

## Chapter 66

# Adoption of Mobile and Information Technology in an Energy Utility in Brazil

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### ABSTRACT

*This chapter deals with the adoption of mobile technology. The case illustrated here is the implementation of mobile and wireless technology – MIT and smartphones – at an energy utility. The objective was to understand the human and social aspects of the adoption of this technology. This paper makes use of the metaphor of hospitality proposed by Ciborra in the late 1990s. The hospitality metaphor was a useful alternative for describing the process of adopting a new technology. It touches on technical aspects and notes human reactions that become evident when a technician comes across an unknown ‘guest’, the new technology: the doubtful character of the guest, the reinterpretation of the identities of guest and host during the process, learning through trial and error, the technology’s ‘drift’, the participants’ emotions and state of mind, and the appropriation of, and the care for, the new technology.*

### INTRODUCTION

The study of the adoption of new technologies, particularly I.C.T. (Information and Communication Technologies), is acquiring a particular relevance on the academic agenda. In Brazil, studies have considered it important to focus on the social and human aspects of this adoption, which is also an international trend. Mobile and wireless technologies are a particular instance of

ICT. Our objective in the research discussed here was to study a case of a technology’s adoption. We concentrated on social and human aspects of this adoption process, which are rarely focused on. We wanted to observe the adoption of the technology in practice, without restricting ourselves to the cause-and-effect relations so dear to some authors, particularly North American ones, such as the Technology Acceptance Model (TAM), its extended version known as TAM2, and the Unified Theory of Acceptance and Use of Technology – UTAUT. We studied a successful application of

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mobile technology, which significantly improved the fieldwork of the technicians who maintain the electricity grid, in a large Brazilian energy utility.

This work focuses on the adoption of wireless mobile technology, a model of technology able to integrate a variety of electronic tools without the use of physical links (usually cables). The technology presented in this work is mobile, as it is presumed that the users are on the move, being able to interact at any moment or in any place where there is access to data. The interaction takes a special form, occurring over the mobile telephone network using a tool known as a Smart-phone. This is a cell phone with data-handling characteristics common to computers. Although the discussion of emerging technologies such as ubiquitous computing technologies is interesting, our interest is not in the technology, but rather in its adoption, and principally in the adoption of *mobile* technology.

In Brazil, energy utilities are subject to a rigid collection of rules, in order to guarantee the quality of provision to consumers. These rules, combined with the needs of technological advances, cost-reduction and improvement of information quality, mean that companies look for innovations which can support their customer service policies. For these companies, the adoption of new technologies has been critical to complying with the rigid performance parameters to which they are subjected. In order to respond to emergencies with greater speed, as well as optimizing their resources in the field, the electricity providers use means of communication between the base and the electricians in the field, responsible for maintenance. For technology used in communication to evolve is fundamental to improving customer service, as well as to obtain better quality data and to improve speed in operations. It is in this context that mobile and wireless information technologies (M.I.T) appeared as an alternative solution for communication between power companies and their technicians in the field. This use of MIT is not an isolated phenomenon in the

country, as there are in-numerable applications of mobile technology being developed, as much in the public sector as in the private. Consider, for example, the mobile phone and the rapid increase in the number of its users – there are more than 161,000,000 mobile phones in the country – and you can see how thoroughly this technology has penetrated Brazil.

As the utilization of MIT increases, it is imperative to seek greater clarity in understanding its adoption. One must seek to understand not only its technological sides, but above all the social aspects to its use. In order to study the case of the adoption of smartphones in the context of one of these energy suppliers, a theoretical reference emphasizing the social and human aspects was sought. The analysis in this case can shed light on questions related to this technology and its context, and can collaborate in the implantation of other solutions. It was with this aim that we selected for the work the hospitality metaphor proposed by Ciborra (1996, 1999, 2002). Following this metaphor, the technology is compared with a guest, while the person receiving the technology is compared to the host. The guest, being a stranger, might be of doubtful character - capable of being either hostile or good-natured. This the host will discover as he gets to know his guest. Taking the hospitality metaphor as our starting point, in the research we tried to understand the adoption of the technology from the point of view of the people participating in its implantation.

This chapter is organized in the following form. After this introduction, we describe the environment which Brazilian energy utilities operate in, and some examples of the use of mobile and wireless technology in Brazil. As the principal aim of the study was to understand the use of the technology in practice through a theoretical framework, we consider it important to present the metaphor of Hospitality and the method which was used in the study, this being the second item. After that, the case itself is presented and the investigation's

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