INTRODUCTION

Compared to the so-called "hard" sciences, such as mathematics, soft sciences like most social sciences are "young" sciences. All sciences, but particularly young sciences, badly need new theories, native in their own field. For instance, management science that started developing at the beginning of the 20th century does not need theories already developed in other fields, but theories emanating from management science itself and from the empirical data available to managers.

It has been demonstrated that using both qualitative and quantitative data and techniques within the same research project allows for a better understanding of research questions (Lee, 1991; Galliers, 1991, 1993, 1994; Landry and Banville, 1992; Mingers, 2003). This in-depth understanding would not be attained by a uniquely qualitative or quantitative approach (Ågerfalk, 2013). Indeed, the inferences resulting from a mixed approach are more precise: they are "meta-inferences", the perspective thus obtained being more complete (Venkatesh *et al.*, 2013). More generally, utilizing mixed data and techniques (quantitative and qualitative) encourages the development of new theories (Wu, 2012).

In such a context, it is surprising that Grounded Theory, which is one of the most widely recognized research tools to help in the construction of new theories, with all sorts of data and within any philosophical paradigm chosen by the researcher, has only been mobilized in a very restrictive manner. Grounded Theory is taught in many graduate schools, and illustrated in many methodological books, in a way that is too limited to allow for creativity and the full use of all resources available to researchers. The

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utilization of the full potential of Grounded Theory has been hindered by misunderstandings and by what has been termed the "paradigm war." As a result, Grounded Theory is mainly applied with qualitative data, which restricts the creative capabilities of researchers, blocking opportunities of innovation in our era of "big data" and preventing the emergence of new theories.

Grounded Theory has become the dominant qualitative approach since the late 1980s in many disciplines (Vryant and Charmaz, 2007). It has also been used in various domains in remarkable qualitative studies: for example, Charmaz (1990) in Medicine; Serpell, Treasure, Teasdale and Sullivan (1999) in Psychology; Maznevski and Chudoba, 2000 or Graebner, 2004 in Management; Orlikowski, 1993 in Information Systems; Flint, Woodruff, and Gardial, 2002 in Marketing. In general, Grounded Theory is increasingly used in qualitative research (Urquhart *et al.*, 2009). However, the first objective of Grounded Theory is, and always has been, the development of a theory from all sorts of data (and not only qualitative). Grounded Theory was conceived for this purpose, rather than as a qualitative analysis method (Glaser and Strauss, 1967). The seminal work of Glaser and Strauss (1967), as well as Glaser's (2008) full monograph, which deals with the use of quantitative data and statistics within the framework of Grounded Theory, affirm that quantitative and qualitative data and techniques can be mobilized, separately or together, for a study grounded in data. When developing a Grounded Theory, it is therefore important to consider not only qualitative data, but also quantitative data, as these can help elaborate the theories. Yet rarely do we see quantitative data used in a grounded theory study and, to our knowledge, no research has attempted to demonstrate why it might be useful to mix qualitative and quantitative data to develop, and elaborate on, a grounded theory. In this book, we propose what we consider to be an exciting route for the development of new theories – the utilization of quantitative data in mixed grounded studies. It seems important to us to highlight how mixing data and techniques, while respecting the guiding principles and founding characteristics of Grounded Theory, can help to give meaning to the stories revealed through our data and to develop parsimonious theories, which are in breach with the existing literature. To illustrate this, we examine the design of one of our research projects that studies the use

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of information and communication technologies (IT) and IT culture.

Our own research on Grounded Theory led us to consider it as a metatheory on research design that proposes a methodological protocol for inductive research. This protocol can be considered as generic and non specific: it can exist in symbiosis with any philosophical approach chosen by the researcher and can accommodate many qualitative and/or quantitative methods and techniques. This metatheory of research design does not hinder the researcher's creativity: beyond the general guidelines proposed by Grounded Theory (Glaser and Strauss, 1967; Glaser, 1978), researchers may, to some extent, adapt and reinvent the methods and techniques that they apply in order to nurture their own creativity. In line with the methodological protocol of Grounded Theory, the results of our own research led us to propose a mixed typological research design, which can be applied to help and inspire other researchers in their attempts at theorization.

In the first part of the book, the different meanings attached to the term "theory" are first examined. Then, having addressed certain terminological and paradigmatic issues, we return to the genesis of Grounded Theory and its founding principles. Next, as our own interests in research are more particularly focused on the field of management, we review the literature of this field in search of mixed studies that use at least some elements of Grounded Theory in their methodology. In the second part of the book, we describe the design of one of our research projects that uses a mixed and grounded typological approach.