ABOUT THE SUBJECT

Businesses and markets have been with us since ancient times. Business is understood as the activity of selling to voluntary buyers at a profit. Businesses survive by attracting customers and earning the full cost of what they sell and generating enough profit to compensate for the effort, investment, and risk involved. Unlike governments, charities, and other entities that may sell things but do not require the proceeds for survival, businesses must direct continuous, urgent attention to achieving profitable sales (Roberts, 2011). The concept and possibility of selling at a profit arose in Mesopotamia about 5,000 years ago, but it was the Greek combination of coins and markets that turned businesses into more than a marginal activity (Roberts, 2011).

In modern history, the deepest recognition of markets, however, is due to Adam Smith, who is regarded as the father of modern economics and is still among the most influential thinkers in the field of economics today (Davis, et al., 2011). According to Adam Smith (1776), who was the first to recognize the importance of the fruits of labor as the main source of the wealth of nations, “the division of labor is limited by the extent of market.” The market is the key to specialization. Firms cannot specialize in particular product lines, or particular stages of production, if they cannot sell a sufficient quantity of their output. It is the growth of the market that facilitates both the emergence of new production methods and the growth of the firms and industries that exploit these methods. Therefore, the market does not just allocate resources; it stimulates innovation (Casson & Lee, 2011). For a more detailed account of the economic history perspective of the development of the firm, see Landes et al. (2009).

In their historical pervasive presence in human life, businesses (which are provided by firms, being enterprises, companies, or corporations) and markets have been viewed differently by distinct social and economic agents. With the emergence of the computer industry in the 1950s, and with the evolution and capillarity of Computer-Mediated Transactions (CMTs) in practically all domains of humankind, the understanding of how enterprises and markets emerge, structure, organize, and develop became a very complex subject.

A few intriguing questions can be advanced to justify the interest in researching the enterprise (or the digital enterprise, or the digitalized enterprise) and its market(s), in the 21st century: a) How could it be possible for one enterprise (like Google Inc.) to organize the “world’s information” and make it universally accessible and useful? b) What are the means and tools necessary for one enterprise (Facebook Inc.) to get more than one billion subscribers/customers worldwide in less than ten years? c) How could it be possible for one enterprise (like Apple Inc.) to trigger the convergence of three separate technologically intensive business markets, such as telecommunications, computing, and Internet services through one only product (device)?
Three dominant and distinct views associated to enterprises and markets can be identified: a) the economic view, b) the management view, and c) the more recent information systems view. There are a number of economic theories that describe, explain, and predict the nature of the enterprise, addressing its existence, structure, behavior, and relationship to the market. There are also a number of views about the way the enterprise should be managed and how its resources could be allocated as a source of competitive advantage. Additionally, there are a number of views that try to find solutions for optimal use of information within organizations, for instance to support decision-making processes or day-to-day operations, covering the whole information cycle: from its content, through its systems, and up to its technologies.

What seems to be missing, however, in the academic and professional literature is a unified and simple framework (or subject area) that can articulate these distinct, but interrelated, views of the enterprise. Furthermore, in the new era of Information and Communications Technologies (ICTs) (characterized here as the post-personal-computer era), where new business tools and models (such as cloud computing, virtualization, social networks, mobile devices, Internet of things, big data, analytics, customer co-creation, BYOD – Bring Your Own Device, and so on) play an important part in the new business environment, having a better understanding of new ways of how to design, operate, restructure, and turn the enterprise into a successful venture is a matter of great concern.

**ORGANIZATION OF THE BOOK**

This book presents a new interdisciplinary way for understanding the structure and dynamics of the enterprise (which can easily be called “the digital or digitalized” enterprise) in the new Information Technology (IT) era. The proposed way is titled the Architecture-Governance-Growth (AGG) Model, which is an attempt to proactively articulate three dominant views concerning the enterprise: the economic view, the management view, and the information systems view. This model, by identifying the enterprise according to three interrelated linear dimensions (through its architecture, its governance, and its growth), is an analogy to the Structure-Conduct-Performance (SCP) paradigm of economics (which has been traditionally used in empirical market analysis).

The central hypothesis of the SCP framework is that observable structural characteristics of a market determine the behavior of firms within that market, and that the behavior of firms within a market determines measurable market performance. By analogy, the central hypothesis of the AGG framework (represented by Figure 1 as a typical enterprise dynamic comprising the corporate and the Information Technology [IT] domains) is that observable architectural characteristics of an enterprise determine the governance issues of the enterprise, and that the governance agenda of the enterprise determines its measurable growth conditions.

An instrumental hypothesis of the book is that in order to develop the AGG framework through the lens of three distinct disciplines (the economic view, the management view, and the information systems view) in a collective way, one has to rely upon interdisciplinary studies, methods, and tools. That is why this book proposes another new model to this end: the AID (Analyze-size-Integrate-Decide) Model.

The 15 chapters of the book are written in a complementary fashion. Due to the fact that there are several articles and books in the editorial market relating to each of the three main views of the enterprise studied here, its chapters are organized in order to fulfill some gaps connected to the main subject areas of these views and to present links to new themes.
In relation to the economic view of the enterprise, for example, it is possible to illustrate the “architectural” basis of the recent *The Handbook of Organizational Economics*, organized by Robert Gibbons and John Roberts, and published in 2012 by Princeton University Press. This handbook follows a framework proposed by Prof. Gibbons in Figure 2, in which its constituting parts are presented according to the main topics (and subjects) defined in that figure.

This kind of framework, however, is mostly valid for the traditional themes of economics (especially the “bricks and mortar” economy), but says little about new fields of the *digital economy*, or *digital world*, where one has to deal with complex areas of economic transactions, such as the problems enterprises face in dealing directly with customers of different categories, as in the case of Computer-Mediated Transactions (CMTs) called:

- Business-to-Consumers (B2C) (businesses selling to the general public), and others, such as Business-to-Business (B2B) (enterprises doing business with each other, such as manufacturers selling to distributors and wholesalers selling to retailers), Consumer-to-Business (C2B) (when a consumer posts his project with a set budget online and enterprises review the consumer’s requirements and bid on the project; the consumer reviews the bids and selects the enterprise that will complete the project), Consumer-to-Consumer (C2C) (many single-owner enterprises offering free classifieds, auctions, and forums where individuals can buy and sell thanks to online payment systems where people can send and receive money online with ease), as well as Government-to-Government (G2G), Government-to-Business
Another important intellectual contribution in the economic and management scene is that of the book titled *Competitive Strategy: Options and Games*, from Benoît Chevalier-Roignant and Lenos Trigeorgis, published by the MIT Press in 2011. It advances a theoretical approach on how to quantify and balance commitment and flexibility, “option games,” by which the decision-making approaches of real options and game theory can be combined.

However, despite the wide “architectural” foundation of that book (seen in Figure 3), it does not recognize important branches of the economic view of the firm, such as the neoclassical school of the enterprise, and other important aspects of the structure and dynamics of it, like the existence of new forms of economic organization (for example, ecosystems, platforms, and architectures), and governance and growth concerns.

In this way, the chapters of this book are written by a professional (and academic) with a background in engineering and economics and with expertise in Information and Communication Technologies (ICTs), as well as experience in government and in consultancy in technology and innovation for enterprises over the last 20 years.

Therefore, this book, titled *Effects of IT on Enterprise Architecture, Governance, and Growth*, is organized in five sections:
Section 1: The Views of the Enterprise;
Section 2: Architecture of the Enterprise;
Section 3: Governance of the Enterprise;
Section 4: Growth of the Enterprise; and
Section 5: Entrepreneurship in Complex IT Markets.

Section 1 of this book comprises four chapters. In Chapter 1, the economic view of the enterprise is briefly presented. This chapter is structured to present some of the main theories and models developed by economists dealing with enterprises, addressing their existence, structure, behavior, and relationship to the market. The chapter’s purpose is to highlight the main aspects economists research in order to understand how enterprises emerge, organize, govern themselves, and grow.

Chapter 2 presents the management view of the enterprise. This chapter presents some of the main theories and schools of thought developed by managers and business activists dealing with enterprises. Its purpose is to address the main issues managers research in order to understand the way the enterprise should be managed and how its resources could be allocated as a source of competitive advantage.

In Chapter 3, the information system view of the enterprise is examined. This chapter presents the main elements of the origin, evolution, and establishment of the historical interpretations, theories, and models that govern the Information System view of enterprises, organizations, and institutions, with a particular focus on the structure and dynamics of enterprises.

In Chapter 4, a unified view of enterprises, combining the three previous views (economic + management + information systems), is introduced by presenting two novel models: the AID (Analyze-Integrate-Decide) Model and the AGG (Architecture-Governance-Growth) Model, which is the essence
of the book. The chapter is an attempt to develop an innovative and interdisciplinary framework to deal with the combination of three disciplinary ways of viewing enterprises in the digital age.

In Section 2 of this book (formed by three chapters), the first dimension of the AGG model (the architecture realm), how it emerged as an entrepreneurial concept (embedded in the concept of enterprise architecture), and why it is an important and indispensable concept (especially in the information age) to describe the main components of the digital (or digitalized) enterprise, and how they interact and function is presented.

In Chapter 5, it is argued that the most valuable tool to perform this task is the concept of enterprise architecture, a concept derived from the field of architecture, or from the building sector of the economy. The chapter examines how this concept evolved from the concept of information systems and how it is important to the understanding of the concept of market architecture. The main purpose of Chapter 6 is to develop further the treatment of the concept of architecture by dealing with what is called the corporate dimension of enterprise architecture. It presents a way to employ this concept (the corporate or business dimension is used interchangeably) through a methodology that defines what is called the market architecture, and how to design, operate, and sustain enterprise architecture aligned to its specific market architecture. Chapter 7 presents some important aspects of a complementary domain of the concept of architecture: the Information Technology (IT) dimension of the enterprise, or its “IT architecture.”

Section 3 presents what constitutes the second dimension of the AGG model (the governance realm), why it is necessary to understand the concept of governance in a general sense, as well as in the corporate and in the information technology senses. It is comprised of three chapters. Chapter 8 deals with the concept of governance in a general sense, highlighting those aspects that are necessary for a proper understanding of the “good” or “bad” operation of market architectures, as well as those aspects related to governance at the enterprise level. The chapter also discusses aspecial case of governance related to IT: the “bazaar” governance. The purpose of Chapter 9 is to present the definition of corporate governance, why corporate governance matters (especially from the viewpoint of the formative connections of the AGG model), what is expected from corporate governance from a public policy perspective, and finally, the chapter presents some important governance aspects related to the model of “open innovation.” Chapter 10 presents the most important aspects that relate the architecture dimension of enterprises and the architecture of markets to the growth of enterprises and the growth of markets. A section on IT governance in financial markets is included.

Section 4, subdivided into two chapters, deals with the last dimension of the AGG model: the growth realm and the relevance of technology and innovation to this subject. Chapter 11 is an attempt to briefly highlight the main characteristics of the third dimension of the AGG model (the economic realm) by presenting the recent developments of two evolving, and converging, strands of the literature: the one concerning the recent developments on the phenomenon of economic growth and the one relating to recent developments on the growth of enterprises. The chapter ends with a brief presentation of economic models that take into account new information technology business models. Chapter 12 presents the most relevant aspects of the economics of innovation, as well as those of the technology and innovation management field, which are of crucial relevance to the role of innovation management in solving the complex relations subjacent to the “R&D-innovation-growth-nexus.” At the end of the chapter some aspects of innovation management in practice are presented.

Given the importance of entrepreneurship to the emergence, design, management, and growth of enterprises, Section 5 of this book provides some insights into three combined recent phenomena. The first one (which is dealt with in Chapter 13) is the phenomenon of the growth of new startups (mostly
technology- and innovation-based) and of corporate venturing, called “corporate garage.” The second is that of the emergence of high-growth firms. The third phenomenon is the growth of importance of the business context/environment in which enterprises emerge, operate, and grow, perceived by the growth of importance of concepts such as ecosystems, platforms, and architectures, which are examined in Chapter 14. Finally, Chapter 15 shows the final considerations of the book.

Finally, it is important to stress that this is neither a book on Economics, nor on Management or Information Systems! As a book that articulates, in a novel fashion, these three fields of knowledge, the author strongly hopes it meets the expectations of enterprise analysts, business managers, and IT managers, as well as undergraduate and graduate students of the enterprise through benefiting from such a novel, innovative, and simple framework for dealing with the enterprise in this new Information Technology (IT) era.

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REFERENCES


