The challenges of consulting engineers

The initiation of the work on this thesis was guided by the question: ‘What are the facilitating and impeding influences when it comes to knowledge intensive innovations in the project organized work of consulting engineers?’ Chapter 1 presents different approaches to social scientific research in knowledge intensive-, professional service firms, such as consulting engineering companies. The strengths and virtues of practice-based innovation-studies are highlighted. However, a lack of focus on the significance of (1) materiality and (2) the psychosocial work environment is pointed out. In response to the first point, Actor-Network Theory (ANT) is presented in chapter 2 as an alternative to approaches where ‘the social’ takes precedence over ‘the material’, and in chapter 3 some of the methodological implications of ANT are presented along with an outline of this study’s fieldwork in the consulting engineering company Birch & Krogboe (B&K). In the case-studies of chapter 4, three of B&K’s innovative endeavours are described. The first case tells the story of the first six months in the life of the so-called Building Envelope Group. The group is composed of engineers with different expertises and, under the label of ‘Integrated Design’, its new task is to develop and deliver solutions that combine the various (primarily facade and indoor climate related) competencies of the group. Notably the case contributes to discussions of the innovative promise of project work that often goes unfulfilled.

In this case, the initiative was not stifled by rigid project management procedures but rather by a heavy emphasis on the many existing one-man projects for clients, which takes away the focus from the more common enterprise. The second case is about the design of an office building with a double glass facade. In addition to being a case of many turnarounds it illustrates how the materials of professional service work may have significant effects in the unfolding of events. For instance, drawings may provide a degree of consistency when participants are extensively substituted and they function as important political vehicles as they allow and at the same time forbid certain practices. In the third case the focus is more on text documents than on drawings. B&K’s engineers are part of a large project to be organized as a ‘public-private partnership’. A municipality wants a new library. Out of the many documents to be compiled for the tender invitation, the case-study focuses on the production of the document describing the functional requirements, which is one that B&K’s engineers are responsible for. There are numerous interested parties who need to discuss and negotiate the meaning of the many new elements in the document. Also, the text is multiple in the sense that it can be found in an increasing number of versions and copies distributed across all the participating organizations. Thus, in addition to the work done on the wording and composition of the text, the case deals with the important logistical task of timing and coordinating the co-produced texts. After the case-studies in chapter 4, the second point mentioned above is attended to in more detail. Thus, as a contribution to current debates on work-related psychological strain in jobs with high levels of autonomy, chapter 5 inquires into the psychosocial work environment of the engineers. Building on interviews with a selection of sixteen employees a theory of the good (and bad) working day is presented. A typical working day has frequent interruptions, unexpected changes and other disturbances, and an important characteristic of the good working day is that it runs (at least roughly) according to plan. Besides this ‘running according to plan’, ‘professional recognition’ and work on ‘improved solutions’ are emphasized as opposed to criticism and routine- or administrative work. In sum, when work on improved solutions runs according to plan and gets appreciated, it is a good day. Chapter 6 combines the interests of chapter 4 and 5. Thus, the case-studies are revisited with a focus on the significance of the ‘the good working day’. Here the many facilitating and impeding influences delineated in chapter 4 are supplemented by the following main point: Innovative endeavours provide opportunities to work with improved solutions. However, given working days characterized by interruptions, unpredictability and pressurized responsibility, the attempts to make the day run according to plan often get the upper hand of trying out new directions, which is amplified if there are no prospects of professional recognition. Some of the primary empirical contributions come out of the combined interest in innovation processes and the psychosocial work environment. Similarly the primary theoretical point that the thesis makes relates to the meeting between ANT and work health psychology. In recent years, the latter has struggled with the paradox that ‘healthy work can be unhealthy’.

The problem can be traced to a certain way of construing the importance of autonomy at work. The mantra about autonomy at work is a powerful statement about the self-managed knowledge worker. In ANT these issues have recently been discussed using the metaphor of marionettes. In those terms it is a worker. In ANT these issues have recently been discussed using the metaphor of marionettes. In those terms it is a worker. In ANT these issues have recently been discussed using the metaphor of marionettes. In those terms it is a worker. In ANT these issues have recently been discussed using the metaphor of marionettes. In those terms it is a worker. In ANT these issues have recently been discussed using the metaphor of marionettes. In those terms it is a worker. In ANT these issues have recently been discussed using the metaphor of marionettes. In those terms it is a worker. In ANT these issues have recently been discussed using the metaphor of marionettes. In those terms it is a worker.

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