This dissertation presents an interpretive study of the socio-technical change processes that evolved around the introduction of telemedicine. The case study reports from real-time transmission of audio and video, mainly from minimally-invasive surgical procedures. In this work telemedicine is viewed as an instance of a larger class of technologies where radical organisational change is expected to follow from the deployment of communication network technologies. Thus the contribution from this work is relevant also beyond telemedicine, for other kinds of technology-related organisational change. It is particularly relevant for other attempts at exploratory development of network technologies to support communication.

The first main theme of the work has been to analyse the socio-technical interplay, and the dissertation describes the temporal unfolding of the ongoing and open-ended process of adaptations and socio-technical negotiations. From an array of different perspectives the papers show how much work it takes from a host of actors to actually accomplish telemedicine. Through a description that covers the range from the everyday, mundane technical details to the large-scale network issues, a number of complex and dynamic socio-technical relationships that exist for multimedia communication networks are described. The process where the technology and the organisation became mutually changed and adapted is described in several of the papers, while other papers zoom in on e.g. the support work that was required, and on the different ways to achieve safe and sufficient image quality in the transmissions. A conclusion that emerges from this emphasis on the socio-technical interplay is that a successful introduction of telemedicine is a far more complex and long-term process than merely implementing it and using it. Introducing telemedicine will require an ongoing and concurrent design-in-use of both the new technology and of the organisation that deploy it.

A second main theme is related to the network character of telemedicine, and the challenges related to handling of large and complex networks or information infrastructures. Previous empirical research has demonstrated the limitations of “control-oriented” approaches, but scarcely go beyond advocating evolutionary and iterative approaches (e.g. “cultivation”) and have little to say on how to influence such processes. This study describes in detail how one such “cultivation” process evolved, and based on this some tentative conclusions and suggestions on how to influence such processes are offered. The emphasis is on the role of the “stunts”, individual transmission events with a short time horizon that were not part of a “grand plan”. It is argued that these stunts helped address some problematic aspects of cultivation strategies in practice; both the need for standardisation in such “bottom-up” processes, and the “uphill battle” of starting to create an information infrastructure almost from zero. A “bootstrapping” strategy is then suggested as a general way to approach the challenge of starting to grow a network.