

From Structure to Process: A vision of a process-based organization

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Abstract

Organization design has for a long time been dominated by a functional perspective on organizations, considering them as hierarchies of authority and control. Current concepts, such as total quality (TQM, TQC) and reengineering (BPR) can be seen as an effort to overcome the traditional functional approach and to focus on the processes performed within the organization rather than on its structure. However, when looking at the results of total quality implementations and reengineering projects one can conclude, that the basic idea about organizations as being a structure rather than a set of processes is not actually replaced. Functional departments are replaced by teams, hierarchy levels are removed, but designing structures still appears to be the main emphasis of organization design.

Introduction

There is a growing insight among company leaders, that the traditional concepts for organizing, labour division and management no longer are applicable in a world of global markets, changing customer requirements and rapid communication.

The recipes for change, known as reengineering (BPR, BPI), kaizen (Japanese for continuous improvement), and total quality (TQM, TQC) are based on the same primary assumption: Companies will have to refocus on their basic task, satisfying customer needs (Hammer & Champy 1993, Davenport 1993, Creech 1994).

Even though the means for achieving this differ between the approaches, they share one commonality: A focus on processes instead of functions. Nevertheless, the organizational redesign often comes short of this ambition as the new organization still is a conglomerate of structural relations, rather than a network of processes. Removing hierarchy levels, establishing teams and empowering employees will not shift the focus from structure to processes per se.

This paper is will approach this problemacy by providing arguments for the usability of emphasizing on organizational processes, while disregarding the structural

component of organizations during the design stage. A way of considering organizations as a set of dialectic, hierarchical, integrated processes will be introduced and the consequences of this view for organization design will be discussed with regard to their impact on several aspects of the organizational design process. However, it is important to point out, that this article is not presenting findings yet proven by the standards of the scientific community. It should be considered as the presentation of a visionary idea about how organizations can be designed upon a process-basis, and an attempt to receive theoretical and empirical feedback regarding the feasibility of the ideas presented.

"There is in the literature a great disparity between hypothesis and evidence. Much of what we know or believe about organizations is distilled from common sense and from the practical experience of executives. The great bulk of this wisdom and lore has never been subjected to the rigorous scrutiny of scientific method. The literature contains many assertions, but little evidence to determine - by the usual scientific standards of public testability and reproducibility - whether these assertions really hold up in the world of fact."

James March and Herbert Simon, 1958

Background

Ever since the application of Smith's labour division principles (Smith, 1776) on administrative science, we have had the same logical assumptions about how companies should be organized, indifferent from industry and competitive environment. Similar, functional tasks rather than logically related activities, have been aggregated and grouped into functional organizational units. This view has generated corps of specialists, each of them focusing on his own bounded functional task. The result of this functional specialization is manifested in long time-to-market, increased transaction costs, workflow delays and problems in quality assurance.

During the recent years, several concepts for organizational change have been developed, that consider business processes as being the conceptual bedrock for organization design. The most current example is Business Process Reengineering (BPR), where organizational pathologies are attacked by focusing on organizational core processes, i.e. processes that deliver an added value to the internal or external customer. When looking at recent information technology trends, we can observe emerging technologies for workflow support, and improved collaboration within work groups.

When considering manufacturing, a process-oriented perspective has been applied for many years. Ever since the days of Henry Ford, workflows along an assembly line have been the dominating way of manufacturing goods. It is therefore important to point out, that a process perspective on organization design is not an application of manufacturing procedures on administration, despite the fact that a considerable number of scholars have adopted this perspective. When looking at how manufacturing has been organized, it has, in spite of the process perspective, been designed for bringing together multiple functional competencies. In order to handle the aspects of transaction among the elements of the process, there has been a focus on independence, instituted by buffering and stocking, rather than integration

However, since the middle of the 1980s, a new view on manufacturing processes emerged, partially driven by the increasing adoption of Total Quality Management, partially by the striving for cost reduction. The turbulence and accelerating environmental dynamics of the mid 1980s and 1990s had a considerable impact on the ways for operating and managing business organizations.

In order to overcome the limitations of the existing organizational forms, multiple new approaches to structure organizations were proposed. Rockart and Short (1991) have advocated networked organizations as a possible solution to the problem. A similar view has been proposed by Bush and Frohman (1991). They criticized the traditional up-and-down communication model, as well as the sequential flow of functional activities, and instead proposed a model for a concurrent network organization.

Both proposals are, however, not concerned with the feasibility of certain organizational forms to implement the proposed networked organization. The intention of this paper is to provide a conceptual model for organization design that is based upon processes as the basic organizational unit.

Analyzing processes and designing structures

Most of the current change concepts, such as BPR and Time-based management, claim to have a primary focus on organizational processes instead of structures. This claim holds true to the extent, that these concepts are based on processes on the conceptual level, however, when looking at the outcome of projects undertaken under the banner of process improvement, one can often conclude that the resulting organizational forms still consist of structural components. This discrepancy between the analysis and the re-design stages can be considered as being a main barrier for successfully implementing organizational forms that are entirely based on business processes. Repeatedly occurring measures in process-oriented change projects are the

removal of hierarchy levels, the establishment of empowered teams, and expanded spans of responsibility for remaining managers. These measures are based upon the presumption, that process management requires stable structures.

According to my opinion, it provides significant advantages to disregard the structural component of organizations and to primarily focus on the processes to be performed. Even though this implies considerable changes in the way of conceiving organizations, the distribution of work, reward systems and control a.o., this view enables a stronger consideration of the organizational outcome and the means to achieve it, rather than of the organization itself.

Conceptual considerations

In order to overcome the deficiencies of focusing on structural, instead of process design, it is necessary to make a clear distinction between two sub-elements of organizations. The german economist Erich Kosiol (1962) used a distinction between "structure-" and "work-organization". Even though Kosiol considered this distinction as a "scientific trick", aimed at reducing the complexity of conceptualizing organizations, it is a useful distinction for considering the different components of organizations. The following picture describes the flow of a document according to the rules and procedures of the formal organizational structures, and the work process respectively.

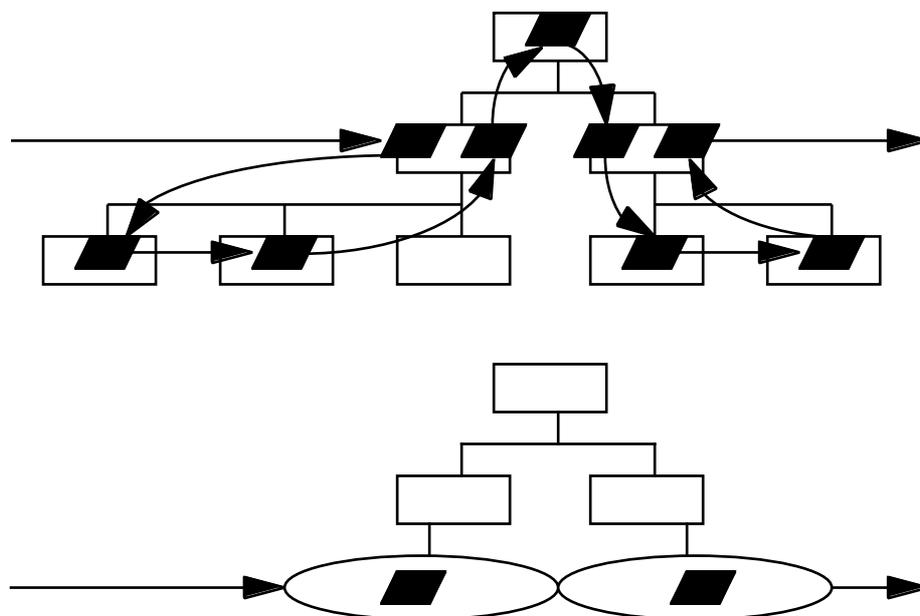


Figure 1: Organizational process and work process

As it can be learned from this picture, the number of transactions being imposed by hierarchical structures and the rules of supervision and subordination is significantly higher than those being the result of actual being performed. Designing organizations from a process perspective is intended to focus on "hands-on" work, thus reducing the amount of overhead work.

In current change management literature and seminars, e.g. Davenport (1993), Gartner Group (1993), organizational processes are often depicted as in figure 2, i.e. as a set of straight, sequential activities, lying above the existing, functional structure, and crossing multiple functional borders.

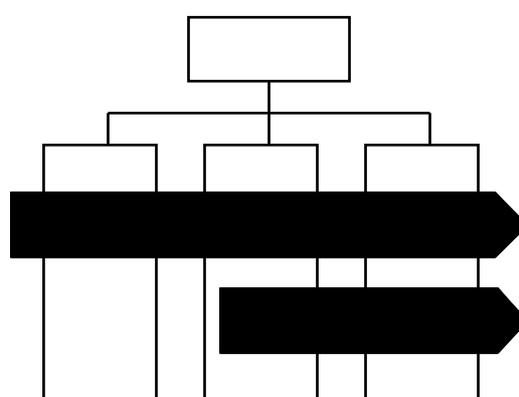


Figure 2: Processes as straight, sequential sets of activities

According to my opinion, this description model is insufficient for a conceptualization of organizational processes, since it provides an image of processes as being a sequential flow of co-ordinated functional activities with well-defined boundaries, and that the preservation of an underlying functional structures is an implication for organization design on a process basis.

I will go beyond this foundations and provide a model under the presumption, that organizations can be designed based upon organizational processes only. However, this includes abandoning many conventional implications concerning organizations, how they are managed, the role and behaviour of organizational members etc., which will then no longer be applicable. For my further considerations, I will first have to define some basic assumptions about organizations conceptually defined in process terms. The following assumptions will be used for the further discussion. A graphical depiction of an organization based on the assumptions given below is given in fig. 3.

Instead of defining organizations in functional terms, dividing them into departments, business units, or teams, they can conceptually be defined as being networks of

processes. This perspective enables a focus shift from the organization as an institutional phenomenon to its ends and the required activities and means to achieve them. The identification of activities and the integration of those into processes, their interrelation, and outcome, according to the organizations mission and process objectives then becomes the primary task for organization development, instead of providing a functional frame. As a result of this focus shift, an organizational structure occurs temporarily based upon the actual processes under performance.

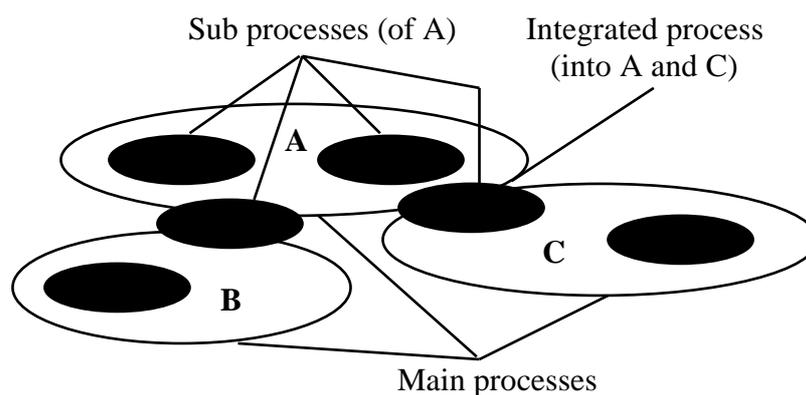


Fig. 3: A process network model

Processes are dialectic

By applying a dialectic perspective at organizational processes, we can overcome the limitation of a conception of processes as being sequential, i.e. as having a pre-defined starting- and end-point and incorporate enhanced organizational learning and process elevation in organization design at an early stage. This view includes a wide range of conceptual assumptions about organizational behaviour and individual and organizational learning.

Processes are hierarchical

As complexity is considered as being the major source of reduced manageability in organizations, the analytical school, mainly represented by Herbert Simon, is intended to provide means to reduce complexity and increase perspectiveness, independence and manageability. This is achieved by organizational fragmentation, i.e. the organization is broken down into a sub-set of tasks, each of them contributing to fulfil the objectives of their super-task. The same principle can be applied when organizations are considered as processes, which are then fragmented into sub-processes, until the desired level of complexity to remain is reached (as described by Emery (1969) for functional organizations).

Processes are integrated

In the same way as processes can be considered as being sets of interacting sub-processes, they may be integrated into one, or several, super-processes, given the presumption that they share common objectives. Process integration allows us to conceive a set of processes as a whole, instead of an assembly of parts. Thereby, co-ordination among the incorporated elements is improved, as the scope of process management includes a consideration of transactions as a critical factor, instead of focusing on the production of functional outcomes.

Discussion

Considering processes in above mentioned terms does not only impact the perspective at processes as being straight, sequential flows, crossing several functional boundaries. It will even challenge conventional wisdom regarding superiority and sub-ordination, reward systems, the concurrence of activities, a.o. I found that the following aspects, being discussed in the following, will have to gain increased attention:

- Superiority, sub-ordination
- Competence-pools
- Job assignment
- Process evolution
- Reward systems
- Goal congruence

Superiority and sub-ordination

Authority, superiority and sub-ordination are the current determining factors for depicting organizational structures. The hierarchical organizations resulting from this design principle are based upon a fragmentation of the organization into similar functional tasks, instead of value adding processes, often resulting in a departmental self-containment and a focus on the production of functional outcomes. The structure then tends to become a self-purpose, i.e. an institution, where the primary focus is to maintain the current state, power-bases and control structures. Within these organizations, the career of organizational members is determined by a person's formal position within the hierarchy, not the individuals contribution to added value, his skills, and commitment to the objectives to achieve. Additionally, promotion is single-directed, i.e. upwards. As described by the "Peter principle", this may result in promotion to

incompetence, i.e. an individual is promoted until it reaches an hierarchical level, where task solving is beyond its capacities.

Job assignment

For avoiding the institutionalizing of established structural relations within the organization, temporary assignments of individuals to processes appear to be a feasible approach, since this focus on process performance instead of functional positions keeps the organization in a permanent state of change, and the emerging "structure", i.e. a "snapshot" of the process network in a specific point of time, is continuously changing upon the basis of an ongoing re-evaluation of processes' contribution to the fulfilment of organizational objectives and process-elevation on the basis of enhanced organizational learning.

Even though a process perspective on organizations is intended to disregard formal structures, the need for co-ordination, within a process as well as among interacting processes, remains unchanged. However, this authority is not based on a formally determined span of control, but on the temporarily assigned position within an organizational process. These positions are assigned to people based upon their personal skill profile and their ability and will of committing to the objectives of the process.

By assigning positions within processes to people temporarily, a continuous performance evaluation is enabled according to the required performance of the process. The individual may now qualify, or disqualify, itself for the assigned position. As these assignments are temporary, determined by processes' cycle-time, it is ensured that positions are not occupied by people with competence lacks for an unpredictable period of time ahead. It is a common phenomenon to "promote away" individuals who are not fulfilling the expectations focused on them. Through temporary assignments this proceeding becomes obsolete, since individuals not being able or willing to fulfil the requirements related to their position will not be allowed to be assigned to positions beyond their capabilities, due to the required match between their skill-profile and the process requirements.

Skill-profiles and reward-systems

In order to ensure the qualification and competence of individuals having process positions assigned to themselves, the individual's skill profile must be corresponding to the required competence for the position within the process. It may be desirable, however, to allow individuals with a potential capability to assign positions beyond their core competencies to

themselves, since competence broadening and individual skill development is a necessary implication for incorporating organizational learning and the continuous improvement of process performance.

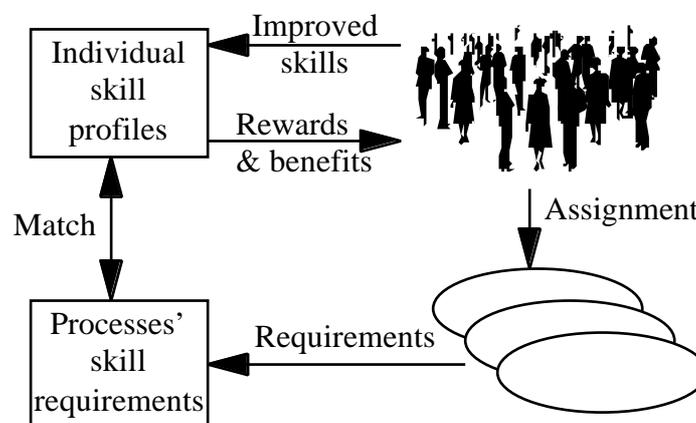


Fig. 4: Reward system structure

Due to the temporary nature of positions, the conventionally used reward systems occur to be inapplicable. Alternatively, there are two options to choose: Either can individuals be rewarded upon the duration of their organizational membership, or upon the temporary positions they currently possess. While the first alternative implies that experience and competence is a matter of age and will increase automatically, there are no incentives for gaining increased competence and knowledge, which is a demotivating factor and hinder for the continuous competence development that is required in dynamic environments. Since rewards have to be related to the responsibilities taken by the individual and its commitment to organizational objectives, it occurs natural to base the reward structure on the current assignments. This may result in a reward structure, where a basic reward is allowed to all employees, but all additional rewards are based upon the position within the process. By continuous competence development, the individual may then be allowed to assignments on a higher co-ordinative level within the process network.

A methodology approach to employee ranking is described by Nadler and Gerstein (1992). Their concept consists of thirteen steps, starting with a job or job-cluster identification, and appears, even though being originally developed for executive staffing, to be a feasible approach to matching individual skills with job requirements.

Competence-pools

Since organizational members are not belonging to pre-defined organizational units, and the processes being performed within the organization are not stable as far as their existence is concerned, new forms have to be found to define organizational membership. It appears suitable, to use a competence-pool, basically containing all organizational members, and used for training and education, as the basic unit. This would include a concept of the organization as being intentionally peer-based, where superiority and sub-ordination is determined by the actual position within a process that the member is currently assigned to, as it was described above. Basically belonging to the pool, individuals are then temporarily assigned to process-positions, and returning to the pool after having finished their assignment. Since there are e.g. legal implications, a need for continuity in strategic decision-taking, policy definition etc., the concept is, however, not applicable on all organizational members. A small group of top executive staff members has to be excluded in order to ensure the requirements for continuity.

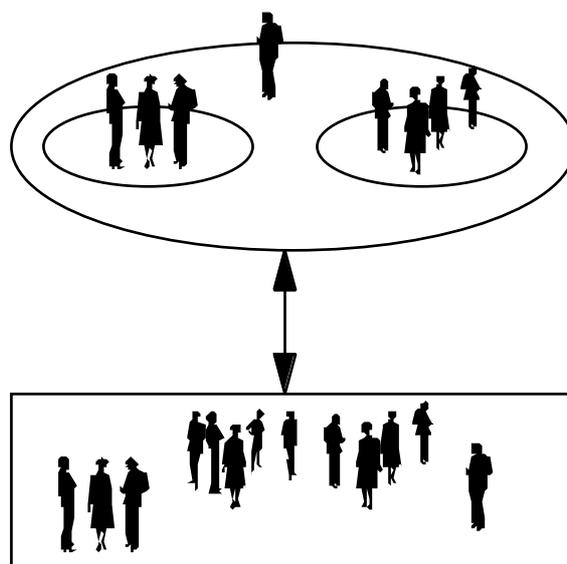


Fig. 5: The competence-pool

Process evolution

In their striving for reduced time-to-markets, many organizations being involved in product development are using concurrent engineering (CE) as a tool for reducing the waiting states of interdependent entities within the organization and to integrate the organization's activities across the firm's value adding chain. This integration, described by Lawrence and Lorsch (1967) provides opportunities for reducing the time required from product-design to -delivery, quality improvement regarding the conformance to customer requirements, and cost-reduction. Even

though this concept was originally defined for functional integration, it occurs to be applicable on process-organizations as well. By taking needs, capabilities, and results of interacting processes into account and re-considering them dialectically, lengthy, iterative development processes can be eliminated.

This can be practically achieved by defining "transaction tokens", i.e. points of times when preliminary process outcomes are transferred to depending processes, thus providing them with a basis for their own activities at an early stage, and thereby reducing the need for achieving final results before transferring them to the next process. The output of one sub-process is then successively incorporated into the results of depending processes to become a part of the outcome of the super-process. Since these preliminary results are rapidly spread throughout the entire process-network, a "prototype" of the final outcome of the super-process can be achieved faster, allowing to match it against customer requirements and fine-tuning it during the further development process.

This concept can be considered as a "dialectic process evolution" and is comparable to the concept of incremental system development, being widely used in software engineering. There is one major difference, however: While incremental development is based upon modularity, i.e. entire clusters of the system are produced and delivered, the evolutionary approach uses preliminary results through the entire development process as a basis for incorporation and fine-tuning.

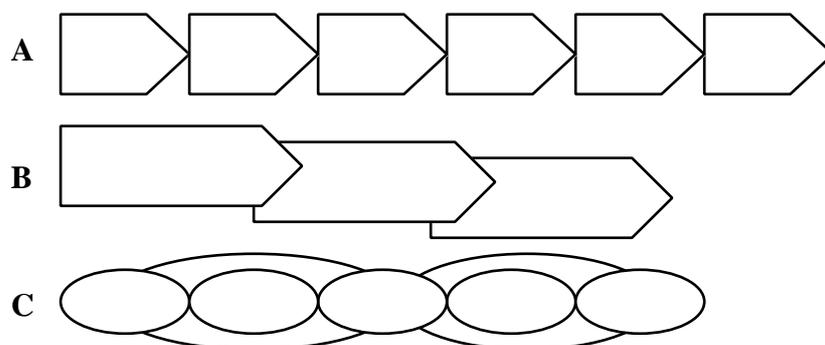


Fig. 6: Value-added chain (A), "collapsed" value-added chain (B), and "process evolution" (C)

Goal congruence

An aspect not yet discussed is the basis upon which processes are fragmented, respectively integrated. In hierarchical organizations, the similarity of tasks is the determining factor, but this principle appears not to be usable in a process organization, due to the diversity of the activities

being performed within the processes. Using goal congruence as determinator appears to be a more feasible way for fragmenting and integrating in a process-organization, i.e. processes are put into relation to each other depending on their capability to contribute to achieve objectives. Depending on the characteristics of the processes under concern, these objectives may be of qualitative, as well as quantitative nature. This can be exemplified by looking at the qualitative objectives of a sales-, service-, and customer contact process:

- **Sales objective:** Presenting our products as the solution to customers problems. This can be achieved by establishing and maintaining close relationships with existing and prospective customers, since we thereby show our concern for customers problems.
- **Service objective:** Through close customer contacts we can provide a superior service, since we are aware of the specific situation of our customers and can thereby respond quickly to their service needs.
- **Customer contact objective:** Maintaining close relationships with our customers.

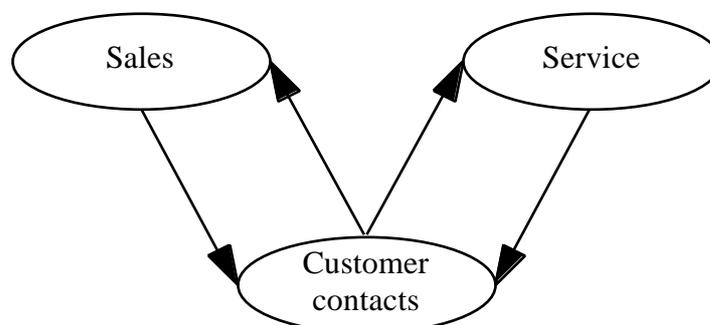
Apparently, both the sales- and the service-process are depending on good customer relationships. The customer contact process' objective, in turn, is a sub-set of the objectives of both other processes. When fragmenting the process-hierarchy, i.e. using a top-down approach, the customer contact process is therefore considered as a sub-process by both super-processes, while an analysis of process-integration would reveal customer contacts as being integrated into two super-processes.

Sales perspective

- Customer contacts as sub-process
- Sales process optimization

Service perspective

- Customer contacts as sub-process
- Service process optimization



Customer contacts perspective

- Integrated into 2 processes
- Shared resources

Fig. 7: Process perspectives

One could consider this as a zero-sum game, since fragmentation, as well as integration will result in the same number of relationships, however, taking a perspective from a singular process, the results will lead to different conclusions. Both super-processes are intended to maximize their own performance, i.e. to employ the resources of customer contacts in a way that maximizes their own goal achievement, while, on the other hand, customer contacts has to co-ordinate its activities with those of two super-processes, share its resources of its activities among them and contribute to the achievement of different goals. The difference between those two perspectives is depicted in figure 7. To increase the workability of both super-processes, there must be an agreement that satisfies the mutual expectations of the parts involved.

Conclusions

In this paper I have presented a vision of an organization being conceptually based on processes instead of hierarchical structures. Several aspects of such an organization and their impact on organization design have been discussed. However, several issues had to be disregarded due to the complexity of the topic and a lack of theory, as well as empirical research. My literature studies revealed, that a lot research remains to do, and a lot of experience to be gained, in order to overcome the deficiencies of current approaches and for being able to define a solid bedrock in this field. The issues to be investigated in the future may include:

- The distribution of responsibility.
- How to migrate from a bureaucratic to a process-based organization.
- The changing roles of organizational members.
- IT for supporting process-organizations.

Nevertheless it can be claimed, that the process-approach to organization analysis and design will have to gain an increased attention, since it provides mechanisms for a better adaptation of the organization to environmental dynamics, imposed by globalized markets, increasing competition and rapidly changing customer requirements.

References

- Bush and Frohman (1991), John B. Bush Jr. and Alan L. Frohman, *Communications in a "Network" Organization*, In: Organizational Dynamics, Autumn 1991
- Creech (1994), Bill Creech, *The five pillars of TQM: how to make total quality management working for you*, Truman Talley Books/Dutton, Penguin group
- Davenport (1993), T.H. Davenport, *Process Innovation: Reengineering work through information technology*, Harvard Business School Press, Boston
- Emery (1969), James C. Emery, *Organisation planning and control systems*, Macmillan, New York
- Gartner Group (1993), Gartner Group handouts, BPR seminar Stockholm
- Hammer & Champy (1993), M. Hammer & J. Champy, *Reengineering the Corporation*, Harper Business
- Kosiol (1962), Erich Kosiol, *Organisation der Unternehmung*, Wiesbaden
- Lawrence & Lorsch (1967), P.R. Lawrence and J.W. Lorsch, *Organization and Environment: Managing Differentiation and Integration*, Homewood
- March & Simon (1958), J. March and H. Simon, *Organizations*, Wiley, New York
- Nadler & Gerstein (1992), David A. Nadler and Marc S. Gerstein, *Strategic Selection: Staffing the Executive Team*, in: Organizational Architecture, David A. Nadler et.al., Jossey-Bass
- Rockart & Short (1991), John F. Rockart and James E. Short, *The Networked Organization and the Management of Interdependence*, in: The Corporation of the 1990's, edited by Michael S. Scott-Morton, Oxford University Press
- Schubert (1972), Schubert, U., *Der Management-Kreis*. In: Management für alle Führungskräfte in Wirtschaft und Verwaltung, Stuttgart
- Taylor (1911), Frederick Taylor, *The principles of scientific management*, New York
- White (1994); Tom White and Layna Fischer (eds.), *New Tools for New Times: The Workflow Paradigm*, Future Strategies Inc.