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Process of Information Systems Strategizing: Review and Synthesis

66.1 Introduction

This chapter reflects on the developments in research on information systems (IS*) strategy and the process of IS strategizing. In reviewing the literature base, we have developed an integrative framework that captures key concepts and processes that are associated with IS strategizing. By summarizing the research themes and constructs found in the literature, we trust that the framework will serve as a sense-making device for current and future IS strategy researchers; something that sets the scene in terms of the extant research that might form a useful basis for identifying potential future areas of research. By emphasizing the processes relevant for IS strategizing in practice, we also hope the framework will be a practical aid for those who plan and strategize around IS.

* As the terms information technology (IT) and information systems (IS) have been used interchangeably in the literature, the authors will use the terms used by the original authors when referring to the earlier work. Note, however, that we differentiate between the two terms ourselves when analyzing the literature and drawing our conclusions.
First, though, we will present some common definitions associated with the noun—strategy, and the
verb—strategize, as a basis for our treatment of the subject matter. The Webster and Oxford
dictionaries define strategy, *inter alia*, as

- A plan of action designed to achieve a long-term or overall aim
- The art of devising or employing plans or stratagems toward a goal
- An adaptation or complex of adaptations (as of behavior, metabolism, or structure) that serves or
appears to serve an important function in achieving evolutionary success

Further, Webster defines strategize as

- “to devise a strategy or course of action”

From these definitions, we may conclude that these terms relate to a means of achieving a goal or aim
but that there is some debate about whether such plans are deliberate and sequential in nature or are
more evolutionary and adaptive. This is a debate to which we will return. For now, though, let us assume
that the process of strategizing combines both of these elements.

As regards IS, we take the following, inclusive meaning of the term: “the entire infrastructure,
organization, personnel, and components that collect, process, store, transmit, display, disseminate,
and act on information.” Thus, when we talk of IS strategizing, we see this is a process that will
lead to actions being taken that will relate to the sociotechnical concept of infrastructure that is
introduced earlier.

We begin this chapter with a historical treatment of the topic in order to provide some background
for what follows.

### 66.2 Historical Background: From Data Processing
to Strategic Information Systems and Beyond

#### 66.2.1 Data Processing

At the time of the development of the first commercial applications of information technologies
(IT) in the early 1950s, most people regarded computers as massive machines that scientists used
to find solutions to computationally intensive equations that would take a human being a number
of years to solve. In the late 1960s, companies with highly data-driven tasks operated these large,
centralized computer systems that typically ran batch jobs to process the daily transactions for their
businesses. This early era is often referred to as the *data processing era*. At that time, the business
objective was to automate information-based processes in order to improve operational competence
by reducing data processing costs and, consequently, achieving business efficiency (Galliers, 1991).

Among the problems of that period were huge maintenance costs, duplication of data, incompatible
application systems, and—often—overall user dissatisfaction (Somogyi and Galliers, 1987). In addition,
in some cases there was little or no direct link between the business strategy (i.e., objectives
and goals) and the IS plan. The IS plan, if one existed, and the IS operations of the organization
were predominately concerned with the efficient operation of computer technology for operational
purposes and tended to be isolated (Galliers, 2004) or independent (Teo and King, 1997) from the
business of the organization.

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* Source: [http://oxforddictionaries.com/definition/english/strategy](http://oxforddictionaries.com/definition/english/strategy)
‡ Source: [http://www.thefreedictionary.com/information+system](http://www.thefreedictionary.com/information+system)
§ See Caminer et al. (1998) for an account of the world’s first business computer, LEO, which was developed in the United
Kingdom and introduced in 1951.
66.2.2 MIS

In the 1970s, with the emergence of “minicomputers” that featured increasing power and sophistication, computer systems began to offer solutions to a higher level of decision capability. As more data became stored, managers realized that using the output of IS—information—could increase the effectiveness of their decision-making (Ward and Peppard, 2002). Such developments denoted the beginning of what can be termed the management information systems (MIS) era. The objective of MIS was to create ways of organizing and delivering information in order to improve management effectiveness. There was growing demand among management to have business-driven IS capable of dealing with business problems and the issues managers faced (Galliers, 1991). MIS reports (printouts) were provided at regular intervals (e.g., monthly); they were intended to provide managers with the information they needed, primarily for control purposes.

The first signals for the need for strategic IS planning appeared in this era since it was considered that strategic planning for the information needs of the organization was both feasible and necessary if MIS were to support its basic purposes and goals (King, 1978). The data processing applications of the earlier era produced “at best fragmented data, at worst a chaotic mess of data with little or no integrity” (Ward and Peppard, 2002, p. 18). As a result, thinking began to focus more on organization-wide information (i.e., what information is used, how it is used in the organization, and what more might be needed).

One of the most influential publications during the MIS era is arguably Nolan’s (1979) article that presents the so-called stages of growth model. This had remarkable impact on the development of IS strategizing, being both highly cited in the academic literature and extensively applied in practice, leading to the founding of Nolan, Norton & Co., which was subsequently acquired by KPMG. First published by Nolan (1973) and Gibson and Nolan (1974), the model was not without its critics, however. For example, it was criticized for its lack of empirical substantiation, the overly simplistic assumptions on which it was based, and the limited focus of the original concept (Benbasat et al., 1984; King and Kraemer, 1984). Nonetheless, it had a major impact, and since the original publication of the model was published, it has gone through several refinements and revisions by numerous authors (e.g., Earl, 1988, 1989; Nolan, 1979, 1984), and also later by Galliers and Sutherland (1991). The latter developed a revised model with a broader view concerning strategic, organizational, human resource, and management issues. Thus, notwithstanding the criticisms, the concept—in its various forms—has been applied extensively.

More generally, in an early paper, McFarlan (1971) pointed to the fact that little IS planning was taking place: of the 15 companies he studied, only one had been planning for IS for 4 years while the rest had just considered planning as a potentially necessary activity. During these early days, a handful of articles and books on the topic began to appear, in the United States for the most part (Lincoln, 1975 being an exception), each in their way concerned with the strategic dimensions and potential impacts of computer usage in organizations (e.g., Blumenthal, 1969; King and Cleland, 1975; Kriebel, 1968; McFarlan, 1971; Nolan, 1973; Siegal, 1975; Schwartz, 1970; Young, 1967). The earliest of the journal articles that specifically addressed the process of planning and strategizing for IS are listed in Table 66.1.

Young (1967) listed a number of convincing reasons and benefits of planning for IS. These included the promotion of a better organizational decision-making process through the management of information. Kriebel (1968) argued that an intuitive, ad hoc approach to planning for computers does not work; rather, organizations should develop strategies that define the role of computers in “attaining the strategic objectives of the corporation” and establishing planning objectives on the basis of organizational goals. Assessment of an organization’s status in terms of systems development, resource commitment, and management organization for computer systems were all considered to be important decisions in a “company computer strategy” (ibid., 12).

Schwartz (1970) also promoted planning for MIS, stating that the starting point should be a determination of management and user needs. He proposed a specific “systematic and analytic” approach to planning that takes an evolutionary perspective (i.e., a planning–executing–learning–planning
### TABLE 66.1 Earliest Articles on IS Planning

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Nature</th>
<th>Focus</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young, R.C.</td>
<td>Conceptual</td>
<td>Plan/normative</td>
<td>Reasons for planning: long lead time, rapid technological changes, growth, large investments, lack of clear authority and responsibility, need to set a good example, self-protection. Benefits of planning: promote better current decisions, organizational structure, and international communication, teamwork and morale; recognize future needs in time to meet them; and save management's time</td>
</tr>
<tr>
<td>Kriebel, C.H.</td>
<td>Conceptual</td>
<td>Should plan/normative</td>
<td>Companies should define the role of computers in &quot;attaining the strategic objectives of the corporation&quot; and establish computer planning objectives on the basis of corporate goals; determine corporate policy for growth, resource commitment, and the management organization for computer systems; and appraise the company's current position in computer systems development</td>
</tr>
<tr>
<td>Zani, W.M.</td>
<td>Conceptual</td>
<td>Planning framework</td>
<td>Proposes a top-down approach to help establishing goals and priorities for MIS development</td>
</tr>
<tr>
<td>McFarlan, F.W.</td>
<td>Conceptual</td>
<td>Planning framework</td>
<td>Factors that companies must consider in developing its strategy</td>
</tr>
<tr>
<td>Nolan, R.L.</td>
<td>Conceptual</td>
<td>Framework/evolutionary model/guidelines</td>
<td>The first publication presenting Nolan's Stages of Growth model, an evolutionary model for the growth of information technology (maturity) in an organization followed with guidelines. The model was further developed to its six-stage form and published by Nolan in 1979</td>
</tr>
</tbody>
</table>
## TABLE 66.1 (continued)  Earliest Articles on IS Planning

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Gibson, C. and Nolan, R.L.</th>
<th>Further developing the Nolan 1973 article’s idea of depicting advances in IT with four-step stages of growth model, with the key focus in application portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationality</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Journal</td>
<td>Harvard Business Review</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1974</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Managing the four stages of EDP growth</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Conceptual</td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Framework/evolutionary model/guidelines</td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>King, W.R. and Cleland, D.</td>
<td>Systems approach to planning</td>
</tr>
<tr>
<td>Nationality</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Journal</td>
<td>Business Horizons</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1975</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>A new method for strategic systems planning</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Conceptual</td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Approach to information system development in the context of an overall business/IS plan</td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Lincoln, T.</td>
<td>Approach to information system development in the context of an overall business/IS plan</td>
</tr>
<tr>
<td>Nationality</td>
<td>United Kingdom</td>
<td></td>
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<tr>
<td>Journal</td>
<td>Management Datamatics</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1975</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>A strategy for Information Systems development</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Conceptual</td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Planning framework</td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Mjosund, A.</td>
<td>Two general approaches are suggested: use the information system analysis to guide research, or application of results from research, to solve management problems; follow a strategy in the analysis of information needs such that the steps in this analysis are closely related to the structure relating the decisions and actions in the organization. A gross classification scheme is proposed to aid in determining this strategy</td>
</tr>
<tr>
<td>Nationality</td>
<td>United States</td>
<td></td>
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<tr>
<td>Journal</td>
<td>Computer &amp; Operations Research</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1975</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Toward a strategy for information needs analysis</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Conceptual</td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Planning framework</td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Zachman, J.</td>
<td>There are three levels of planning and control functioning in an organization: strategic planning, management control, and operational control and it should be clearly identified to whom the system is to be built</td>
</tr>
<tr>
<td>Nationality</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Journal</td>
<td>Journal of Systems Management</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1977</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>The information systems management system: a framework for planning</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Conceptual</td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Descriptive/evolution</td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Zachman, J.</td>
<td>IS planning must begin with an understanding of the basic components of the IS management system and their relationships, which then serves as a framework within which the planning effort can take place. Those basic components are presented</td>
</tr>
<tr>
<td>Nationality</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Journal</td>
<td>DATABASE for Advances in Information Systems</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1978</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>The information systems management system: a framework for planning</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Conceptual</td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Planning framework</td>
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</tr>
</tbody>
</table>
cycle framework). Identification of current and potential systems and evaluation of needed resources are present in the Schwartz framework, with implementation and feedback mechanisms being emphasized in this early work. Similarly, King and Cleland (1975) promoted a “systems approach” to planning, where the entire focus was on a feedback (learning) process, where plans depend on the consequences of action just as intrinsically as actions reflect the results of planning.

Other early works on approaches to IS planning included those by Zani (1970), Nolan (1973), and Lincoln (1975), as notable examples. Zani (1970) suggested that the bottom-up approaches of the earlier era produce benefits mostly by chance. Conversely, the top-down approach he advocated helps in establishing goals and priorities for MIS development and therefore focuses IT where it is most needed. While developing the first version of the stages of growth model, Nolan (1973) found a “database/key-task strategy” to be most effective since management would have to consider carefully what the key tasks of the business are, thereby forcing on cross-functional data integration. Lincoln’s (1975) approach was built, first and foremost, on an understanding of the business function in terms of objectives and tasks; only after this has been achieved could information requirements to meet defined objectives be examined.

This early research viewed IS plans and strategies as mainly reactive to business strategies, and managers strove to align their IS strategies with their business needs. For example, King and Cleland (1975) framed their discussion around transformation of organizational mission, objectives, and strategies into “IS strategy sets.” These ideas were later adopted by IBM as a basis for their Business Systems Planning (BSP) methodology. This methodology was used in many organizations, not just in the United States. It was—frankly—as much a marketing device for IBM mainframes as well as a consulting tool, given the added value of such strategic services IBM was able to offer, compared to other vendors.

66.2.3 SIS

By the late 1980s, there were growing numbers of cases in which IT was shown to have had a strategic impact on organizations. Though the studies undertaken in the United States tended to assume that in almost every instance IS planning is undertaken, and the emphasis was on questions “how” and “why,” this was less the case with their British or Australian counterparts, for example, where the emphasis remained on question “whether” any planning was undertaken (Galliers, 1987, p. 51), notwithstanding the early work of the likes of Michael Earl (e.g., Earl, 1988, 1989). Nevertheless, corporate executives became increasingly interested in what were termed strategic information systems (SIS). The objective of the SIS era was to change the nature or conduct of business in order to improve the competitiveness of the company—a proactive, rather than reactive approach in other words. The American Airline’s SABRE reservation system was one such oft-cited SIS (e.g., McFarlan, 1984; Porter and Millar, 1985). The use of IS began to influence organizations’ competitive positions and became a strategic weapon for competitive advantage (Ward and Peppard, 2002).

Research identified a number of organizational and individual factors that promoted the development of SIS. A competitive market was found to be conducive to the development of SIS (King and Sabherwal, 1992). An internal need was found to be the reason for SIS development in 14 well-known SIS (Neo, 1988). Automation to enhance internal efficiency had become crucial for products and processes with high information content (Lindsey et al., 1990). Similarly, businesses with high transaction volumes built systems to improve internal operations (Johnston and Carrico, 1988).

A significant portion of the early SIS literature was devoted to the identification and description of opportunities for SIS. SIS planning (SISP) approaches were developed to identify these strategic opportunities for organizations by applying IT to optimize business performance (Pant and Ravichandran, 2001) and were, as a result, labeled as “impact” mode approaches (Bergeron et al., 1991). For example, Lederer and Sethi (1996, p. 1) define SISP as “the process of identifying a portfolio of computer-based applications that will assist an organization in executing its business plans and realizing its business goals.”
During the SIS and SISP era, the purpose of IS strategic planning was both to influence and enable a business strategy and to support it (King and Teo, 1997). IS strategies were viewed as proactive, and attention shifted to how the technology can be employed to increase competitive advantage through analyses of the competitive environment and internal processes (Galliers, 2004).

### 66.2.4 Summary: Toward Sustainability and Capability

Summarizing the early developments in IT, Galliers (1987, 2004) suggests that the focus of IS strategizing during those earlier periods went through four phases during which attention shifted away from and then back to IT, and from matters of efficiency to matters of effectiveness and competitiveness. The four phases mirror, to some degree, the eras identified earlier: isolation (the data processing era), re-action and prospection (the MIS era), and pro-action (the SIS era). Figure 66.1 describes the development in terms of the degree to which the IS strategy might be viewed as a business-driven, “top-down” process—as opposed to more technology-driven, “bottom-up” concerns—and the extent to which such strategies have been based on short-term problem solving as opposed to more long-term strategic goal setting. Galliers (2004) suggests that, in some respects, current IS strategizing includes characteristics of each of these “phases.” Similarly, Peppard and Ward (2004) note that, with the evolution of IT, each “era” displays different characteristics regarding the application of IT and has different objectives. In this sense, every new era or phase in IT evolution and IS strategic planning encompasses the earlier views as well.

More recently, there has been an increased interest in the question of the sustainability of the competitive advantage to be derived from IS (Ward and Peppard, 2002). Even though an organization can gain a competitive advantage over others in the short run, such as from the “first mover advantage” gained through an innovative application (Clemons and Row, 1991; Mata et al., 1995), most of these technologies can be easily copied and, therefore, do not produce a sustainable competitive advantage. Unlike competitive advantage, sustainability is an ongoing state that creates continuous advantage (Barney, 1991).

Valuable, rare, inimitable, and non-substitutable (the so-called VRIN) resources are considered to be a source of sustainable competitive advantage based on the resource-based view (RBV) of the firm (Barney, 1991; Rumelt, 1984; Wernerfelt, 1984). According to Wang and Ahmed (2007, p. 3), “The essence of the RBV lies in the emphasis on resources and capabilities as the genesis of competitive advantage: resources are heterogeneously distributed across competing firms and are imperfectly mobile which, in turn, makes this heterogeneity persist over time.” Traditionally IS has been associated with technological systems, which—indeed—are often rather easy to imitate or substitute (cf. recent arguments by

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the like of Carr, 2003, for example). However, the RBV and its derivatives such as the capabilities view facilitate the consideration of IS holistically, including, for example, the organization's external environment, internal processes, organizational culture, and employee resources—all of which are considerably harder to imitate or substitute. With respect to strategic planning, the resource-based perspective also places importance on managerial strategies for developing new capabilities (Wernerfelt, 1984).

Ross et al. (1996) and Bharadwaj (2000) introduce the concept of IS capability as something that organizations need to develop to enhance competitiveness. Specifically, Bharadwaj et al. (2002, p. 4) combine earlier works and definitions to define IT capability as a “firm's ability to acquire, deploy, and leverage its IT resources to shape and support its business strategies and value chain activities.” Further, Pavlou and El Sawy (2006, p. 198) suggest that “IS researchers should look beyond the direct effects of firm-level IT infrastructures and focus their attention on how business units can leverage IT functionalities to better reconfigure and execute business processes.” They list various IT-related resources that, when combined, form IT capability, including many non-technical resources such as access to capital, proprietary ownership, managerial IT skills, IT-business partnering relationships, IT human resources, complementary IT human and business resources, and business process integration. A somewhat similar perspective is provided by Galliers and Sutherland (1991), based on their amendment of the stages of growth model (Gibson and Nolan, 1974; Nolan, 1973, 1979), which incorporated the so-called 7S framework, used by McKinsey (i.e., shared values, strategy, structure, skills, staff, style, and systems).

Other scholars have provided additional insights on IS capabilities. For example, Kettinger et al. (1994) conclude that gaining IT/IS-based sustained competitive advantage is a matter of building organizational infrastructure. Powell and Dent-Micallef (1997) suggest that some organizations have been successful in using IT to leverage intangibles and human resources such as organizational flexibility, integrating business and strategy planning, and vendor relationships. Mata et al. (1995) argue that IS management skills are the only source of sustained advantage.

The growing complexity of both business processes and IS together with commodity nature of IT has shifted the main focus of attention from technical aspects to the organizational factors enabling effective exploitation of IT. As mentioned earlier, the IS capabilities view emphasizes the development and delivery of all IS-related organizational capabilities rather than the straightforward development of IS systems or simple recognition of promising opportunities. DP-, MIS-, and SIS-era planning methodologies concentrated on introducing more effective IS solutions, recognizing new opportunities, and improving production processes. The IS capability view is, however, concerned mainly with introducing and developing the capabilities to fulfill the DP-, MIS-, and SIS-era objectives. It can, thus, be considered another step forward in the transformation from asking questions of “what” to the questions of “how” and “why.” While an SIS-era IS strategy might envision the strategic IS opportunities and systems that will be introduced to gain competitive advantage, “... in the IS capability era, the strategic management of IS is about developing IS competencies” (Peppard and Ward, 2004, p. 188).

Among several other researchers, Benamati and Lederer (2001, p. 86) point out that, facing the challenges of the information era, "organizations do not cope very effectively with rapid IT change." The RBV has been criticized and considered inadequate to explain sustained competitive advantage especially in changing environments. Consequently, faced with turbulent business environments and to further address the need to quickly deliver IS services, the IS dynamic capabilities view was introduced. The concept has been mentioned earlier in both business and IS literature and the ideas have been discussed well before the label “dynamic capabilities” was coined. Nevertheless, it received little serious attention before being popularized by Teece et al. (1992, 1997) and Eisenhardt and Martin (2000).

The dynamic capabilities construct is based on the idea that sustainable competitive advantage requires the ability to manage an organization in such a way that it can build successive temporary advantages by effectively responding to successive environmental shocks (Eisenhardt and Martin, 2000; Peppard and Ward, 2004). Teece et al. (1997, p. 516) define the concept as “The firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.” Following Barreto’s (2010, p. 260) conclusions, dynamic capabilities have been identified as abilities,
capacities, and capabilities but also more specifically as processes, routines, learned and stable activities, or as a behavioral orientation that helps organizations to change. The challenge to keep up with the change requirements for IS has led to a growing need for attention for flexibility, agility, and change readiness in all aspects of utilizing IT. Rapid business change places a further challenge to plan for organizational change readiness, agility, and flexibility. Given today’s high level of dependence on technology, IS strategizing and planning for IS dynamic capabilities become ever more important.*

Today, few people would disagree that the strategic management of data, information, resources, and knowledge—and the associated IT—represents a major strategic challenge and opportunity for organizations (Galliers, 2004). Of course, the value to an organization is not so much what specific technologies it has or develops, but how these technologies are employed. As such, strategizing about IS (Galliers, 2007), and the resulting IS strategy, when effectively engaged, may distinguish the performance improvements attributable to IS from one organization relative to others. Without an IS strategy, the contribution of IS to organizational performance is likely to be a result of serendipity (ibid.). Both practice and research have emphasized the need to carefully construct an IS strategy to complement and/or enable organizational objectives—as identified in the business strategy (Reich and Benbasat, 1996). IT strategic planning has remained among IT management’s top 10 concerns throughout the last three decades (Luftman and Ben-Zvi, 2010). Understanding the strategic value of IS (i.e., seen holistically) has been a key goal of many IS practitioners and researchers (Galliers, 1993a,b; Luftman et al., 2006). Thus, considerable attention has been paid in the literature to, for example, addressing issues associated with IS strategic planning, alignment of IS and business strategies, and strategy formulation involvement (Chen et al., 2010).

Building on this introduction, the purpose of this chapter is to summarize developments of the field of IS strategy and the process of IS strategizing. First, we address the question of the conceptualization of IS strategy. A variety of terms, such as IT strategy (Gottschalk, 1999), IS/IT strategy (Chan et al., 1997), information management (IM) strategy (Karimi and Konsynski, 1991), and information strategy (Smits et al., 1997), have been used that are related to and sometimes used interchangeably with the term of IS strategy. We aim to clarify the distinctions and the connections among these terms. Second, we describe the evolution of the field and various streams of thought that have been considered in the course of the field’s development. Last, in an attempt to synthesize extant research themes, we propose an integrative framework that links the various topics that encompass what we refer to as the research on the IS strategizing process.

### 66.3 Underlying Principles

#### 66.3.1 IS Strategy Components

The foundational work on conceptualization of IS strategy was led—most notably—by Earl (1989) and developed further by Galliers (1991, 1999). Earl’s (1989) insightful contribution was to differentiate the “what” from the “how” and the “wherefore” of IS strategy. In so doing, Earl makes clear that IS strategy is very much a business management issue, while IT strategy lies, for the most part, within the domain of the IT function. IS strategy comprises an application development portfolio, a “shopping list” of application and projects—the “demand” side of the IS strategy in other words. IT strategy is regarded as the “supply” side of the IS strategy. IT strategy is concerned with alternative technological solutions (alternative “hows”) to support the “what” of business needs, thereby enabling IT to be better aligned with the business strategy. The “wherefore” indicates the kind of developmental path that needs to be taken to achieve this alignment. Other notable authors in this sphere include Lederer, who could

* For further information about the construct, recent literature reviews in the organization management literature by Barreto (2010), Ambrosini and Bowman (2009), and Wang and Ahmed (2007) list the main ideas, theories, and criticisms. Further, Schwarz et al. (2010) and Chen et al. (2008) have studied more closely the importance of dynamic capabilities for IS impact and alignment in organizations.
arguably—measured by the number of published and highly cited IS strategy articles in peer-reviewed journals—deserve the title of most influential academic contributor to IS strategy research. His most cited works related to IS strategy cover such topics as SISP methodologies, critical issues, implementation, information resource planning, key prescriptions, and SISP conceptualization (Lederer and Salmela, 1996; Lederer and Sethi, 1988, 1996).

Galliers’ (1991) amendment to Earl’s earlier conceptualization was to suggest that an information strategy might provide a useful distinction from IS or IT strategy in that it focuses on identifying the information that could question taken-for-granted assumptions on which the business strategy is based, as well as providing the information required by the business strategy. Thus, an information strategy is the glue between the business strategy and the IS strategy. It tends to answer questions such as “what is the information required to support primary tasks, or key goals, of the organization strategy?” and “where can this be obtained?” The information strategy also questions the business strategy by attempting to answer the “why” questions—“why might this particular strategy be chosen as against any other?” (Galliers, 2009).

A further distinction provided by Galliers (2009) is the information services strategy (also sometimes referred to as the IM strategy). An information services strategy focuses on policy issues regarding the organization of information services (and capabilities), including sourcing decisions—that is, “the organizational arrangements for the provision of IS-related services” (ibid., p. 14). This component of IS strategy mainly answers to the “who?” questions: who is needed to facilitate and enable the strategy to be developed and implemented. Such questions include considerations of the structure, roles, and processes of the IT function. Human resource issues, such as IT personnel requirements and choices between the internal service provision, also need to be considered. In this sense, it is a precursor to Peppard and Ward’s (2004) call for a focus on IS capability discussed in the previous section.

Galliers (1999) also stressed the need for an implementation/change management strategy as integral to the overall IS strategizing process, and the need for ongoing evaluation and review. The former emphasizes the importance of managing the change processes associated with ongoing implementation of the strategy. The latter emphasizes the importance of feedback regarding the impact of past strategic decisions (unintended as well as expected outcomes) and the identification of emergent strategies (i.e., those that might “bubble up” as a result of what Ciborra (1994) calls “tinkering” and “bricolage”). Thus, importantly, the IS strategizing process is viewed as ongoing and iterative, and not a one-off initiative, to be undertaken periodically.

In summary, there are distinctions to be made between various commonly used terms in the IS field, and IS strategy is no exception. In Galliers’s terms, IS strategy is a broad concept that encompasses the information strategy, the IT strategy, the information services strategy, and the change management and implementation strategy—as well as the assessment and ongoing review of the process outcomes, and the process itself. Collectively, these interlinked strategy components represent fundamental aspects of managing IS in organizations (see Figure 66.2). IS strategy incorporates a range of issues associated with strategy formulation and formulation (i.e., the emergent as well as the deliberate), and implementation with respect to IS, and considers social as well as technological aspects. In addition, IS strategy is cross-functional since it encompasses product, process, and human resources (Lefebvre et al., 1997). From this perspective, we would argue that a business strategy is incomplete without its IS strategy.

66.3.2 Review of the Literature
The literature specifically on the processes associated with IS strategy is vast, and it covers 40 years of research, with over 470 articles in peer-reviewed journals and a number of prominent books on the subject (e.g., Blumenthal, 1969; Earl, 1988, 1989; Galliers and Leidner, 2003, 2009; King, 2009; McLean et al., 1977; Siegal, 1975; Ward and Peppard, 2002). More generally, for example, work covering related topics such as the strategic application of IT, or such topics as sourcing, would yield thousands of articles
Process of Information Systems Strategizing

(see, e.g., Gable, 2010, for a review of the over 300 articles that have appeared in the Journal of Strategic Information Systems alone in the period 1991–2009). Academic articles on IS strategy processes were particularly numerous in the 1990s (with a peak of over 30 articles in 1999), but fewer articles have appeared in recent years. However, we argue that this decline does not necessarily indicate a lack in potential areas of further research in this field, especially—as we have seen—the topic remains a prominent issue for IT executives and their business colleagues (Luftman and Ben-Zvi, 2010). Utilizing the frameworks provided by the extant literature, we derive an integrative framework to help researchers and practitioners alike to further familiarize themselves with key IS strategy themes. Here, as we have noted, we view strategy as a dynamic and ongoing process within an organization and, therefore, we consider the strategizing process as our particular focus of study. Through a review of extant frameworks, no single framework has been established that encapsulates all the components relevant to IS strategizing to be found in the literature. To develop such a framework, however, we began with a conceptualization that came closest to our view of strategy as a process of relevant and related activities. The input–process–output model (initially introduced by King, 1988) provided a useful building block for our synthesis, given its breadth of coverage.

### 66.3.3 Comprehensive IS Strategizing Framework

#### 66.3.3.1 Input–Process–Output Models: Early Examples

The traditional IS strategy literature makes the distinction between the process and content of strategy research (Chan and Huff, 1992). While content research focuses on linking organizational decisions and structures to performance (or other organizational outcomes), process research centers on the actions and activities leading to and supporting strategy (making). The input–process–output model combines these two major components. In the model, strategy is considered to be the output of the strategy formulation (including development) process. In other words, it is the deliverable of the process (Ang et al., 1995; Chen et al., 2010; King, 1988; Premkumar and King, 1991; Smits et al., 1997). Furthermore, the implementation of IS strategy results in some type of organizational impact: such commonly considered outcomes being competitive advantage, alignment, and firm performance. The impact of IS strategy is included as part of the framework in a later version of the input–process–output model (e.g., Lederer and Salmela, 1996). Strategy implementation will potentially change the organizational landscape, i.e., the internal as well as the external environment of the organization. Thus, the cycle starts again with the
internal and external environments influencing the strategy formulation process and the practices that are used by strategists to assess the needs and objectives of the organization. Consequently, this model incorporates considerations of such contextual factors as the planning process, strategy content, and impact of IS strategy actualization on the organization and its external environment. Figure 66.3 depicts the framework, as adapted from these earlier works.

**66.3.3.2 Input–Process–Output Models: Later Extensions**

Lederer and Salmela (1996) extended the earlier conceptions of the input–process–output model to provide a theory of SISP. The modified model was intended to provide a parsimonious way of identifying various strands found in the strategic IS planning literature. Specifically, Lederer and Salmela further elaborated on the constructs of the input–process–output model as they apply to SISP. First, they made a distinction among different components of planning input by considering the general context of the strategy development process, which includes elements within the organization’s internal environment as well as elements beyond its control. Inputs are also the resources allocated to the planning process such as time, money, and personnel, as well as information and such intangible inputs as motivations toward and expectations of SISP. Newkirk and Lederer (2007) described SISP in terms of three IS resources planning activities: technical resources planning (i.e., planning activities associated with application software, systems software, hardware, and network communications), personnel resources planning activities (i.e., planning activities related to more people-oriented concerns such as technical training, end-user computing, facilities, and the personnel themselves), and data security planning activities (i.e., planning activities associated with protecting the organization from unwanted intrusion and recovering from such intrusions as they occur) (Doherty and Fulford, 2006).

A number of specific planning “input” factors have been mentioned in the literature. Abdul-Gader (1997) and Aladwani (2001) consider factors in the general business environment such as national and regional (e.g., socioeconomic) policies. As attention shifted to planning for inter-organizational systems (and to electronic commerce), suppliers, customers, and partner organizations were recognized as playing a more significant role in organizations’ IS planning processes (Finnegan et al., 1999). Teo and King (1997) consider marketplace volatility, industry sector, competitive forces, and environmental uncertainty. Similarly, McFarlan’s (1984) strategic grid represents the view that the conditions in the industry in which a firm operates largely set the scene for its IS strategy. The external conditions of a particular industry sector determine the extent of the strategic importance of IT applications (current and future) in the industry.

An explicit emphasis on the industry environment is also considered by Earl (1989), who distinguishes four types of companies in terms of their particular traits and preferences for IT. Earl finds
that in some sectors, IT is the means of delivering the goods and services in the sector. In such cases, planning for goods and services and product–market strategy formulation cannot be done without reference to IT, and planning for IT is integral to business planning. In other sectors, business strategies are dependent on IT for their implementation. In these sectors, planning for IT is a derivative of business planning. In the third type of company, IT can yield some strategic advantage and, therefore, planning is likely to include some “IT-push” characteristics, where IT is taken to the users. Last, there are companies for which IT has no strategic impact, and planning is influenced by ad hoc needs.

Additionally, Sullivan (1985) suggests a simple matrix to explain how the IS strategy environment is affected by forces both internal and external to an organization. He describes two dimensions within which an organization can consider the implications of these forces: degree of decentralization of IS control in organization (i.e., diffusion) and degree of dependence on IS of the business (i.e., infusion). Information intensity and the rate of IT change have also been considered by Benamati and Lederer (2001) and Teo and King (1997). Cegielski et al. (2005) emphasize the need for IT managers to scan emerging technologies in order to determine any potential opportunities to which these might give rise. Such studies have identified clarity of corporate strategy, IT planning resources, the available IT budget, present and future impacts of IT (Premkumar, 1992), and uncertainty concerning IS benefits and the availability of IT (Wilson, 1989), as key factors in this regard.

Arguably, business or corporate strategy is also an integral aspect of the internal IS strategy environment. The reconciliation of the IS strategy within the business strategy has found form in research on strategic IS–business alignment (Chan and Reich, 2007; Henderson and Venkatraman, 1993) with a clear business strategy being viewed as having a major influence on, and essential to, the IS strategy development process. Others have argued that business strategy has implications not only for the process but also on the IS strategy itself and its impact (e.g., Walsham and Waema, 1994).

Similar to the original input–process–output model, other components of the Lederer and Salmela (1996) framework include the planning process and the “output” of the process—the information plan itself. The major component of the information plan is described as a set of recommendations for new IS. Lederer and Salmela make the point that organizations often fail to develop systems identified in the information plan and, thus, they consider the plan’s implementation to be key. This is included in their amendment to the input–process model, illustrated in Figure 66.4 and utilized in our analysis.
66.3.3.3 Elaboration on the Strategic Information Systems Planning Process

Early works viewed SISP as a set of defined activities but considered these activities in broad characteristics and general behaviors; rarely did the literature decompose the planning process into specific activities (McFarlan, 1971; Premkumar and King, 1991; Raghunathan and Raghunathan, 1991; Segars and Grover, 1999). Dealing with this issue, and amending the classification offered by Mentzas (1997), Brown (2004) presents six detailed phases of the planning process: preparation, organizational analysis, external environmental analysis, strategy conception, strategy formulation, and strategy implementation planning. Preparation refers to planning for IS planning process or preplanning. Organizational analysis encompasses the analysis of internal business and IS environments. Similarly, external environment analysis is the analysis of external business and IS environments. Strategy conception includes activities such as scanning the future, identifying alternative scenarios (including information flows and requirements for each), and considering the implications of each scenario (Galliers, 1992, 1993a,b). Strategy formulation is further elaborated into the formulation of agreed organizational recommendations and an associated information architecture (Galliers, 1993a,b), as well as the creation and prioritization of a portfolio of IS application developments. Finally, strategy implementation planning activities include the definition of action plan elements, follow-up, control, and an explanation of the action plan. Brown argues that these activities are necessary to ensure that the new IS are actually placed into production and used. Table 66.2 shows the process phases and the corresponding activities.

66.3.3.4 SISP Methodologies

Early SISP research provided managers with a number of methodologies (tools and techniques, rather) to apply during the planning process. Commonly, these methodologies can be divided into two broad categories: impact and alignment methodologies (Booth and Philip, 2005; Pant and Hsu, 1995, 1999; see Figure 66.5). The emphasis of impact methodologies is the gaining of competitive advantage through the use of IT—a popular theme throughout the 1980s and 1990s. Impact methodologies focused on creating and justifying innovative, value-added uses of IT. Examples of impact methodologies include critical success factors (Rockart, 1979), customer resource life cycle (Ives and Learmonth, 1984), value chain analysis (Porter, 1985), and strategic thrust analysis (Wiseman, 1985). In retrospect, the value of this kind of argumentation is debatable as much of the evidence presented was anecdotal rather than as a result of systematic studies (see, e.g., Ciborra, 1994).

### Table 66.2  The Brown (2004, p. 29) Framework

<table>
<thead>
<tr>
<th>SISP Phases</th>
<th>SISP Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation</td>
<td>Planning for planning (pre-planning)</td>
</tr>
<tr>
<td>Organization analysis</td>
<td>Analysis of internal business environment</td>
</tr>
<tr>
<td></td>
<td>Analysis of internal IS environment</td>
</tr>
<tr>
<td>External environment analysis</td>
<td>Analysis of internal business environment</td>
</tr>
<tr>
<td></td>
<td>Analysis of internal IS environment</td>
</tr>
<tr>
<td>Strategy conception</td>
<td>Scanning the future</td>
</tr>
<tr>
<td></td>
<td>Identification of alternative scenarios including information flows and requirements for each</td>
</tr>
<tr>
<td></td>
<td>Scenario elaboration</td>
</tr>
<tr>
<td>Strategy formulation</td>
<td>Formulation of agreed organizational recommendations</td>
</tr>
<tr>
<td></td>
<td>Formulation of information architecture</td>
</tr>
<tr>
<td></td>
<td>Synthesis and prioritization of portfolio of information systems to be developed</td>
</tr>
<tr>
<td>Strategy implementation planning</td>
<td>Definition of action plan elements</td>
</tr>
<tr>
<td></td>
<td>Elaboration of action plan</td>
</tr>
<tr>
<td></td>
<td>Definition of follow-up and control procedures</td>
</tr>
</tbody>
</table>

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The main rationale for the alignment school was to establish symbiosis between IS strategy and business objectives (Reich and Benbasat, 2000). The methodologies that fall into this category are extensive. They include Method 1 from Andersen Consulting (Lederer and Gardiner, 1992), BSP from IBM (Zachman, 1982), Information Engineering (Martin, 1989), Robert Holland's Strategic Systems Planning (Holland Systems Corporations, 1986), and Total Information Systems Management (Osterle et al., 1993). These methods take a top-down, business-led approach (Premkumar and King, 1994). Issues related to these methods include the lack of flexibility in responding to a rapidly changing business environment and concerns regarding, for example, “one size fits all” solutions (for a critique, see Galliers, 2007).

Although methodologies for SISP have taken up a large part of academic discussions (Boynton and Zmud, 1987; Lederer and Gardiner, 1992), SISP cannot, in our view, be fully understood by considering formal methods alone. It is the interaction of method applied, process followed, as well as the variety of activities and behaviors (i.e., what is termed “approaches to SISP”) that characterize the planning experiences within organizations (Earl, 1993). This literature reveals a number of approaches to strategic IS planning. For example, Pyburn (1983) distinguished between the written (i.e., formal) planning system and the personal (i.e., informal) planning system. The former is a structured, top-down approach and the latter, adaptive and bottom-up. Segars et al. (1998) and Segars and Grover (1999) identified six dimensions to planning: comprehensiveness (extent of solution search), formalization (existence of rules and procedures), focus (extent of innovation versus integration), flow (top-down, bottom-up), participation (number and variety of planners), and consistency (frequency of planning). Earl (1993) identified the characteristics of SISP from other works in what is a fairly comprehensive framework (Doherty et al., 1999; Segars et al., 1998). He differentiated approaches based on nine criteria: emphasis, basis, ends, methods, nature, influencer, relationship with business strategy, priority setting, and the role of IS. Through an examination of 27 companies, Earl identified five SISP approaches: business-led (planning focused on the enterprise), method-driven (focused on the planning technique—often as provided by a vendor or consultancy, as with BSP or Method 1, for example), administrative (focused on the available

FIGURE 66.5 IS planning methodologies. (From Pant, S. and Hsu, C., Strategic information systems planning: A review, paper presented at the International Conference on Information Resources Management Association, Atlanta, GA, 1995, p. 5.)

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resources), technological (focused on technological applications), and organizational (focused on learning). Table 66.3 summarizes these approaches, based on the nine characteristics.

An additional element of the input–process–output model was proposed by Baker (1995). Her contribution was based on systems thinking, adding a feedback loop to ensure continuous improvement in the planning process. Viewing IS strategizing as an iterative, learning process was acknowledged even in the earliest research (e.g., King and Cleland, 1975; Schwartz, 1970). Ongoing assessment and review have also been acknowledged by Galliers (2004) and Earl (1993) and are incorporated in the integrated model we propose.

No matter how detailed the input–process–output model has been extended over the years, however, it does not fully address the complex nature of the process of strategy development in practice. How organizations actually form strategy—the topic of strategy formation—has emerged as an area of intense debate within the strategy field over the years. Mintzberg (1978) points out that formulated or intended strategies may not be necessarily realized, and unplanned and unintended patterns of decisions and actions may emerge (see Figure 66.6). Concepts such as “bricolage” (Ciborra, 1994), gradual enhancement (Senn, 1992), improvisation (Galliers, 1991, 1993a,b), and “muddling through” (Lindblom, 1959) appear alongside the more formal strategy formulation approaches. Our proposed integrative model reflects the emergent nature of the IS strategizing process and distinguishes the notion of intended versus realized strategy. Intended strategy is the output or “result” of a deliberate planning process, whereas the realized strategy is the outcome of strategy implementation process during which some of the intended strategy may be realized while other aspects may not. The realized strategy also reflects some of the emergent strategies that materialize during the formation process.

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**TABLE 66.3** Earl’s (1993, p. 7) Typology of Approaches to SISP

<table>
<thead>
<tr>
<th>Basis</th>
<th>Business-Led</th>
<th>Method-Driven</th>
<th>Administrative</th>
<th>Technological</th>
<th>Organizational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emphasis</td>
<td>Business</td>
<td>Technique</td>
<td>Resources</td>
<td>Model</td>
<td>Learning</td>
</tr>
<tr>
<td>Ends</td>
<td>Plan</td>
<td>Strategy</td>
<td>Procedure</td>
<td>Rigor</td>
<td>Partnership</td>
</tr>
<tr>
<td>Methods</td>
<td>Ours</td>
<td>Best</td>
<td>None</td>
<td>Engineering</td>
<td>Any way</td>
</tr>
<tr>
<td>Nature</td>
<td>Business</td>
<td>Top-down</td>
<td>Bottom-up</td>
<td>Blueprints</td>
<td>Interactive</td>
</tr>
<tr>
<td>Influencer</td>
<td>IS planner</td>
<td>Consultants</td>
<td>Committees</td>
<td>Method</td>
<td>Teams</td>
</tr>
<tr>
<td>Relation to</td>
<td>Fix points</td>
<td>Derive</td>
<td>Criteria</td>
<td>Objectives</td>
<td>Look at business</td>
</tr>
<tr>
<td>Business Strategy</td>
<td>The board</td>
<td>Method recommends</td>
<td>Central committee</td>
<td>Compromise</td>
<td>Emerge</td>
</tr>
<tr>
<td>Priority Setting</td>
<td>Driver</td>
<td>Initiator</td>
<td>Bureaucrat</td>
<td>Architect</td>
<td>Team member</td>
</tr>
<tr>
<td>IS Role</td>
<td>Initiative</td>
<td>It’s good for you</td>
<td>Survival of the fittest</td>
<td>We nearly aborted it</td>
<td>Thinking IS all the time</td>
</tr>
<tr>
<td>Metaphor</td>
<td>It’s common sense</td>
<td>It’s common sense</td>
<td>It’s common sense</td>
<td>It’s common sense</td>
<td>It’s common sense</td>
</tr>
</tbody>
</table>

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**FIGURE 66.6** The Mintzberg (1978, p. 945) model.
The distinction between emergent and deliberate strategies appears in other relevant frameworks. In particular, Whittington (2002) proposes four generic approaches to strategy that differ along two dimensions: the outcomes of strategy and the processes by which it is made. The process dimension reflects whether the strategy is the product of deliberate planning or the result of emergence, accident, muddle, or inertia. The outcome dimension indicates the degree to which the strategy produces unitary (e.g., profit maximization) outcomes, or allows for consideration of alternative, pluralistic outcomes. For example, Segars and Grover (1998) suggest four dimensions of SISP success outcome: alignment (the linkage of the IS strategy with business strategy), analysis (the effort by IS planners to understand the internal process, procedures, technologies), cooperation (the agreement among IS planners concerning priorities, implementation schedules, and managerial responsibilities), and improvement in capabilities (the enhancement in SISP capabilities as a result of organizational learning). Similarly, King (1988) argues that the measurement of SISP impact should be multidimensional, and based on both judgmental and objective assessments. Dimensions proposed by King include the effectiveness of the strategy approach, its relative worth, the role and impact of IS strategy, the performance of IS plans, the relative efficiency of the strategy process, the adequacy of resources made available, and strategic congruence. The outcome of an IS strategizing process thus presents an additional consideration in the literature as it expands the scope of the formation process.

In summary, the proposed framework arising from this literature review includes the contextual dimension of IS strategizing (ISS), which comprises the external as well as the internal environment (see Figure 66.7), and attempts to be more holistic in nature than those that are often presented in existing research. Resources and capabilities are an important component of ISS and are, therefore, explicitly highlighted in the framework. The resource-based view (Barney, 1991; Rumelt, 1984; Wernerfelt, 1984) and the capabilities view (Peppard and Ward, 2004) are gaining increased attention, and they are used to explain the increased complexity of causal relations between IS strategy and firm performance. We have also included ongoing assessment, review, and feedback processes (e.g., Baker, 1995; Earl, 1993; Galliers, 2004) as the link between content and the process of strategizing. Additionally, we incorporate the kind of thinking that Brown (2004) introduces in illustrating specific phases in the SIS process.

FIGURE 66.7  The proposed framework for IS strategizing.
Galliers (2004) provides components of IS strategy that might be addressed by an organization and are considered as the output of the planning process. These components might guide planners in the areas of strategy they need to plan for in their strategy development process.

The realized strategy is an outcome of the emergent process as well as a deliberate plan (Mintzberg, 1978), so the emergent strategy is incorporated in the framework as a topic that explores the unintended/unplanned social activities of strategy formation. Finally, profit maximization is often seen as the natural outcome of strategy making, but this unitary view is amended by the pluralistic view proposed by Whittington (2002), where strategists might have other interests or objectives than profit.

It is important to note that the IS strategizing “process” does not always occur sequentially in an organization, and there will always be overlap across various components that have been incorporated in the framework. In addition, different businesses and functions within an organization may be involved at different stages of the process. The framework is a conceptual tool—a sense-making device in Weick’s (1990) terms—aimed at helping practitioners and researchers in understanding better the various areas encompassing this complex process and particularly those that need attention or further research.

Researchers and practitioners alike can use this framework to assess, in a comprehensive manner, the process of IS strategizing in organizations. For example, the framework points to the importance of resources consumed by the strategizing process. Justification of the use of such resources is critical to organizational survival during downturns because the resources allocated to planning activities are often substantially reduced during such difficult times (King, 1988). With respect to the intended strategy component of the IS strategizing process, a general question that might need to be considered is whether the plan in fact guides the strategic direction for the role of IS in the organization. The impact of IS strategy might be difficult to assess, and the framework suggests evaluation based on multiple outcome parameters. This multidimensionality further suggests the involvement of multiple stakeholders. The notion of “second-order” feedback incorporated in the framework may be applied to the assessment of the IS strategizing process by, for example, determining whether the process has any “self-correcting” characteristics (King, 1988).

### 66.4 Impact on Practice

There has been a gap between academic discussion on IS strategy and how IS strategy has been perceived in practice. Practitioners are mostly concerned with the technical dimensions of IS strategy, such as decisions on IT infrastructure, architecture, and standards. While the academic debate has been primarily on IT-based competitive advantages and has stressed the role of information as a strategic resource, practitioner conferences and magazines have mainly discussed technology developments (e.g., cloud computing, service-oriented architecture, software as a service, Web 2.0) and new types of applications (e.g., customer relationship management, social software, business intelligence) (Teubner and Mocker, 2008).

A significant proportion of the literature on IS strategizing often presents the process as being problem-based, with a linear progression from the problem toward a desired outcome (Horton, 2003). In addition, it is often viewed as a formal, rational planning activity (Galliers, 1991; Knights and Murray, 1994; Scott-Morton, 1988; Waema and Walsham, 1990; Walsham, 1993). There are a range of noted assumptions underpinning this perspective of IS strategizing such as that social relations are cooperative, resources are available as required, objectives are known, people will be able to develop necessary aspects of strategy in an objective manner, there is a clear appreciation and understanding of cause-effect relationships, and there is enough information to enable the required activities to operate (Kling, 1987; Waema and Walsham, 1990). We argue that this represents an idealized, superficial, and limited view of what has been found in practice and that such formal rational approaches to IS strategy formulation have rightly been criticized as “unrepresentative of organizational reality and generally simplistic” (Waema and Walsham, 1990, p. 30).
During the last decade, researchers have returned to questioning the underlying mechanisms explaining IT/IS-induced competitive advantage. The IS capability view (Peppard and Ward, 2004) and the study of the barriers to the erosion of competitive advantage (Piccoli and Ives, 2005) are good examples of such developments. A number of studies have addressed the means and ends of IS value creation, but, as with studies concentrating on maintaining IT competitive advantage, there is a paucity of research providing rigorous tests of theoretical propositions, with cause–effect relationships of how IS value is realized being inadequately explained.

The IS capability view concentrates on explaining the “whys?” of IS value creation and suggests, in Peppard and Ward’s (2004, p. 188) words, that “the strategic management of IS is about developing IS competencies.” The IS capability view guides practitioners to focus on how IS/IT is managed and used and has clear implications for both IS strategic planning theories and practice. The IS strategy impact is explained by more explicit cause–effect relationships, thereby helping organizations to better understand and justify the effects of IS developments. Compared to traditional technological developments, by concentrating on competency development, organizations might be less vulnerable to losing their competitive edge, given that such competencies are considerably harder to imitate or substitute than technological assets. Similarly, IS strategy content will be shifted from technology or alignment to planning for the competencies needed to exploit IS/IT developments. Though the Peppard and Ward (2004) article seems to be one of the most frequently cited works in the IS strategy literature concerning IS capabilities, a decade earlier, several authors contributed to the topic and even adopted the capability view as their “IS strategic platform” to build on (e.g., Ross et al., 1996).

By 2010, the number of articles concerning IS capabilities showed remarkable growth, clearly indicating the shift in IS strategy conceptualization toward more capability-based thinking. The extent to which such thinking is applied in practice remains debatable, but having said that, such centers as MIT’s Center for Information Systems Research (CISR) in the United States and Cranfield’s IT Leadership Programme in the United Kingdom have a practical orientation, given the financial backing they receive from corporate clients.

### 66.5 Research Issues

In general, IS strategy implementation has received by far the least attention in the IS strategizing discussion (Teubner and Mocker, 2008). Having said that, a number of scholars have acknowledged the significance of strategy implementation. For example, Ward and Peppard (2002, pp. 125–126) point out that “Despite an understanding of the importance of strategic planning for IS, in the past decade many organizations have developed perfectly sensible IS strategies that have been left to gather dust, or have been implemented in a half-hearted manner …” A survey by Lederer and Sethi (1988) found that after about 2 years into the planning horizon, less than one-fourth of the projects that were defined in the IS strategies had been initiated. A study of Norwegian organizations revealed that, after 5 years, only 42% of the projects that were defined in the strategy had been implemented (Gottschalk, 1999). Stricter implementation measures such as completion on time or realization of intended benefits (Earl, 1993) result in even smaller implementation rates (Gottschalk, 1999).

Smirchich and Stubbart (1985, p. 724) suggest that the problems of strategy implementation stem from the “field’s inattention to the fundamentally social nature of the strategy formation and organization processes.” Given the vast amount of research that explains different components of IS strategy and the strategizing process, it is perhaps surprising how little literature considers strategizing as a social activity. Only a small portion of the extant research has studied the key figures of the IS strategizing process, such as the chief information officer (CIO), and even fewer publications investigate the activities organizational members engage in during the IS strategy-making process. For example, our literature review of IS strategizing research has identified less than 5% of the articles reviewed considering the role CIOs play in the IS strategizing process.
Strategy is formed by highly skilled workers, and it is important to understand what skills are required for this work, how to acquire these skills, and what the common behaviors and techniques of strategizing actually take place (Whittington, 2003). The limited amount of research that considers the structure, rules, and processes of the IT function, as well as IT personnel requirements, IT skills, and IT personal development, has been mostly conceptual and has provided little more than anecdotal evidence (e.g., Agarwal and Sambamurthy, 2002). More research should focus on how the practitioners of strategy actually act and interact in the process of strategizing (Jarzabkowski, 2004; Whittington, 1996).*

The current economic environment is moving rapidly toward open markets, mobile labor, and information abundance (Johnson et al., 2003). The ease of obtaining resources, falling barrier to market entry, and strategic imitation creates a precarious foundation for a competitive advantage (Barney, 1991). As a result, sustainable advantage must lie in microassets that are hard to discern, imitate, and obtain. There is also a shift to a more “hypercompetitive” environment, in which speed, revelation, and innovation are the bases for competitive advantage. This requires organizational decentralization and more continuous, adaptive, and innovative processes (Brown and Eisenhardt, 1997) in strategy making. More people are involved in the process and research needs to understand their role in the strategizing. As a result, the activities of managers—what they do, how and why they do it—are increasingly becoming central to the strategy debate (Johnson et al., 2003).

### 66.6 Summary

Considerations of IS strategizing in organizations have developed from the isolated, to the more aligned, and then to the impact modes of planning. The aim of this chapter has been to provide something of a synthesis of the research literature on the concept of IS strategizing process. In doing so, we have taken a broader perspective on IS strategizing and have emphasized the dynamic, continuous, iterative, and interactive nature of the strategizing process (e.g., Auer and Reponen, 1997; Baker, 1995; Ciborra, 1997; Earl, 1993; Reponen, 1993; Salmela et al., 2000). We have described the strategizing process as being quintessentially social—one that includes negotiation for allocation of organizations’ resources, requires commitment and support from top management, and involves multiple stakeholders (Earl, 1993). In this regard, we argue that IS strategizing has—or should—become even more inseparable from strategic business planning. Any strategic change in IS requires increasing change in business operations and processes, and thus IS strategizing and strategy implementation require organization-level attention and capabilities well beyond the traditional boundaries of IS. We expect future research in IS strategy to find new ways to connect—and unpack—these already heavily interconnected key aspects of strategic business planning and strategic IS planning—topics that have for too long been considered by their respective academies as being their own “territory.” Research in IS capabilities has already taken some steps in this direction, but more is required.

### Glossary

**Bottom-up planning:** An IS planning view in which the driver for planning comes from technological opportunities.

**Capabilities:** A firm’s capacity to acquire, deploy, and leverage resources, usually in combination, using organizational structures, processes, routines, learned and stable activities, and/or behavioral orientation to effect a desired end.

**Change management strategy:** A component of IS strategy that emphasizes the importance of feedback regarding the impact of past strategic decisions (unintended as well as expected outcomes) and the identification of emergent strategies.

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* The issue has already recognized by some notable IS journals. For example, at the time of writing, the *Journal of Strategic Information Systems* is planning a special issue on IS strategy and strategizing from a practice perspective.
**Data processing:** An early (pre) era of IS strategizing in which the business objective was to automate information-based processes to improve operational competence by reducing data processing costs and consequently achieve business efficiency. IS operations and the possible IS plan tended to be isolated from the business of the organization.

**Dynamic capabilities:** Structures, processes, routines, learned and stable activities, and/or behavioral orientation that help organizations change by creating an ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.

**Goal seeking:** An IS planning view in which the objective and focus are mainly on proactive future effectiveness of IS and delivering new opportunities for business operations.

**Implementation strategy:** A component of IS strategy that emphasizes the importance of managing the change processes associated with ongoing implementation of the strategy.

**Information services strategy/information management strategy:** Focuses on policy issues regarding the organization of information services (and capabilities), including sourcing decisions—“the organizational arrangements for the provision of IS-related services.” Answers mainly “who?” questions: Who is needed to facilitate and enable the strategy to be developed and implemented? Such questions include considerations of the structure, roles, and processes of the IT function, but also include human resources issues such as IT personnel requirements and choices between the internal service provision.

**Information strategy:** Focuses on identifying the information that could question taken-for-granted assumptions on which the business strategy is based, as well as providing the information required by the business strategy. Thus, an information strategy is the glue between the business strategy and the IS strategy. It tends to answer questions such as, “What is the information required to support primary tasks, or key goals, of the organization strategy?” and “Where can this be obtained?” The information strategy also questions the business strategy by attempting to answer the “why” questions—“Why might this particular strategy be chosen over any other?”

**IS (information systems):** IS as a whole is a sociotechnical concept, including not only the technical IT perspective, but also the business processes, social processes, users, and connections to internal and external environment that affect the operation of the systems; “everything that the systems are made of.”

**IS capabilities:** A firm’s ability to acquire, deploy, and leverage its IT resources (human as well as technical) to shape and support its business strategies and value chain activities.

**IS dynamic capabilities:** Dynamic capabilities (see the previous term) related to the IS operations of the organization.

**IS strategic planning:** An overall term describing the efforts and resources to plan for IS operations of the organization and to create an IS strategy. It should be considered an ongoing process rather than a one-off effort.

**IS strategizing/IS strategizing process:** The process and details of IS strategic planning, including the objectives, resources, and efforts to keep up a strategically alert cognition for IS and the organizational requirements to implement the IS strategy. An inherent connection to business objectives and strategizing is a crucial part of IS strategizing, and vice versa.

**IS strategy:** Can be considered the developmental path that needs to be taken to achieve the business objectives related to IS, considering both deliberate and emergent sides of the IS strategy. IS strategy is a cross-functional overall term that encompasses, e.g., product, process, human resources, and several interlinked components such as information strategy, information services strategy, implementation, and change management strategy as well as the strategizing process (see later). Recent developments have taken a more holistic view to what should be taken into account in IS strategy, including IS capabilities (see later).

**Issue-based:** An IS planning view in which the objective and focus are mainly on reactive effectiveness of IS.
IT (information technology): A term describing the technical/architectural aspects of information systems, mainly the hardware, software, and their physical connections.

IT strategy: The strategic plan for IT (as described earlier), mainly concentrating on technical effectiveness. Concerned with alternative technological solutions (alternative “hows”) to support the “what” of business needs.

MIS (management information systems): Another era of IS strategizing in which the objective, in addition to operation efficiency, was to create ways of organizing and delivering information to improve management effectiveness. Also the era when the need for IS strategizing became apparent and focus on IS planning efforts gained increased attention.

RBV (Resource-based view): A theoretical perspective explaining the competitive edge of a company with valuable, rare, inimitable, and non-substitutable (the so-called VRIN) resources and capabilities.

SIS (strategic information systems): The SI strategizing era, with a proactive stance and objective to change the nature or conduct of business to improve the competitiveness of the company.

SISP (strategic information systems planning): The process of identifying a portfolio of computer-based applications that will assist an organization in executing its business plans and realizing its business goals.

Top-down planning: An IS planning view in which the driver for planning comes from holistic business requirements of the organization.

Further Information/Readings


References


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Process of Information Systems Strategizing


