

39

SOCIO-TECHNICAL DESIGN OF THE 21ST CENTURY: A Vision

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Abstract *The norm of the 21st century has been decentralization as competition in the marketplace has increased significantly. Organizations commonly freelance or outsource work to other professionals or manufacturers where it can be performed at lower cost. Thus, due to the changing nature of work, there is a need to reconsider the ETHICS of the past. Based upon the new work order, changes in ETHICS are proposed and will be discussed in this paper.*

Keywords Decentralized work, freelancing, outsourcing, socio-technical theory, SSM, ETHICS, balanced scorecard

1 INTRODUCTION

The norm of the 21st century has been decentralization as competitive pressures in the market have increased considerably. Firms commonly freelance or outsource work to other professionals or manufacturers to cut operating costs. Instead of hiring people to conduct work on a permanent basis, temporary workers are employed. In the case of manufacturing organizations, one or more production functions are outsourced to other firms. Although the global outsourcing of manufactured goods has been practiced for many years, the outsourcing of software development is still a relatively new phenomenon. In 2001, major software users in the United States such as Cisco, IBM, GE, and Ford made significant investments in joint development programs with Indian firms (Ramamoorthy 2001; Sahay et al. 2003). Historically, the socio-technical prin-

Please use the following format when citing this chapter:

Singh, R., Wood, B., and Wood-Harper, T., 2007, in IFIP International Federation for Information Processing, Volume 235, Organizational Dynamics of Technology-Based Innovation: Diversifying the Research Agenda, eds. McMaster, T., Wastell, D., Ferneley, E., and DeGross, J. (Boston: Springer), pp. 503-506.

principles of ETHICS (Mumford 1993) have proved fruitful in the design of information systems in the workplace. However, given the changing nature of work and a dramatic increase in abnormal crises, ETHICS may need a modification to better meet the demands of future system development projects. In line with this thinking, a number of shortcomings in the ETHICS methodology will be identified and various improvements put forward.

2 THE ESSENCE OF ETHICS

Mumford's ETHICS methodology for system design is essentially systems development by democracy. Just like Florence Nightingale, Enid Mumford had a passion for human beings, and worked extremely hard to improve the human work space. Mumford developed ETHICS to effectively design and develop information systems that cater for both the social and technical concerns of users. The ETHICS methodology was used in many industrial projects with fruitful results in the 1970s and 1980s. Today, ETHICS is still used in industrial projects and is also taught at universities around the world. The ETHICS method has three principle objectives. First, to enable future users to play a major role in system design (this involves a learning process and a set of simple diagnostic and socio-technical design tools). Second, to ensure that new systems are acceptable to users. Third, to assist users in developing skills for managing organizational change (Avison et al. 2006; Mumford 1993, 2003, 2006).

3 THE SHORTCOMINGS OF ETHICS

As the nature of work is clearly changing so the socio-technical design principles of ETHICS need to be reconsidered. Several academics are calling for a reconsideration of the socio-technical view. According to Wood-Harper and Wood, for example, although the benefits of ETHICS have been substantial in the past, ETHICS may need rethinking in order to tackle the future requirements of work (e.g., mobile work and the design of wireless technologies to accommodate work and social needs). According to Bend Carsten, there are some practical contradictions in Mumford's ETHICS. If worker "needs" were truly management requirements, then participative methods would have been accepted more widely. Thus, some of Mumford's basic assumptions with respect to participative work may be false. Insufficient analysis of the capitalistic systems in which information systems are designed and situated is another shortcoming. For instance, the conflicting interests of stakeholders and the political interplay may clash with the belief that management is there to serve the best interest of employees. Mumford also accepted technology as is and never went on to criticize or conceptualize it differently. Therefore, some notions of ETHICS may be relatively superficial and require further development. Mumford applied concepts of relativism, contractualism, natural rights, and consequentialism without defining her own position clearly. According to Carsten Sorensen, decentralization is the norm of the 21st century, as work is commonly performed outside the office. Nevertheless, this certainly does not mean that Mumford's ETHICS is now obsolete. On the contrary, it is important that the IS

community reassess Mumford's relational concepts to meet the social challenges of the 21st century (Avison et al. 2006).

To respond the arguments above, a set of changes in ETHICS are proposed and will be discussed in more detail.

4 SOCIO-TECHNICAL DESIGN OF 21st CENTURY

The traditional goals of socio-technical design have been twofold: the humanization of work through better job design and increased democracy in both workplace and society as a whole. However, as the social, political, economic, and technological environments change, it is important that the consequences of such changes are incorporated in the socio-technical methodologies of the past. According to Avison (as cited by Wood-Harper and Wood 2006), in order to realize the true benefits of the above-mentioned socio-technical design principles, changes in the roles of actors are essential in the system design process. First, he suggests the designer be a facilitator and not an expert since this would ensure that a new solution is based on the social requirements of work and not merely technical requirements. Second, he recommends that the worker be a designer of the system since this would ensure that the new system fits workers' daily routines and not vice versa. Third, he proposes that the manager be a boundary manager and not a supervisor of employees since this would provide freedom and discretion in carrying out work (Sahay et al. 2003; Wood-Harper and Wood 2006). According to Mumford, *participation* has a different meaning for different people. For her, a facilitator is required in the team and the role of the facilitator is to help the design group select and implement an appropriate problem solving methodology and to keep members motivated and interested in the design task. Although Mumford's work highlights the need for participative design and democracy in work the place, it does not result in individuals being empowered to own and control their own design processes. Due to the decentralized nature of work, a facilitator may not be available during project meetings. Thus, it is important to devise vehicles to improve two-way communication between group members. One solution is to provide the design group with video conferencing capabilities to lessen space and time constraints. Soft systems methodology (SSM) (Checkland 1999) has been a choice for system inquiry in the problem area in the past; however, it does not provide any clear guidelines for furthering a project. Researchers recommend that the principles of SSM be incorporated into steps 1 through 3 of ETHICS. This would modify ETHICS to include a more explicit questioning, and to critically review the problem area and the greater system boundaries. Although ETHICS have been used widely in academia, the principles of socio-technical theory have not been very successful in the commercial sector and numerous socio-technical failures were noted the 1980s and 1990s (Mumford, 2006). In management schools, socio-technical approaches are introduced in the classroom but they tend to be used more or less as buzz words. Hence, in order to reduce the likelihood of socio-technical failures in the commercial world of the future, it is suggested that elements of the balanced scorecard be incorporated to assess the economic, political, and, most importantly, the social climate of an organization (Land 2000).

5 CONCLUSION

Although Mumford strove to improve people's work and lives through ETHICS, there are still a number of shortcomings that need attention. Specifically, steps 1 through 3 of ETHICS need revision. Suggestions include incorporating ETHICS with SSM so that more accurate requirements can be obtained. This, however, is only possible if the *user* is perceived as an *actor* and involved more actively in the system analysis phase. It is also suggested that the balanced scorecard be used in steps 1 through 3 of ETHICS for a structured assessment of the social climate of an organization.

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