

# Beyond Tayloristic Hierarchies: More Flexibility and Autonomy or “electronic Babel of tongues”? Consequences and Perspectives of Organizational Changes

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## 1. Research objectives and aims of the projects

This paper deals with changes in working principles and communication environments during the introduction of computer-mediated information and communication in companies. Our findings indicate that social consequences (e.g. decrease of hierarchical barriers, self-organization, self-responsibility) are interrelated to organizational (e.g. management of change), technological (e.g. infrastructure, implementation) and personal dimensions (e.g. experiences with media use, gender, position). Figure 1 illustrates the assumed interdependencies.



Figure 1 The “ETO-triangle” as a frame of research

In other words: technologies do not determine their use by itself. Their integration in companies' structures and operations seems to be a complex matter. Success of organizational changes is driven by the acceptance of social and working environment. Especially learning-by-doing processes, activities for teambuilding (“empowerment”) and the employees capability to create

companywide rules of practice can be interpreted as success factors. Additionally our results suggest that the direct integration of outsiders (e.g. suppliers, customers, retailers) is less a technological fact, it rather seems a question of business culture (e.g. leadership) and mental factors (e.g. employees open-mindedness, managerial attitude). The findings focus experiences with working in projects or teams, job satisfaction, mental work load and well-being. Also the use of computer-mediated communication and social consequences (e.g. bypassing, e-mail overload, information push and pull phenomena) are analysed.

The outlined aspects are elaborated in two ongoing scientific projects at the University of Trier. Both studies will likely be finished at the end of the year 2003 (for further details see [www.ceb-trier.de/spirit](http://www.ceb-trier.de/spirit) and [www.uni-trier.de/~comm](http://www.uni-trier.de/~comm)). The project SPIRIT is merely concerned with 9 case studies in Germany and California. About 290 employees filled out a standardized questionnaire within this project. Furthermore explorative interviews have been conducted. This research is funded by the German Federal Ministry for Education and Research (BMBF). The second project (Trier communication study) is based on quantitative surveys in more than twenty german organizations (n=500 employees). The presented results will provide actual information about the use of new technologies and the challenge of implementing new organizational structures.

In chapters 2 and 3 the field of organizational change is drafted as well as characteristics of “digital” communication. The related social consequences for users and organizations are often vague and discussed in the sense of future scenarios. In view of that the outlined phenomena are contrasted with first findings of the above mentioned empirical studies (see chapter 4).

## 2. From “analog” to “digital”: Changes in communication patterns

„Markets are conversations [and] conversations among human beings sound human. They are conducted in a human voice [and] people recognize each other as such from the sound of this voice. The Internet is enabling

conversations among human beings that were simply not possible in the era of mass media.“ [7, p. 16] This description of the future of communication draws attention towards a phenomenon that is often associated with the use of new communication technologies in organizations. New media enable direct communication and decrease the impact of gatekeepers or hierarchical barriers. It is possible to establish “digital bridges” regardless of hierarchical levels. Concepts like virtual or modular organizations are feasible particularly because of computer-mediated communication. The implementation of such new structures is often accompanied by a decline of face-to-face-contacts. Telephone and e-mail replace personal meetings and enforce the virtualization of communication. As a consequence facial expressions and gestures are not available as resources of additional information. Referring to Watzlawick et al.: There is no „analog“ communication [9]. This leads to the question, how employees deal with this changing quality of communication. Possibly new rules are established around „digital“ communication (in terms of Watzlawick et al.). Additionally employees’ motivation and trust in the relative advantage of new technologies have strong influence on the efficiency of new organizational structures.

### 3. Technology and redefining organizational structures

Production concepts like partly autonomous (production-) teams or the “modular firm” need new administrative structures and an integrated use of information and communication technologies. These new networks lead to a change of working conditions and opportunities. Temporal and spatial restrictions are becoming more and more obsolete and enable various concepts of flexibility. For example, companies with telework-projects more often have access to new media than others. In 2001, 84% of US-companies having experiences with telework also had e-mail-access for the major part of their employees, whereas only 52% of the firms without telecommuters. Compared to Germany and other European countries this gap in e-mail access is remarkable (difference in Germany 21%, in Finland 24,2%, in United Kingdom 29,8%) [2, p. 71]. But the quality of organizational communication and the efficiency of organizational processes is not only a technological matter. If new and direct connections between departments or workgroups emerge, ways of coordination and consultation, especially of positions not involved in these networks, become necessary. Too much information is dysfunctional, but no information as well. Or in the words of Katz and Kahn: “[...] unrestricted communication produces noise in the system. Without patterning, without pauses, without precision, there is sound but no music. Without structure, without spacing, without specifications, there is a Babel of tongues but no meaning.” [6, p. 226] Modern technologies play a key role in organizing labour. Nevertheless actors, technology and context have to be considered not as distinct entities studied separately, but

rather as elements constantly interacting. For this a wellknown position of organization science has to be remembered: “To speak of organization is to speak of communication.” There is a need for concepts of social integration to prevent processes of exclusion. In 1977 Beard already stated: „The success of an organization is determined by how well its members perform, and the success of organizational communication is a function of how effectively organizational members communicate. The ways in which individuals receive, interpret, and transmit messages and the ways in which those messages affect the individuals’ motivations are therefore the factors central to organizational communication.“ [1, p. 33] This seems still to be true.

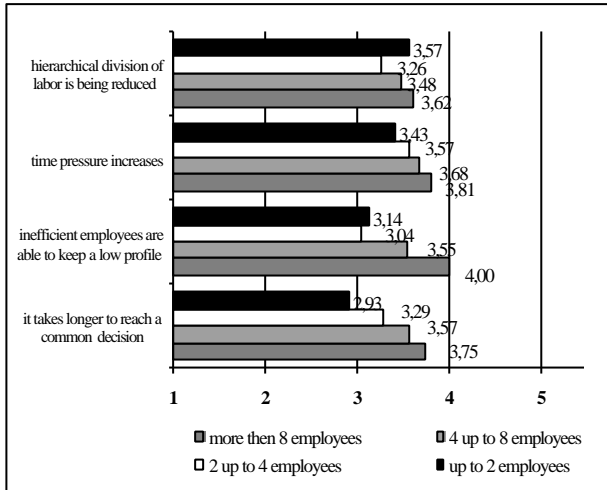
### 4. New forms of responsibility and experiences with organizational changes: First results of empirical studies

By implementing „self-services“ (e.g. document management, groupware) access to a variety of information is made possible, but self-organization on the individual level is required as well. Employees and management staff have to take more responsibility for receiving information and installing communication flows to prevent delays in decision making. Digital communication alone will not guarantee an efficient bridge between levels and positions involved. The availability of information does not substitute the need for processing it and drawing conclusions. This means that leadership, hierarchy and face-to-face still seems to be important dimensions.

First results of SPIRIT research indicate that market orientated objectives are central for implementing so called e-business projects in Germany. For example, speed-up business processes, integration of customers demands, lower costs or better competitiveness are expected. The industrial work organization seems to imply inflexibility (e.g. span of control, long decision processes). Therefore companies make use of internal project teams or special task forces and try to reduce hierarchical division of labor. As a consequence Webers’ (1864-1920) [10, p. 128] bureaucratic and “rational” way of organizing decisions competes more and more against the approach of new, flexible team structures in administrative operations. In view of that the majority of senior or middle management (62%) attain explicitly the goal of promoting team-work while integrating new technologies. According to own statements 54% did not achieve this strategic objective so far. Consequently one might pose the legitimate and provocative question (with reference to [11], p. 99): Is dynamic team-work “the heart of a lean” company? Some answers should be discussed in this paper.

Figure 2 illustrates findings concerning experiences with team and project work. Participants answers were collected on the basis of a six-point scale (1=strongly disagree up to 6=strongly agree). For example, the majority (53%) of employees who participate in teams partly or strongly stated longer times to reach common

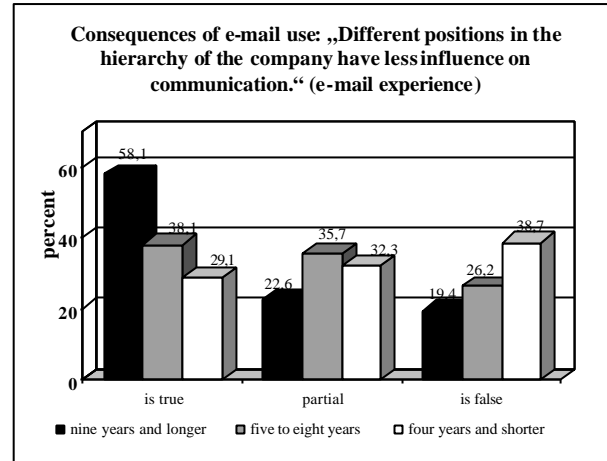
decisions. But answers vary with the number of members involved in the team-work activities. Especially those who usually work closely together with 8 or more employees reported such impressions (average: 3,75). In contrast workers with less number of colleagues more frequent denied this statement (average: 2,93).



**Figure 2 Experiences with team and project work (mean values, SPIRIT project)**

More generally our research indicates new kinds of freerider-problems or of bystander-phenomenons like diffusion of responsibility while distributing management functions among team members. Furthermore unclear responsibilities (e.g. fixing deadlines, authority as a spokesman), complicated documenting work (e.g. saving of different versions, formalization of procedures) or a decline of motivation in case of higher-educated staff may come along with “anti-tayloristic” team-structures. That is why the ideal of more autonomy in companies’ decision processes and new concepts of employees participation sometimes seem to be valued as an unpracticable or less attractive alternative, especially from members in leading positions. Or in the words of a young Vice President of a Start-Up-Company in the Silicon Valley who has been interviewed within the SPIRIT project: „A company cannot be run as a democracy.“

Communication and the access to information can be seen as a main resource of organizational power. When e-mail and new communication and information technologies enable direct communication, the positions of formerly gatekeepers will be threatened. The results of the Trier communication study, which focus the impact of new media on organizational structures and processes, indicate that e-mail use lead to a decrease of hierarchical influences in organizational communication (see figure 3). Nevertheless the bypassing-phenomenon – passing over of persons which have to be involved according to formal rules of the organization – seems to be no direct consequence of technology itself [8, p. 94].



**Figure 2: Consequences of e-mail use (Trier communication study)**

The experiences of the employees on the one hand and the organizational culture and structure on the other hand define the impact of new media as well. The findings of the study show that employees use e-mail for informal communication only by and by (for further details see [5]). A private use of computer-mediated communication enforces an informal e-mail use. Even when it comes to consequences of e-mail use for social life in the enterprise, the results indicates that perception of e-mail changes in the course of time. For example, the “short-time-users” noticed more often a decrease of social contacts by the use of e-mail than the “long-time-users”.

However new companywide rules of communication can only emerge when a homogeneous perception is given. In our project, the employees in lower hierarchical positions had longer experiences with e-mail as those in higher positions. Moreover the management perceive new media less dominant for daily work. According to Goecke, this result may not surprise [4, p. 53 et sqq.]. Anyhow this can lead to heterogeneous media-skills (“digital-divide”) in organizations which will make it difficult to elaborate new (shared) communication rules. Therefore the attitude toward a decreasing influence of hierarchy on organizational communication patterns is often very different. In consequence of different tasks, different intraorganizational media-skills will be inevitable.

## 5. Production and Administration: Integration or Coexistence

These different media skills and uses could be an obstacle for implementing integrated information systems as well. For example the efficiency of electronic bulletin boards or even “employee-self-service”-systems is strongly related to the “internet-readiness” of users. Whereas the daily work in administrative departments is dominated by computer activities, employees in the field of production seldom have access to companies’ digital network. A possible consequence of this intraorganizational “digital divide” could be a coexistence of incompatible structures.

For example the use of digital and analogue information and communication systems for the same purpose (e.g. forms, newsletter) might happen. The efficiency of electronic workflow systems is reduced. Nevertheless the vision of “e-manufacturing” includes new concepts of production management. Flexibility of former on-site activities or services increases (e.g. the internet-technology allows maintenance services without the personal presence of workers). As a consequence, models of flexible work will emerge even in the production sector. Volkswagen for instance generated a system with more than 160 modes of flexible work. But an asynchrony of working hours may dissolve and recombine existing formal as well as informal groups. Different working hours may cause changing line-ups in workgroups. In this way, it could be difficult to establish or preserve personal relationships. When co-workers constantly change, informal structures will be weakened. In this sense personal access to new media cannot only be seen as a benefit for formal exchange but as a channel for informal structures as well. E-mail for example allows asynchronous communication between dislocated workers and “keeps people talking and juices flowing. E-Mail in workplace encourages communication.” [3, p. 3]

The “cluetrain manifesto”, an interactive elaborated internet-book which describes the new rules of markets in the internet-economy, outlines the dialogue between customer and worker as an alternative for the marketing activities of the enterprise [7, p. 25]. Maybe today this view seems to be too euphoric. But it points out that for an integration of all workers in e-business concepts of companies a direct and unrestricted access is favorable. Currently the most part of blue-collar workers cannot walk across digital bridges. Whereas in the production part access often is only given for the head of the department the majority of the administrative staff is working on the “digital highway”. For this reason a decline of hierarchical structures in the administrative part of organizations can be observed, while the hierarchy in the production part is still unchanged. To ensure a successful organizational change, the described digital gap has to be prevented or even closed. One possibility could be the installation of so called “kiosk-systems”, that is computer terminals in non-computer related workplaces. This enforces an integration in new digital networks. The results of our project indicate that private use during breaks might have a beneficial effect. On the one hand closing the gap will improve the efficiency of implemented electronic information systems. On the other hand it could result in similar forms of information flows in administrative and production parts. In other words: the access to new media might build the missing bridges that enable the next step in organizational change.

## 6. Summary

The outlined phenomenon of intraorganizational gaps are obstacles in the process of organizational change. Especially the “digital divide” of production and administrative part has to be changed. For a consequent

e-business reorientation of the company this separation has to be reduced by implementing electronic bridges. However, to find a common speech is not only a technological matter. The results of our both projects indicate that the emergence of new communication rules has to be seen as a bargaining process. Or in other words: In the 'electronic babel of tongues' it has to be found a new common language for the whole organization.

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