (e.g. reducing the overall costs relative to nonconformities rather than the productivity of the single departments), on the *system flexibility* (defined as a quality, rapid and low-cost adaptation to the changes in the environment – De Toni and Tonchia, 1998). As regards *costs*, process logics provides a better understanding and identification of the genesis of costs in the various areas of the company and during the different stages of design, engineering, production and sales/distribution.

In general, process management requires the company to revise its Performance Measurement System (PMS) and arrange for a widespread use of Information Technology (Davenport and Short, 1990; Davenport, 1993), including web-based technologies such as Intranet/Extranet and Business Intelligence (Part Three of this book).

The main consequences of process management on the characteristics and indicators of the Performance Measurement System can be summarized as follows (De Toni and Tonchia, 1996):

- there must be overall process indicators, transversal to the organization, that can measure the effectiveness of the process in achieving its pri-

mary objective; the latter is the result of the harmonic, converging and synergic sum of the goals pertaining to specific sub-processes of the above process,

- the performances concurring in determining the primary objective and those pertaining to the single functions and units/departments (e.g. efficiency performances), which supply the necessary resources to carry out the activities of the process, must be considered together,
- in the framework of the customer-supplier chain, the system must be able to identify the performances that can be ascribed to a process and which, although deriving from activities of the same process, depend to a great extent on the performances of upstream processes (suppliers),
- the performances concurring in achieving the primary objective will not only be assessed in absolute terms, but also in relative ones, i.e. between the functions/boards, in order to assure the best combination with the available (limited) resources: an excellent performance of one function/unit must not be obtained to the detriment of others.

The comparison between aim and result must occur at all levels of the company’s organizational pyramid, from strategic performances (critical success factors) to functional and operational ones, but in particular – from a process management viewpoint – it must support the “revolution” that took place with the introduction of the customer-supplier “internal links”.

For example, according to the Accenture’s model (Hronec, 1993), a distinction must be made between *process measures* and *result measures*: one or more critical processes correspond to each goal, and one or more result (or output) measures correspond to each critical process. Result measures are determined by the key activities of each single process, and these activities are assessed through process measures (thus, within the process).

Table 1.2 Performance Measurement System and Process Management

from	to
Financial results	Value creation
Standard achievement	Customer satisfaction
Control	Learning & improvement
Individual measures	Team measures
Task/function measures	Transversal measures
Hierarchical synthesis	Synthesis by customer-supplier links
Performance trade-off	Performance synergy

Table 1.2 reports the most significant differences in the evolution of company's PMS following the decision to adopt process management.

1.4 From Process Management to Business Process Reengineering

Process management can be applied at different levels of intensity, from a simple rationalisation of the work process (Process Management in a stricter sense) to its deep reengineering (Process Reengineering). Business strategies may also be revolutionised (Business Reengineering): in the latter two cases we witness what is commonly known as *Business Process Reengineering (BPR)*, a term coined at the MIT in Boston in the late Eighties. In greater detail:

- *Process Management* consists in the rationalisation of processes, the quest for efficiency / effectiveness, a sort of simplification/clarification brought about by “common-sense engineering”,
- *Process Reengineering* consists in re-designing processes, always aiming at efficiency / effectiveness,
- *Business Reengineering* consists in restructuring the business from a strategic viewpoint (e.g. repositioning the company in a different market etc.). Some authors simply prefer to distinguish between gradual improvement (“Business Process Improvement” – BPI) and radical change (“Business Process Reengineering” – BPR); in other words, “the aim of *reengineering* is to build a correct process, and that of *improvement* is to have a better process” (Johansson et al., 1993). Childe et al. (1994) suggest a solution involving continuous interventions that from individual and group improvements can lead to process and business reengineering; risks can however increase during this path, and the scope passes from operational to strategic.

Some features are common to BPI and BPR (Harrington, 1991):

- change is focused on and driven by the customer,
- the object of the change are the processes (or their composing parts),
- there is a real sponsorship by the management (top management in the case of BPR),
- interventions focus on organizational-managerial variables rather than technological ones,

- there is a precise identification of process ownership,
- there is a precise measurement of the process performances (before and after),
- both can start up as pilot projects.

On the other hand, there are also remarkable differences, as reported in Table 1.3.

Table 1.3 Improvement or reengineering of business processes

Business Process Improvement	Business Process Reengineering
Gradual approach to change	Radical approach to change
Absence of an emergency situation	Strong urge to change
Limited/indirect dependence on business strategy	Direct involvement of business strategy
Ability to grasp even the slightest opportunity	Aptitude to take risks in the presence of big opportunities
Involvement of circumscribed processes	Involvement of larger, more transversal processes
Marginal involvement of several processes	Involvement of fewer, but more critical processes
Identification (also empirical) of the opportunities	Complex project reengineering management
Bottom-up contribution	Top-down organisational review
Lower costs and implementation times	Higher costs and longer implementation times
STAGES	STAGES
1) Identification of the processes to improve	1) Strategy reformulation
2) Definition of an intervention team	2) Assessment of the inadequacy of current key processes
3) Analysis of current processes and improvement methods	3) Reengineering of the key processes
4) Implementation of improvement interventions	4) Tuning of the new key processes
5) Assessment of the results	5) Evaluation of the results

In practice, however, it is often impossible to define beforehand whether it is more profitable to improve a process (BPI) or carry out a more radical intervention (BPR). In the latter case, the delicate nature of this type of intervention must be kept in mind: BPR has a strong impact on the human

resources and on their way of working, fears and problems of adaptation could make it ill accepted or even opposed (a company turned inside-out like a glove could have more problems than benefits!). The solution often lies in a gradual change, having the features of a BPR rather than a BPI in the case of critical or priority processes. In Chapter 2 change will assume the features of BPR or BPI without discontinuity, according to the gap between actual and expected situation. For this reason, from now on we will only refer to *process management*, without distinguishing between BPI and BPR (Figure 1.3).

Hammer and Champy (1993) consider it useful to identify precisely the “actors” in the reengineering process:

- a leader (a high-level manager who authorizes and endorses the changes),
- a managerial committee (formed by the top management and the different area managers, and chaired by the above leader, whose task is to define and develop the reengineering strategies),
- a process owner for each main process hypothesized (in charge of the process and its reengineering),
- a reengineering team (i.e. a group of persons committed to the integrated reengineering/revision of the processes, with delegates from the various macro-processes identified (Rohleder and Silver, 1997),
- a person in charge of improvement/reengineering (who must develop and implement it, by co-ordinating the different, related actions).

Dutta and Manzoni (1998) have presented an interesting series of “pedagogical” case studies on the implementation of BPR, revealing on one hand the indispensable need for these interventions (“there had to be a better way to carry out things”), and on the other the risk of frustration, mainly resulting from two causes: 1) a limited emphasis and integration of the human factor in the interventions (“the human side of BPR”); 2) the need to consider BPR as an effort with a greater strategic outcome than is usually believed. Moreover, it should be kept clearly in mind that BPR is only a *pathway* towards improvement, “a race without a finish line”.

It is also important to consider beforehand a possible reluctance of the organization to accept change (Hall et al., 1993; King and Sethi, 1998). The reasons can be ascribed to:

- fear of novelty (uncertainties),
- worries of an economical nature,
- fear of losing power and influence,

- difficulty to change habits and consolidated ways of thinking,
- problems at a personal level (anxieties),
- previous negative experiences concerning changes,
- legitimate doubts regarding the proposed changes.

Cagliano et al. (1998) also observe that the BPR methodology has been mostly developed with an eye to large businesses, and its application to smaller ones is more difficult and requires adequate support instruments. These can be offered by service centres, science parks and associations of industrialists (in terms of “best practice” transfer, knowledge-sharing between small enterprises, assistance in the creation of competency networks).

Process management, both in terms of BPI and BPR, does not impair the classic, function-based organizational structure (and its doubtless advantages in terms of work specialization) displayed by its organizational chart. Process management mainly consists in orienting the human resources of the organisational chart towards the respective process goals, and requiring an additional contribution so that the processes run smoothly (and thus having a positive impact on work conditions, as provided by the concept of inside customer).

For this reason, we prefer not to refer to *process organization*, a deceptive definition, as it seems to point to abandoning the pre-existing organizational system for a new one. This does not imply that no change will be made to the organizational chart after an intervention of process management: there will be new “role actors” by appointing tasks of process ownership. So process management is not an organizational model *in se*, but a managerial model requiring an end-to-end vision that, as a result, compels a restructuring of the organization.

Moreover, process management does not imply a matrix organizational structure, as in the case, for example, of project management (where there is a co-ordinator/manager for each project, “intersected” with a number of functions), with the relative problems connected to hierarchic authority (“strong” and “weak” matrixes and “competition” between the different projects). In process management, the objectives do not coincide with those of functional management and, if processes have been mapped correctly, there should be a balance of resources for all the various activities of the various processes.

Besides the difficulties that may arise in the implementation of process management, there may also be others related to the situations in the different businesses. Ostroff (1999) supports the validity of vertical organizations lacking process orientation when business objectives have not yet

been clearly identified or are still anchored to efficiency-oriented performances (cost leadership strategies). Moreover, whenever human resources are particularly critical, because asked to contribute to too many processes, new resources (either within the company or from outside) must be found to act as sub-process owners, and answer to a process owner of a higher level. In other terms it can be necessary to introduce one (or more) hierarchic levels of process ownership. Compared to the more traditional enterprises, actors in their new roles could be better rewarded and advance in their career.

It mustn't be forgotten that, formally, nothing forbids a function manager to be also a process manager, and indeed, this is often a way to introduce process management more gradually.

Other authors – such as Biazzo (1998) – maintain a more critical approach to BPR, observing on one hand that process analysis/design coincides with comprehending/changing a “socio-technical system”, and on the other there is the concrete risk of using an over-scientific (simplistic) approach to the complexity of an organization and its internal network of relationships. Grover and Malhotra (1997), after stressing a few false truths about BPR (underlining such aspects as incrementality, intra-functional improvement, the objectives of cost reduction together with empowerment and team working, the difficulty in standardizing and managing interventions from the top) observe that a more contingent approach to BPR would be required, depending on the single business situations.

Process Management	Business Process Improvement (BPI)	Process Management
Process Reengineering	Business Process Reengineering (BPR)	
Business Reengineering		

Fig 1.3 Process Management ranges from the improvement to the reengineering of the organization's way of working

Finally, connected to process management from a terminological viewpoint, two other practices are often cited: Activity-Based Management (ABM) and Process Value Analysis (PVA). These are however applied in a more circumscribed field than process management, which is instead more pervasive and inherent to the performances of the entire business.

ABM developed from Activity-Based Costing (ABC) and is formally aimed at managing the activities so as to reduce costs (See Paragraph 7.3). Likewise, PVA is aimed at reducing the overall costs within the company by focusing on the activities. Already in 1990 Johnson had presented a

case study on General Electric, and had distinguished between value-adding activities (VA), those that added no value (NVA) – such as set-ups, queues, maintenance and quality controls – and “grey activities” (unclassifiable, or with both VA and NVA features). Turney (1992), one of the world experts of ABC, suggests – as well as the ABC technique – revising the use of the resources, eliminating NVA activities, reducing times of VA activities, and that more products may share the same VA activities.

1.5 Process Management and ISO 9000:2000 Quality Standards

The *process approach* is also strongly promoted by the new family of ISO standards published in December 2000 which regard “Quality Management Systems”; these standards are the result of the project “Vision 2000”, aimed at revising the previous regulations dating back to 1994.

The new quality standards included in the “2000” family are to date: ISO 9000:2000 (“Quality Management Systems – Fundamentals and vocabulary”), ISO 9001:2000 (“Quality Management Systems – Requirements”) and ISO 9004:2000 (“Quality Management Systems – Guidelines for performance improvements”).

The new standards aim at overcoming what were the limits of the previous series, namely: the lack of consideration for continuous improvement and preventive actions, the scarce attention devoted to costs, efficiency and resource management, the limited importance given to measurable goals, the lack of integration with other interested parties (suppliers, customers, etc.), the scarce co-ordination between 9001 and 9004, the lack of connections with the ISO 14000 environmental standards, the limited role of top management; moreover, the new standards fully endorse in an explicit way a process approach.

According to ISO 9000 (clause 2.4), a process is defined as a “set of interrelated or interacting activities which transforms inputs into outputs. In order to run effectively, a company must identify and manage different processes which are interrelated and interdependent. The output of a process is often an input to another one, thus the systematic identification and management of the processes within an organization, and the interaction of these processes, can be summarized in the expression ‘process approach’. The aim of this international regulation is to promote process approach in the management of a company”.

In particular, ISO 9001, which certifies quality systems, promotes the continuous improvement of the above systems, in accordance with the PDCA or Deming cycle (ISO 9001 – clause 0.2 “Process approach”):

- *Plan*: establish the objectives and processes necessary to deliver results in accordance with customer requirements and the organization's policies,
- *Do*: implement the processes,
- *Check*: monitor and measure processes and product against policies, objectives and requirements for the product, and report the results,
- *Act*: take actions to continually improve process performance.”

There is no explicit request to select specific processes, as “the managers should identify the processes needed to manufacture products that satisfy the requirements of customers and other interested parties” (ISO 9004 – clause 7.1.3.1). Some indications of the types of processes may be inferred from clause 7 of the ISO 9001 standard. The requirements of the quality management system, object of the certification, pass from the former twenty elements described in Section 4 of the past ISO 9001 to the current four: i) “Management responsibility” (clause 5); ii) “Resource management” (clause 6); iii) “Product realization” (clause 7); iv) “Measurement, analysis and improvement” (clause 8).

Clause 7 (“Product realization”) is articulated in what could be interpreted as macro-processes:

- *planning for product realisation,*
- *processes related to customers and other interested parties,*
- *design & development,*
- *purchasing,*
- *production & service provision,*
- *control of measuring and monitoring devices.*

Moreover, support processes should be taken into account, such as “managing information, training of people, finance-related activities ...” (ISO 9004 – clause 7.1.3.1).

Finally, for all the processes, ISO 9004 (clause 7.1.3.2) encourages acting in such a way that “the inputs are defined and recorded in order to provide a basis for formulation of requirements to be used for verification and validation of outputs. Inputs can be internal or external to the organization... The outputs should be recorded and evaluated against input requirements and acceptance criteria. This evaluation should identify neces-

sary corrective actions, preventive actions or potential improvements in the effectiveness and efficiency of the process”.

Process management can also be used for a preliminary assessment of the state of the quality system: in order to avert the risk of ritualism and identify the real distance from the requirements provided by ISO 9000:2000 standards, and avoid that current practices may be manipulated or adapted so as to only respond to the above requirements, it is advisable to adopt a model of process management and not the norm itself, which should therefore rely on a solid model of process functioning. The processes should *first* be re-organized, and *subsequently* conform to quality system requirements.

Processes also play an important role within *quality awards*. For example, they are one of the nine evaluation elements provided for the European Quality Award (EQA), forming the link between the four “factor” elements

- leadership,
- policy and strategy,
- human resource management,
- partnerships and resources.

and the four “result” elements

- employee satisfaction,
- customer satisfaction,
- impact on the society,
- company’s key performance results.