

# Managing Innovation and Standards

“Academics, managers but also policy makers with an interest in managing standards and innovation should read this book. It is unique in providing in-depth insights into all three relevant levels—company, industry, and the innovation’s wider context. Based on a detailed study of a best-practice case, the book develops a clear grounded theory and gives useful advice about how intertwined activities on these three levels can lead to aligning innovations, standards, and regulation.”

—Knut Blind, *Professor of Innovation Economics, Faculty of Economics and Management, Technical University of Berlin, Germany, and co-editor of the Handbook of Innovation and Standards*

“How exactly standardisation and innovation are related is still far from being fully understood. This book makes an important contribution towards a better understanding of this relation. Most notably, it shows what firms acting in a market that is subject to both regulation and incumbent standards can do to successfully introduce a radical innovation. As such, the book is interesting for both scholars and practitioners.”

—Kai Jakobs, *RWTH Aachen University, Founding Editor of the International Journal of Standardization Research*

Paul Moritz Wiegmann

# Managing Innovation and Standards

A Case in the European Heating Industry

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## PREFACE

How can innovators manage the seemingly paradoxical relationship between creating radical innovations and complying with external requirements that aim to fix solutions in place? Although businesses face this question whenever they want to bring a new product to market, there is surprisingly little research on the topic. This observation motivated me to investigate how innovative companies deal with standards, as a key example of the external requirements that businesses face.

A review of the literature in Chapter 1 shows that standards indeed have a substantial impact on innovation. Depending on the specific standards, these effects can be positive (e.g. facilitating market access, defining interfaces to supporting infrastructures), but also hinder innovation (e.g. through lock-in). Although the relationship between innovation and standards is not as paradoxical as it first seems, literature confirms its importance for innovators.

To understand how they address this topic, I conducted an in-depth grounded theory case study of the micro Combined Heat and Power (mCHP) technology's development in Europe. As Chapter 2's introduction to the case shows, this radical sustainable innovation is ideal for understanding standards in the context of innovation. Based on in-depth interviews with the key involved actors, I was able to trace in much detail how the technology, standards, and regulation co-evolved.

Studying the case yielded some unexpected insights: It shows that standards' link to regulation can be more central than the literature suggests (Chapter 3). It also suggests that aligning innovations, standards,

and regulation is not limited to the company itself. While I observed many company-internal activities on the topic (Chapter 4), interactions between companies and a multitude of other actors are also vital to the case (Chapter 5). Together with the involvement of industry-external actors documented in these chapters, the case shows managing standards and regulation in innovation contexts to be a highly dynamic and potentially contentious process.

These dynamics result from a key property of standards that became apparent in the study: Standards provide certainty and technical detail on (often vaguely defined) requirements from regulation and societal needs. This makes standards (almost) indispensable for innovation, as they create a stable foundation to work on. However, this also means that even standards which focus on seemingly small technical details (e.g. a formula for calculating energy efficiency, see Chapter 5) can cause substantial conflicts between innovators, governments, and other stakeholders.

These insights culminate in a grounded theory (Chapter 6) that answers the question posed at the outset. This theory shows how innovators can position themselves in their industry and its wider context to align innovations with standards and regulation. In doing so, it distinguishes between active and passive approaches to standardisation and regulation. These approaches determine how freely companies can innovate. Chapter 6 also highlights key supporting elements inside the company (e.g. awareness, expertise) and at industry level (e.g. supporting institutions). The grounded theory explains how they contribute to managing standards and regulation in such a way that innovators can introduce their product to the market.

Chapter 7 concludes the book by discussing the findings in light of the literature and giving clear managerial advice to innovative companies and other actors involved in innovations, such as industry associations. While the study started out with a focus on standardisation—as evident from Chapter 1—the unexpected insights make it relevant for broader theories. For example, they highlight standards' importance for socio-technical systems, and underline the need for rules and restrictions for markets' functioning. Chapter 7 also discusses these links and outlines their implications for future research.

I hope that readers find these discoveries as exciting as I do, and enjoy reading this book as much as I did writing it.

Rotterdam, The Netherlands  
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Paul Moritz Wiegmann

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