Learning by Doing Mistakes Improving ICT Systems Through the Evaluation of Application Mistakes

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Abstract Last July, the University of Exeter, Great Britain, has empirically demonstrated how the human brain learns more from mistakes and unsuccessful events than from successful experiences. Memory, in fact, is more stimulated by mistakes and, after that, tends to generate a self-protection mechanism that, in a reaction period of 0, 10 s, warns of the existing danger. Starting from the article of Journal of Cognitive Neuroscience, we have tried to understand if the economic organizations, and in particular the ones that face IT implementation programs, act as humans. The purpose of this paper is to investigate how it is possible to invert a negative tendency or an unsuccessful IS implementation through the deeply analysis of mistakes and of their impact on value creation. In our proposal, the analyzed case study shows how a correct management of mistakes can generate value, through a “virtuous cycle of learning by doing”.

Introduction

The concept of value creation is getting an increasingly important issue for economic agents [1–3], especially regarding all company life aspects that require higher investments and resources spending programs. In this sense IT investments recover a fundamental role in company efficiency research and, overall, in its strategic vision, enabling better decisional processes and promoting innovative and competitive initiatives that, for the success of the system, have to be monitored and implemented continuously. Specifically, we want to pay a particular attention to the organizational impact of this process [4], to understand, in the case of an unsuccessful program, the relations between mistakes and learning processes, according to the idea that in IS field there is more to learn from unsuccessful experiences than from successful ones (Dickson).
The structure of the paper is as follows. Firstly, in section “ICT and Company Strategy”, the relations between ICT and company strategy are discussed. Secondly, in section “IS Criticisms and Limitations”, we will study concept and different definitions of errors and the relationship with the idea of “learning by doing mistakes”. Moreover, in section “Case Study: Luiss Library”, we will analyze the Luiss Library (LL) case study in order to verify our thesis. At the end we will present our conclusions about the potential knowledge hided in mistakes also according to LL case.

**ICT and Company Strategy**

**IS Life Cycle**

Several researchers [5] highlight how the traditional theories about new technologies development, ICT investments appear often inadequate.

In this context, we have the necessity to search IT development methodologies that, starting from IT competitive strengths model (for deepening, [6, 7]) and from all criticisms linked to existing management, generate new IT value for company.

Information systems are not rigid, static and unchanging. They evolve with external and internal environment. The process of IT introduction in company can be observed like a sequence of activities: (a) individuation of company needs; (b) conversion in IT needs and specifics; (c) configuration of architectures; (d) construction of system and other sequential activities.

The advantages offered by recognizing an “evolving nature” of company information systems are constituted by the following activities:

- To organize groups and core competencies [6, 8] required by different steps about development and test of information system
- To recognize the possibility to manage both existing IT system and new development IT projects, because several literature reviews show that ICT investments are more oriented to manage existing that to develop new
- To follow company business and to support company activities. In this sense IT and company strategy are linked through a bi-univocal relationship

Traditionally, theories of information systems introduce different steps of implementation, from analysis of needs to realization of system [9, 10]. In an “evolved perspective”, Laudon and Laudon [7] represent IT implementations like a “life-cycle”. The last step at this cycle regards “production and maintenance of IT system” that is, in our vision, the most critical to start a learning process based on mistakes.

**From IT Governance to IT Evaluation**

Top management’s support towards information systems realization is crucial [1, 7] because it involves the correct functioning of IT life cycle: setting goals and appraising objectives, evaluating projects, defining information and processing