

Chapter XXXIII

External Pressures for Adoption of ICT Services Among SMEs

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ABSTRACT

This study intends to emphasize the importance that external sources of pressure may have on the level of ICT involvement among small and medium enterprises (SMEs) in Italy. While past research tends to prioritize the role of endogenous conditions for the adoption of information and communication technologies—that is, financial resources, organization conditions, management culture—the high dependence of SMEs on their environment requires paying especial attention to external pressures as well. Both competitive and institutional pressures are proposed and tested through an ordinal regression model on a sample of 285 SMEs. The results suggest both policy and management implications.

INTRODUCTION

The diffusion of ICT solutions among firms is a key element at the top of management and policy agendas, and it has been widely investigated since the mid 1990s. In particular, drivers and barriers to adoption have been deeply studied.

Prior research mainly explained the adoption of ICT in terms of endogenous factors, that is, variables which are internal to the organization. Among these factors, three broad typologies were recurrent: the level of financial resources, able to affect any investment decision; the managerial culture, influencing the propensity to innovate; and

the organizational readiness, which is relevant for the integration of new technologies.

These arguments seem particularly consistent in explaining the difference in Internet adoption between small and large firms, since they reflect asymmetric internal conditions largely based on size. Conversely, when considering only small and medium enterprises (SMEs), it should be pointed out that these firms appear more sensible to external pressures, in terms of both competitive and social “rules of the game” (Fink, 1998). In this sense, the potential influence of exogenous pressures, such as competitive pressures or institutional pressures, have been understated, and the empirical contribu-

tions often provided mixed evidence on the role of such predictors (see, for a review, Grandon & Pearson, 2004; Lee, Runge, & Baek, 2001; Zhu, Kraemer, & Xu, 2003).

This chapter presents and tests a framework, rooted on strategic management and institutional theories, where the role of the environment may assume different meanings: three of them—rivalry competition, leading market position, and international presence—are drawn by strategic management theories and two of them—business group membership, and technology legitimacy—are explained by institutional theory. This model is tested through an ordinal regression methodology in a sample of 285 Italian SMEs. By controlling for size and industry, outcomes reveal a significant association of ICT adoption with the hypothesized drivers, except for international presence.

The chapter is organized as follows: an introduction of the theoretical background, an explanation of the formulation of hypotheses, a description of the methodology of the analysis, a presentation of the outcomes, and, finally, a discussion of the results and their implications.

THEORETICAL BACKGROUND

The adoption of ICT solutions in the information systems literature has been investigated according to two different theoretical approaches, which have been adapted from more general theories on technology adoption: the technology acceptance model (TAM) (Davis, 1989), and the technology-organization-environment (TOE) (Thornatzky & Fleischer, 1990).

The TAM approach put the emphasis on a set of predictors largely endogenous, internal to the firm. According to this model, the adoption of ICT solutions should be driven by the perceived usefulness of the technology, its ease of use, and the cultural orientation toward innovation of the decision maker (Lederer, Maupin, Sena, & Zhuang, 2000). Such an approach inspired several empirical analyses, especially focused on the first type of information systems innovations, those whose effects end up within the firm (Swanson, 1994). The key point is

that the TAM framework was anchored to the idea that the technology adoption lays in the hands of the firm's decision maker and of the perception about the technology. In this picture, no attention is dedicated to potential pressures or influences that may come from the environment conditions, outside the firm.

An alternative theoretical approach employed to investigate the adoption of ICT solutions was provided by the TOE framework. This identified three broad categories of predictors: the features of technology, the organizational readiness of the firm, and the environmental conditions (Iacovou, Benbasat, & Dexter, 1995). Although the external dimension was introduced, the subsequent empirical analyses interpreted and treated such environmental conditions in different ways: as competitive pressures, as social influences, as environmental turbulence, and, in some cases, as a generic perception of the environmental features. According to this, it is not surprising to find that the analyses on the effects of environmental conditions on ICT gave mixed evidences (Kuan & Chau, 2001).

For these reasons we will go in deep with the analysis on these external predictors in order to investigate which dimensions are relevant and which effect they have on the process of ICT adoption by firms. The set of predictors and corresponding hypotheses will be identified through both strategic management theories, which provide explanations of how different dynamics (rivalry competition, leading market position, and international presence) may influence the ICT adoption, and institutional theories, focused on business group membership and technology legitimacy.

COMPETITIVE PRESSURES FOR ICT ADOPTION

Rivalry Competition

Economic theories largely recognized the importance of an organization's environmental context for innovation and adoption of new technologies (Kimberley & Evanisko, 1981; Kwon & Zmud 1987). Among external forces, a key role is played

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