Preface

INTRODUCING MANAGEMENT TO HIGH-TECH

The Idea

High-tech corporations rely heavily on the normative/ideological control over their employees. While in manual labor the strict reign over body movements in Taylor-like manner suffices to achieve satisfactory results (a person is but a substitute to a machine), in the case of knowledge-work, it rarely does. The companies supplement the control of bodies with the control of minds. Paradoxically, in this sense, "blue collar" workers may enjoy more freedom of thought and more intact integrity than the "white collar" workers. Where behavior cannot be bracketed and prescribed by procedure or direct supervision, the self-definition and devotion of the worker play crucial role.

Although many excellent books have been published dealing with high-tech organizations, notably by Kunda (1992), Hochschild (1997), and Perlow (1997), these tended to shy from examining the full scope of international variation and similarity between practices in American, European, and Asian high-tech companies, while books adopting the global perspective, such as Castells (2000), were light on offering hands-on, fieldwork-driven but reflective insights. Yet others like Khosrowpour (2001) limited themselves to a particular subset of the high-tech field.

Out of these considerations came the idea to collect contributions from organization scholars all over the world studying high-tech workplaces, presenting a diverse view of management concerns and opportunities peculiar to high-tech organizations in the increasingly globalized world. We wished to examine not only the glamorous centers of high technology, but also organizations from regions often passed over in most discussion of the cutting edge such as Eastern Europe or, to a lesser extent, India.

High-Tech Management

High-tech organizational settings are of course characterized by the presence (and dominant position) of cutting edge equipment (the exact specifications thereof shifting to the tune of rapid technological change), but also by a shift from manual labor to professional and technical work, by increasing geographical dispersion within organizations, and by a move away from normative or bureaucratic forms of control (Bell, 1976; Zuboff, 1984). They are the closest current organizations come to the ideal of the postindustrial (or postmodern) society, characterized by its advocates as increasingly relying on knowledge and information rather than any physical (or, in the case of employees—behavioral) assets. This process is well exemplified by Burrell (1997), who points to the case of The Official Airline Guide being worth more than many of the described airlines, or the American TV Guide, in 1989 worth 3 billion dollars, significantly more than many of the TV stations covered in its publications, etc. As the

systems of acquiring, storing and cataloguing the information, as well as of knowledge management rise to importance, the idea that those who project and program them gain power seems quite reasonable. Widely recognized theorists such as Drucker (1993) or Stewart (1997) make exactly this point: in their view the postindustrial revolution relies on the significance of information, which replaces capital and material goods as the most important mean of production. The "organization of the future" relies on the intellectual capital of the specialists. IT experts, rooting their power in true knowledge, replace in this model the traditional managers. The organizational structures become flexible, the career no longer is vertical, etc. High-tech specialists become empowered, and endowed with authority by the organization and its employees.

However, critics of the rosy picture of high-tech workplace relations, irrespective of the theory, point to dominant practices: in many, if not most high-tech organizations IT (information technology) specialists are permanently overworked (Perlow, 1997) and often conflicted with the management (Jemielniak 2007). While in case of many knowledge-intensive jobs the argument of gaining power through specialist knowledge many be valid (Alvesson, 2000), the situation of employees in high-tech environments may be just different. In opposition to other knowledge-intensive occupations (e.g. architects, see Larson, 1995), holders of posts in IT business rarely undergo the process of professionalization. Professions theory (e.g. Carr-Saunders, 1928/66; Alvesson, 1993) describes the successful liberation from management in case of many occupational groups long before the informational revolution and software engineers (along with other IT specialists) do not show much resemblance to those (for example, they do not unionize, they do not standardize education, they do not limit the entrance to the occupation, etc.). It also needs to be noted that high-tech organizations include not only IT specialists and engineers, but also masses of lower status (though not necessarily lower qualified, as Raganathan and Kuruvilla point out in their chapter) employees, including the paradigmatic job of the early twenty-first century IT sector, the call center staff.

Still, on the theoretical level, innovation management (Tidd et al., 2005) and learning organization (Senge, 1990) concepts strongly emphasize the highest role of human/intellectual capital of the company and the crucial function of knowledge in modern society. The popularity of this discourse in management literature consulting and official organizational language leads to an interesting paradox: on one hand, knowledge-workers are perceived as the most valued members of an organization, but on the other hand, they are being manipulated and "engineered", commonly driven to burn-out, and deprived of family life. Such a discrepancy between the official managerial language and the actual practice is by no means new, but in the case of high-tech companies, it is particularly striking. Moreover, in the case of high-tech employees, it is concurrent with a very specifically-developed occupational culture. Manager-worker conflict is taken to a different level.

At the same time, this is hardly a brand new development. High-tech environments, or settings perceived as high-tech, can be said to have existed at least since the industrial revolution. Even within the relatively new field of information technology, the specific issues involved in human resources management in IT businesses were being studied already in the 1970s. Philip Kraft (1977) described the motivational and cultural differences between the programmers and managers, and the ethnographical descriptions by Tracy Kidder (1981) clearly showed that high-tech environments are very unique. Yet, since the very beginning of the human resources management in IT the engineers have been treated as other white collar workers. Thus, their treatment has been following the traditional bureaucratic approach. However, two different views of programmers have been present simultaneously. According to the first one, they belong to the class of specialists, they form the crème de la crème, the true elite of professionals (Knell, 2000; Barley and Kunda, 2004). On the other hand, some recent studies found them effectively to be nothing more than a new category of shop-floor workers or crafted technicians

(Zabusky and Barley, 1996; Whalley and Barley, 1997). The already mentioned recent global proliferation of (and media attention to) call centers witnesses the rise in cultural prominence of these low-paid, low-status high-tech jobs.

The studies collected in the present book look into both high and low status high-tech jobs, organizations in developed and developing countries, examining the many encountered phenomena from managers', employees' and academic perspectives. Based on thorough studies of actual practices pervading high-tech organizations they, taken together, offer a comprehensive look into the issues of contemporary management as well as pointers towards the shape of the still emerging trends.

Structure of the Book

The book is divided into four parts, examining different aspects of work in high-tech environments. The division is by no means rigid, and we recommend the reader interested in only a single theme to take a look at different sections as well, as they all, though with different emphasis, give insights into high technology management practices.

We start out with the study of different high-tech workplaces, and issues deriving from the particularity of these environments. Vidar Hepsø takes us to the oil fields off the coast of Norway, and discusses the boundary-spanning aspects of the engineering-work, all the more remarkable as it is documented within the setting usually described as dominated by formal procedures as well as strict division of labor. Yet, as Hepsø demonstrates, the engineers' work is dependent on the ability to move between different contexts, and to translate information and action between them.

Ester Barinaga also deals with the issues of translation (and also examines Scandinavia): the process of translating the discourse of information society from a general idea to a realized project of a high-tech neighborhood, striving to provide general access to information services for all its inhabitants. She follows the process of translation from Swedish parliament into suburban streets, examining the ways in which social and ethnic inequalities, embedded in society and conveniently ignored by the emancipatory discourse of information society, hinder, subvert, and distort the implementation process.

Next, we travel to Seattle area in the United States, and the effects the processes of globalization have on the high-tech workers. Jasmine Folz, based upon extensive interviews, describes the ways in which employees make sense of their plight, and the ways in which they attempt to accommodate, resist, or subvert the often detrimental globalization-driven changes to their work, particularly the threats of outsourcing and loss of benefits due to cheap competition from abroad. She highlights the impact of dominant ideology on the options available to and considered by the employees.

Kate Hayes and Anneke Fitzgerald present Australian Cooperative Research Centres, temporary hybrid industry-research organizations bringing together academic, government, and industry personnel. They show how expectations of similarity, prevalent among all participants, heighten communication difficulties and frustration arising from considerable differences in occupational cultures. Problems are further exacerbated by the centrality of discourse and argumentation for knowledge creation in the examined organizations. Authors propose overt discussion of cultural norms as a way of alleviating some of the experienced frustration.

In the next section, we move the focus from the workplace, towards the main actor of high-tech environments, the knowledge worker. Marc Steen, studying researchers and designers working on a product via the human-centred design (HCD) approach, examines the relations between interaction with end-users and resultant design decisions. He analyzes the difficulties involved in gathering information about end-users, but also in making sense of the received data, as well as the ethical qualities of the design process.

Agnieszka Postuła's focus is on IT specialists in Poland and their construction of their own professional roles and reality. She is particularly interested in how hierarchical control exercised by top management influences this process, but also looks at other factors such as established community values and ongoing peer relations. She examines the strategies IT specialists use to maintain and enhance their professional and organizational status in different settings and circumstances, as well as the resultant variations in professional role definition.

The next chapter, by Aruna Ranganathan and Sarosh Kuruvilla, explores the problem of high turnover observed in the high-tech business process outsourcing sector in India. Many of the issues can be traced to the situation in which relatively well-educated employees perform jobs requiring low skills and offering low pay. The authors examine different strategies used by employers to deal with high turnover, ranging from providing instrumental incentives to promote employee retention to creating organizational culture designed specifically to engage the company's employees. Still, none of these strategies prove overwhelmingly successful, which the authors argue is due to their half-hearted implementation as well as the apparent clashes between promoted organizational culture and actual workplace conditions experienced by the employees.

Pauline Gleadle continues the exploration of professional status, taking us again to the United States, to a recent historical study of high-tech engineers in one leading US firm, Techco. Her chapter describes the engineers' position as fluctuating between being seen as highly privileged knowledge workers and as 'caught in the middle' between management and labor with no shelter from the harshest dynamics of global capitalism. The study follows the introduction of a range of new measures by company's senior management, leading to the disruption of existing organizational timings and threatening both the work and the self identity of engineers. She examines the impact of interplay between managerial decisions and outside technological change on the organizational status of the engineers.

In the next chapter, Dominika Latusek looks at the developing relation of trust between solution providers and their clients in the IT industry in Poland. She examines the question of how trustworthiness is socially constructed in the interaction between the suppliers and their potential customers, and how success or failure of this construction process affects their business relation. The importance of the process is further emphasized by the commonly expressed lack of trust which serves as the framework for the interaction. She sees trust as a tranquilizer that suspends the feeling of vulnerability and enables action regardless of uncertainty involved in the situation.

At this point, we move into the next part, and shift our focus from a particular organizational actor to the issues of power in high-tech organizations, and to workplace relations structuring the behavior of different groups within a high-tech setting. Knowledge management is at the heart of the matter, and Marie-Josée Legault proposes a sociological framework for the study of knowledge creation and diffusion in organizations, based on a framework which addresses many of the failures of commonly accepted approaches to the issue, and offers an explanation for the lack of cooperation in creating knowledge found in many studies. Her study touches upon the notions of trust and distrust discussed in the previous chapter, as well as upon cultural differences within organization as presented by Hayes and Fitzgerald.

Marisa D'Mello moves us back to discussion of globalization and back to India, with an ethnographic study of Indian Information Technology workers whose local experiences become intermeshed with the transnational setting of a global software organization.She argues that the workplaces she describes can be viewed as both model of and models for globalization processes, as well as milieus deeply imbued with personal, social and cultural relations and processes. By delineating the various forms of culture in a GSO, the study highlights the dialectical relationship between the local and global. Further, it explicitly demonstrates the ways by which GSOs and their workers constantly construct meaning and coherence in a volatile and international business context.

Eric Piñeiro and Peter Case amplify on the consequences of post-Tayloristic managerial practices in manual work, and they compare them against the high-tech industry environment. By analysing its knowledge-intensive character, they discuss the various possibilities for employees to rebel and oppose the traditional hierarchy. Later on they ponder on knowledge being the common denominator and barter unit among software engineers, to conclude with remarks on the influence of this fact on interactions with management.

In a somewhat similarly directed endeavour, José-Rodrigo Córdoba and Wendy Robson bring insight on the notion of power in information systems evaluation. By applying the Foucauldian perspective, they focus on ethical issues in IS. The research, based on an empirical study from Colombia, reveals the interplay of institutional and local, contingent level of organization. The analysis of the proposed model gives hints on how potential new practices of information systems evaluation could develop.

Rajneesh Chowdhurry and Alan Nobbs continue the practical focus in their chapter on Strategic Assumption Surfacing and Testing (SAST) methodology. They delve into the subject of healthcare information systems, using the example of National Health Service (NHS) in England. Their research bases on a study of healthcare professional workers, under the process of SAST introduction. The involvement of all actors and stakeholders is analyzed, and pinpointed as crucial in the long-term success of organizational change.

In the next chapter Ben Passmore brings us to Czech Republic, and describes the transformation the high-tech Czech corporations have undergone. By linking the global changes in the industry (the transfer in the value chain from manufacturing to knowledge work) with the post-Soviet political and economic specifics, he analyses the managerial attempts at participative planning. The ethnographical account of an engineering company from Brno brings conclusions of a more general nature on trust creation, control, and workplace culture.

The next chapter follows smoothly on the issue of participation, and opens the last part of this book, covering the issues of self-management practices. Elisabeth Kelan brings up the issue of flexible career planning. The Swiss example from information communication technology is presented as typical for modern self-entrepreneurial career model. A comparison of two companies is offered, to conclude with an analysis of responsibility-based and network-based career paths.

James J. Keenan goes beyond regional focus, by examining two knowledge-work groups operating on a global scale and across culturally divergent settings. His main interest is the social construction of power and dialogue within the team. He discusses the self-management theory as compared to the actual practice as seen in a qualitative study. The conclusions reveal that communication (and, in particular, informal interaction) is essential in self-managing team construction.

Staying within the same, constructivist framework, Maria Aggestam demystifies the modern institutions of innovative industry. She examines the classical opposition of bureaucratic rationality and authoritarian approach one the one hand, and the brave new innovative, flat organizations on the other. The study focuses on the implications of the possibilities contemporary technology offers to entrepreneurs. The author is skeptical about the popular beliefs on virtual organization and discusses them in comparison to her findings.

Maria-Liisa Trux takes us to Finland, to analyze the identity construction in data security workplaces in a Finnish company, as well as its Silicon Valley subsidiary. She criticizes main-stream normative management theory, by pointing to the complex and ambiguous nature of organizational culture. In an ethnographical study, she focuses on the tension between the employees and managers and describes the manipulative practices in high-tech environment, as well as forms of participant resistance.

The concluding chapter by Chris Russell summarizes many of the contemporary discussions on control versus innovation in knowledge businesses. The research is based on a case-study of mobile informa-

tion system development. The story is developed in details, and the author reveals consecutive stages of development of a particular socio-technical artifact, starting out with its being desired and demanded by engineers, and continuing through the taming of the innovation process to its final exploitation by the vendor.

Despite the wide-ranging and comprehensive nature of the various chapters, we by no means believe we have managed to exhaust the topic within the covers of this book, but rather to sketch out the field that demands much further study, for which we tried to have provided a foundation. We hope this book will serve as an inspiration for more research, confirmations and critiques of the theses presented therein, as yet another chapter in the eternal academic debate, and as a case for more humane and participative management practices.

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