

# Coordinative Practices in the Building Process

# Computer Supported Cooperative Work

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Lars Rune Christensen

# Coordinative Practices in the Building Process

An Ethnographic Perspective

 Springer

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*To Mette*



# Preface

This book is on cooperative work and coordinative practices in the building process.

The development of computer technologies has always been interwoven with the development of cooperative work and coordinative practices. That is, the challenges facing cooperative actors in various circumstances have at different points in time been influential in shaping significant computer technologies such as for example interactive computing and networking capabilities. Over the last decades, the coordinative practices of cooperative work, in e.g. hospitals, factories and laboratories, have been something that computing technologies have been developed for specifically. The (economic) importance of the use of these coordinative technologies is potentially very large indeed. However, the design of these technologies is often found wanting. The troubles stem from the fact that our understanding of coordinative practices in the building process and elsewhere is modest at best, leaving a lot to be desired. Consequently, system developers and technology designers are left to base their designs on their own, as well as their colleagues' and clients', common sense and ordinary life experience, rather than on research based understandings of the practices in question. Often, the result is that these vitally important systems, though sound and sophisticated in a technical perspective, are typically experienced by the actors as cumbersome, unaligned and troublesome in everyday use and practice.

The research reflected in this book is all about the practical achievement of cooperative work and coordinative practices in the building process. That is, the purpose is to provide empirically informed accounts of the building process and discuss concept of cooperative work and coordinative practices in order to frame technology development.

The research field, in which I mainly work, that of Computer Supported Cooperative Work (CSCW), has been concerned precisely with the role of practical design-oriented studies of cooperative work practice. Nevertheless, CSCW itself has manifested a variety of tension one might expect where an uneasy set of relations between computer scientists, anthropologist, sociologists, psychologists and ethnomethodologist exist. These tensions threaten to fragment the field and leave it

drifting aimlessly at the mercy of empty buzzwords and the latest trends, rather than being concerted contributions towards the understanding of cooperative work in all its variations. At the root, these tensions reflect different views of what the proper subject of interdisciplinary research in the field of CSCW might be, as well as the role of empirical investigations and conceptual work.

These various tensions have led me to think about how one might adequately account for the coordinative practices of the building process with an eye to informing the development of technology, and to say something about just how these empirical accounts and conceptual distinctions could be used in regard to informing technology development, as well as allow readers in some small way to feel that they, from the point of view of the people working in the building process, know what it is like to do this kind of work. In doing so, I am aware that there are many aspect of the building process that are not well-represented or represented at all in this book. Its history, the role of legislation, the role of regulatory framework and the economic and financial aspects are all missing here. Broadly speaking, this is because other writers deal with these themes much better elsewhere, and because space limitations preclude the treatment of these themes.

# Acknowledgements

This book has been made on a combination of time, freedom to work, faith that something would become of it and intellectual support provided by Kjeld Schmidt. He and other colleagues have provided me with inspiration and encouragement and I would like to take the opportunity to express my gratitude.

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In 2009/2010, I was employed at Aarhus University and I would like to thank Erik Grönvall and Morten Kyng for being great to work with.

I would also like to express my gratitude to the practitioners in the building process for giving me access to their work and for letting me take up so much of their time. I would especially like to mention Kim Ringvei, Ebbe Witt Petersen and Henriette Senstius of PLH Arkitekter A/S, Louise Dyg and Lars Bohl of Pihl & Son, Morten Zinglersen of Thora Architects, Ditte Wendell Pape and Peter Bo Olsen of MT Højgaard and Lisbeth Cederholm and Jan Søggaard of Leif Hansen Engineering.

An early version of this book, carrying a different title, was submitted to the IT University of Copenhagen for the Ph.D. degree. The three officials Pernille Bjørn,

Dave Randall and Kristian Kreiner were gracious and I was awarded the degree in January 2010.

The present book differs from the thesis in many respects. Most importantly, it contains new chapters in which I, at the instigation of the anonymous reviewers, revisit the practice-oriented research program in CSCW and compare and contrast it with the tenets of organizational studies. The new chapters are Chaps. 1 and 2. In addition, a key concept of coordinative practice has been redrawn and as a consequence a number of chapters have been extensively altered and rewritten. This is most prominent in the last two chapters.

In addition, the anonymous reviewers as well as the editor of this book series, i.e. Richard Harper, has been immensely helpful and encouraging. Thank you.

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Copenhagen  
February 2012

Lars Rune Christensen

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# Chapter 1

## Introduction

### Preamble

We are all familiar with cooperative work in our daily lives as we perform tasks where we depend not just on ourselves but also on the efforts of others in order to get the work done. In such instances we often find ourselves spending time and using energy to coordinate our work tasks with the efforts of others. This book is about such coordinative efforts albeit on a somewhat larger scale. That is, the complexity and scope of cooperative work is variable, of course, with some endeavours being more elaborate and complex than others. In the past centuries, developments within industry, technology and not least society at large have resulted in the building process, our case in point, becoming a highly complex cooperative endeavour where sophisticated coordinative practice are in play in order to coordinate and integrate the tasks of hundreds of individuals and scores of organizational units and companies. For those engaged in the building process, planning, designing and constructing a large contemporary building is undoubtedly a source of headaches and exhaustion, broken and made careers as well as pride and joy. To qualify these individuals for this highly complex endeavour most of them have been formally trained and are experienced as architects, building engineers, specialists, masons, carpenters, electricians, painters etc. Based on their acquired skills and experience these actors are able to marry and match a multitude of interdependent cooperative work tasks involving for example the prolonged building design process spanning several design disciplines and organizations as well as the construction process itself involving a multitude of professions and building trades adhering from a plethora of contractors and subcontractors.

The main questions being addressed in this book are these: How do multiple actors from diverse organizations and disciplines achieve concerted action in the building process? Through which practices is such action coordinated and integrated? How can these coordinative practices be conceptualized? How can empirical material

and conceptual frameworks derived from an ethnographic study of the building process inform the design of computational technology in support of cooperative work? These are the fundamental questions asked in this book.

What is the purpose, then, of addressing these questions we may ask? Briefly, the purpose is to provide empirically informed accounts of the building process and discuss concepts of cooperative work and coordinative practices in order to frame technology development. That is, the ultimate purpose is to inform the design of information technology for cooperative work for the potential benefit of the actors in the building process as well as actors in similar complex cooperative work processes elsewhere. However, we will not provide any system designs or technology prototypes. What we will do is provide accounts of cooperative work and coordinative practices that may frame technology development in a potentially useful and innovative manner. An inkling of just how this will play out will be provided next in our 'Introduction to the Chapters' section of the book.

## Introduction to the Chapters

The following provides a brief overview of the chapters. The objective is not to repeat the arguments in each chapter, but to provide a sense of how each chapter adds to the emerging views on the building process, including the coordination and integration of cooperative work. Generally speaking, the book starts out somewhat programmatic, becomes descriptive and moves towards discussions of a more conceptual nature.

In Chap. 2, an attempt is made to provide the reader with an introduction to the research program that frames the writing of the book. That is, the 'Practice-Oriented Research Program in CSCW' is revisited.

In Chap. 3, the view from CSCW is compared and contrasted to the tenets of organizational studies in order to further clarify and position the study and the research approached. The first three chapters may be especially helpful for readers that are perhaps unfamiliar with the field of CSCW.

In Chap. 4, the investigation of the building process takes off in earnest. An attempt is made to provide an overview of the building process. It is described as a complex endeavour, constituted by numerous distributed and interdependent tasks carried out by a diverse work ensemble. The tasks in the building process are said mainly to fall within two interconnected domains: design and construction.

In Chap. 5, the question of how design relates to construction and *vice versa* is addressed. It is observed that design and construction are overlapping and interdependent endeavours: Design is related to construction in the sense that design is partly a matter of designing spaces that will need to be realised during construction, and construction is related to design in the sense that construction may be influenced by actions taken previously in design.

In Chap. 6, a case of apprenticeship and visual skills is investigated. It is argued that participating in practices based on complex representation artifacts is an *acquired* skill that can be passed on through apprenticeship.