

# INTRODUCTION

## Find Out!

“Let your data speak!” I am talking to researchers,<sup>1</sup> research directors,<sup>2</sup> analysts and students, whose job it is to produce and communicate knowledge. I am also talking to the instructors or trainers who prepare them for this work.

The data in question are texts, articles, books or other documents; numbers, whether accounting, economic or statistical; conversations, speech that is listened to or recorded; still or moving images; things that have been seen or observed. Data are external to us. We approach them with our culture, our knowledge, our convictions, our methods and our own ambitions. Whether you are professionals or apprentices in the field of research, you work on data by mobilizing your knowledge to produce new knowledge – knowledge that will help users to understand the world or take action. Whether new or old, this knowledge must be made available. Otherwise, how can we justify the cost of producing it?

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1. What I mean by *researchers* is members of academia or major private- or public-sector research institutes who have a degree of freedom to choose their research topics.
  2. I use the term *research directors* for employees of a government department or industrial, commercial or service enterprise, who work for a client in response to a request and in accordance with precise specifications. They are also called *project managers*.

“Let your data speak.” The domain we are about to examine is far from homogeneous. It is characterized by highly diverse practices, professional environments, approaches, tools and perspectives, but they are all united under the banner of knowledge creation.

Researchers in the humanities are interested in general knowledge, which is applicable in a wide variety of situations and is teachable, while research directors generally respond to a very precise, situated request. The researcher focuses on understanding, whereas the research director seeks action and reaction. What they have in common is curiosity, a will to observe, and also a taste for analysis and reflection. They are capable of maintaining a critical mindset, and they want to be understood by others.

Researchers are inheritors of the literary or ethnological tradition. They favor direct observation, interviews, document analysis, and the gradual construction of meaning. Research directors seek to measure and quantify. They build models, systematically collect a vast amount of data, and test hypotheses and models.

Another distinction we make is between qualitative and quantitative studies and analyses. A web search<sup>3</sup> calls up the echoes of these approaches. Qualitative studies are mentioned more frequently but references to quantitative methods are better documented. All the disciplines in the humanities are concerned, in all domains, whether the focus is professional, research-oriented or educational.

Although in some academic fields these divisions may be very clearly established, their borders are pretty fluid. In 2007, their complementary nature led to the creation of a journal specializing in qualitative and quantitative approaches: *Journal of Mixed Methods Research*, the purpose of which is to allow for the publication of studies that do not correspond to a strictly

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3. Search with Google Analytics in French and English on the web, as well as on the Amazon and Sage Publications sites. For more information, see the companion website to this book.

qualitative or quantitative approach and to promote mixed methods.

Nevertheless, in professional contexts, the specific features of each approach are still widely used to distinguish between qualitative and quantitative services.

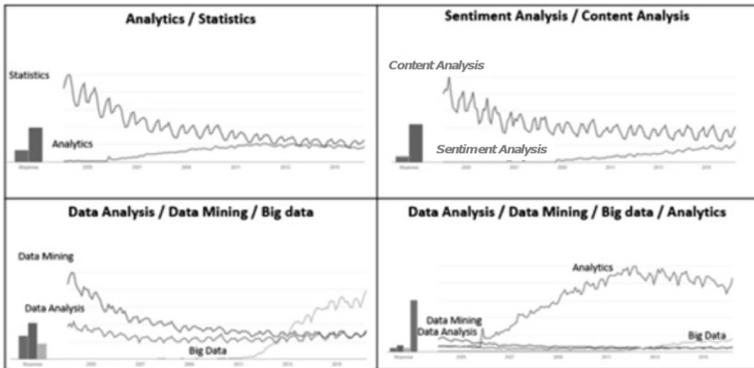
Thus, qualitative research in the literary tradition remains relatively low-tech. The microphone and the video have had little impact on the work of reading, listening or observation. Word-processing software is sufficient for an analysis that remains essentially dependent on the author's culture and reading, reflection and writing skills. Things are quite different in quantitative research. Data collection tasks have always been much more technology-driven and software has long been indispensable for processing data.

As readers and writers, or as information technicians and statisticians, the tools we use have shored up the differences between us. But all that is changing now.

In the last 40 years, the digital revolution has brought us from scarcity to abundance, while substantially increasing the productivity of data collection and processing tasks. The first step was the democratization of access to calculating power thanks to the arrival of personal computers in the 1980s. The digitization of texts and the more widespread generalization of digital access followed in the 1990s. Search engines and online surveys meant that sources of data proliferated. This movement was amplified still further in the 2000s by the semantic web, social networks and big data. Today, mobility and artificial intelligence have disrupted work methods and are making our paradigms even blurrier. From smartphones to cloud computing, devices and algorithms are ubiquitous, affecting the production, processing and communication of information. And along with these new tools, new players have appeared. They are specialists in the technologies that researchers and research directors must learn to master if they are to withstand the competition from these newcomers. New terminology is appearing: *analytics* instead of statistics, *sentiment analysis* instead of content analysis, *big data* instead of sampling, and so on.

Figure 1 shows the changes in the last 10 years in the use of certain key terms. New terminology is gaining ground. It reveals the emergence of new approaches related to technological changes that have given researchers access to the massive processing of qualitative or quantitative data. Large numbers are no longer the sole domain of quantitative researchers, nor is exploration reserved for the qualitative world. General and subjective “likes” are in competition with indicators and cautious measurements.

**Figure 1: Some major trends reflected on the web**



Although these changes also reflect communication in the service of new technologies, they show the emergence of new ways of letting data speak. This finding fits well with Klaus Krippendorff's diagnosis in the introduction to the third edition of his work on content analysis, which first appeared in 1980. He wrote: “the large volumes of electronically available data call for qualitatively different research techniques for computer aids... which participate in content analysis much as human analysts do. They become part of its methodology with transparency being a major issue” (p. 5).

Increased productivity, a faster pace, mixed approaches – technologies are opening up new perspectives. But these tools are not an end in themselves. The researcher's role is to examine their logic and use in order to critically assess their contribution to knowledge production. This means we have to go back to the basics to gain a good understanding of the methods and characteristics of scientific work.

That is the purpose of this book. I will refer to the production of scientific knowledge: producing new knowledge, which is situated in relation to existing knowledge; basing it on data that show its relevance and allow people to criticize it; complying with good practices in the academic or business community to foster debate.

In the tradition of the classic dichotomies, I will first cover quantitative methods, and then qualitative methods, situating these methods on the basis of their information-statistical and linguistic-semantic foundations.<sup>4</sup> I will describe how they are used and show that these approaches cannot be reduced to the classic opposition between positivism and constructivism and that they complement each other more than they compete. I will base this discussion on many examples that are presented in more detail on a companion website, where readers can find data, tools and operating methodologies: <https://faireparlerlesdonnees.blog/>.

I am approaching these reflections on the basis of my professional background: over 40 years' experience as an instructor and researcher in management science but also as a player in the business world, in which I found myself engaged both as a software publisher and as a service provider.

I started my academic career just as structuralism had achieved its zenith. I am ending it in the age of hyperspecialization, globalized networks and the post-truth world. Disciplines are fragmenting, methods and tools are being globalized, and technology is disrupting everyone's practices. Professions themselves have not (yet?) profoundly changed. In academia, the pressure to publish is higher than ever; in every business community, standards have become more of a concern. In corporations, research functions organized in specialized departments have sometimes been threatened or dispersed among the operating departments and entrusted to software programs. Competition is fiercer among service providers. Everywhere, the use of technologies that did not exist 30 years ago is changing the game by allowing new practices and new players to appear on the scene.

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4. I would remind readers that computerized techniques structure statistical thinking, just as language structures sensemaking!

All this is making it more complicated to teach methods and train researchers and research directors. Although, in essence, the fundamentals have not changed much, the new techniques and practices have completely changed our world. The internet makes the worldwide “library” immediately accessible; increased calculating power and decreased costs are accelerating the obsolescence of statistical techniques developed in an economy of “digital poverty”; and the progress of artificial intelligence and automatic language processing is opening up new prospects.

I have based this work on my experience, enhanced in recent years by my contacts with the professors and researchers at the Business Science Institute (BSI). I have been teaching them methods that will enable them as managers to contribute to knowledge creation. In return, contact with them has helped me formalize this book by selecting the essential contributions from the scientific tradition, methodologies and tools. My goal is to describe the realm of the possible and to provide sufficient intelligence to guide readers’ choices and help them apply appropriate techniques and tools. To do this, I have benefited from the wide variety of topics examined by researchers at the Business Science Institute and from our collaboration with the publisher of the Sphinx software tools.

I am grateful to them all!

This book joins the series of books in the Business Science Institute collection put out by Éditions EMS (e.g., Beaulieu & Kalika, 2015; Kalika, 2017; Chevalier *et al.*, 2018).

### General outline of the book

- I. Knowledge production in the social sciences
- II. Measuring and analyzing: Quantitative methods
- III. Observing and interpreting: Qualitative methods
- IV. Communicating

The companion website – <https://infos.lesphinx.eu/dataspeak.htm> – presents numerous examples and the operating methods needed to apply them using the Sphinx suite of software.

## Introduction

I shall depart from the tradition of leading off with qualitative methods, since quantitative methods are better known and documented and thus are easier to present. But most of all, this expresses my conviction that qualitative methods can reasonably be presented as an outcome rather than as a mere preliminary!