

# [Information systems design and sociotechnical systems](https://assignbuster.com/information-systems-design-and-sociotechnical-systems/)

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INFORMATION SYSTEMS DESIGN AND SOCIOTECHNICAL SYSTEMS s Volha, B., Paolo, G., & Mylopoulos, J. January 7). Designing Socio-Technical Systems: From Stakeholder Goals to Social Networks. Retrieved Feb 12, 2014, from Requirements Engineering manuscript: http://disi. unitn. it/~pgiorgio/papers/rej09. pdf
In this White Paper, the authors acknowledge that software systems have become an integral part of today’s society and affects social and organizational activities in a significant scale. They note that this trend in change in life aggravates the necessity for socio-technical perspectives for requirements engineering. The authors appreciate the need for proper systems to model and analyze the interaction and composition of software and hardware components with organizational and human actors. The authors evaluate and select the right trade-off between social and technical dimensions. They propose tool-supported procedures of requirement analysis for technical-social systems that adopt planning schemes for exploring the range of requirement alternatives in addition to a number of social criteria for their assessment. The authors illustrate the proposed approach using a case study.
The publication proposes a systematic, tool-supported procedure that aims at supporting the designer in evaluating and exploring alternative configurations and frameworks of socio-technical system delegations. It supposes that the accomplishment of such processes be done through Artificial Intelligence planning techniques in constructing design alternatives. It also gives a set of assessment criteria for evaluating and comparing the available options (Volha, Paolo, & Mylopoulos, 2012, p. 7). The paper has presented the presented schemed process that supports the proposed approach. It also gives the outline of the planning, discussion and formalization of the concrete set of evaluation criteria. The white paper has reported on the assessment of the proposal through a number of case studies in addition to a series of scalable experiments.
Bert, P. (2011, June 3). Sicio-Technocal Design of Knowledge Work & IT; A Case Study. Retrieved Feb 12, 2014, from Independent Consulting Social Scientist: http://moderntimesworkplace. com/good\_reading/GRNewTech/STS. Design. of. KnowledgeWork\_IT. v2. pdf
The author uses a case study of E-File introduction into the system of an insurance company as an imperfect, but powerful example of the challenges and the potentials of designing technical and social elements of knowledge work interactively and concurrently. Bert explores a case study of a public insurance company as it coverts from its long-standing paper-based work to an electronic document management system (Bert, 2011, p. 4). The E-File has data imaging properties, automated work-flow and data integration. Simultaneous business process development, redesigning of jobs and organizational structure and people development occurred in the organization as it introduced the new system. Organizational structures and innovative jobs have also optimized the business potential of organizations. In the view of the authors, the most important aspects in the socio-technical interaction when introducing a new technology would be:
Effects of the new system on the work process
User friendliness of the software and hardware needed for the novel system
Knowledge and competence of using the new system
Effects of the system on job aspects such as ability to help co-workers, control over one’s own work and workload and work-related stress (Bert, 2011, p. 5)
Eason, K. (2013, May 4). Sociotechnical systems theory in the 21st Century: another half-filled glass? Retrieved February 12, 2014, from Sense in Social Science: http://www. ulbodesitterkennisinstituut. nl/media/16411/sociotechnical\_systems\_theory\_in\_the\_21st\_century. pdf
In the paper, Ken argues that socio-technical systems theory has a number of crucial contributions that are currently missing in the accounts in the field. He notes that many researchers on the issue have often mismatched between the prevailing work culture and the prescriptive propositions that underpin the novel technology system. Prescriptive assumptions in the socio-technical system perspective give insights into the reasons for the emergent codes of behavior that have everything to do with the reality of the work to be done. Ken notes that the emergent behaviors at work-places may be as a result of people trying to cope with the knock-on effects of the novel systems in their work processes. He gives an example of medical staff that may find pleasure in recording information regarding administration, but have fears recording their tentative clinical conclusions for the worries of who may access the information (Eason, 2013, p. 9).
Dimitris, N., Nicolas, M., Bill, P., & Nikos, Z. (2009, June 5). Socio-technical Systems Analysis: Which approach should be followed? Retrieved February 12, 2014, from National Technical University of Athens: http://ergou. simor. ntua. gr/Docs/Nathanael&Marmaras&Papantoniou&Zarboutis\_ECCE11. pdf
Authors of the paper acknowledge the role of cognitive ergonomics in intervention in socio-technical systems. According to the paper, successful intervention depends on the system’s analysis conducted. The authors reiterate that the analysis of the systems help indicate the challenges for the type of intervention and offers the frame for predicting effects for optional design solutions. The paper notes some popular approaches that have been proposed for assessment of socio-technical frameworks and ergonomics designs of the artifacts that become part of the cognitive design. It notes the most popular of the approaches as Hutchin’s Distributed Cognition, Rasmussen’s Cognitive Systems Engineering and other approaches based on Activity Theory. Dimitris and other authors presented the paper to contribute to the growing debate on the cognitive ergonomics community about the adequacy of different approaches for assessment of socio-technical systems to design artifacts that facilitate human work (Dimitris, Nicolas, Bill, & Nikos, 2009, p. 1). The authors use taxonomy of socio-technical frameworks as their frame of reference. In addition, they use theoretical origins as well as the main application domains of three well-known schemes.
To tackle the issue of study in the paper, the authors sketched the taxonomy of the socio-technical systems between two extremes they named poles. Systems close to Pole A are constrained by a well defined and stable transformation functions which reflect their objectives. Systems close to Pole B are either governed by several objectives or their transformation function is subject to crucial alterations within the system’s lifespan and vague (Dimitris, Nicolas, Bill, & Nikos, 2009, p. 6).
MIT-Video. (2011, June 3). Complex Socio-technical Systems: The Case for a New Field of Study. Retrieved Feb 12, 2014, from MIT-Video: http://video. mit. edu/watch/complex-sociotechnical-systems-the-case-for-a-new-field-of-study-11174/
In an exclusive lecture provided by JR East Professor of Civil and Environmental Engineering and Engineering Systems and interim director of the MIT Engineering Systems Division, Joseph Sussman tackled the complex socio-technical issues that the world must face as more human activities become digitalized. The lecture named Charles L Miller Lecture was entitled Complex Socio-technical Systems: The Case for a New Field of Study dissected through the intricacy of integration of technology in almost all spheres of human life. The lecturer was at on a tight spot to conclude whether the technology-oriented world was good or bad for continued existence of humanity.
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