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How to offer Integrated Solutions?
A Classification of Providers Strategies

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Abstract

The offer of integrated bundles of products and services is gaining importance in the modern economy and it is increasingly regarded as a source of competitive advantages. However, this trend poses new challenges to IT vendors and service providers who need to develop new capabilities or reconfigure their existing resources when they move into this new competitive space. The aim of this paper is to identify the different strategic choices adopted by firms that provide integrated solutions and to examine whether any these strategies provides specific advantages. Drawing upon the resource based view and the contingency theory, we test a model of fit between the environmental requirements of the firm and the types of capabilities developed to provide integrated solutions.. The model suggests the existence of four different strategies that IT vendors adopt when they move into the business of integrated solutions. The results also suggest that differences in fit between environmental variables and strategic choices partially account for performance differences among solution providers. The results of the analysis are used to provide normative recommendations and to analyse the evolution of the market.

Keywords: Capabilities, Contingency Theory, Integrated Solution.

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Introduction

1. Introduction

In an increasing number of industrial sectors firms start providing integrated solutions: services and products bundled and sold together (Davies, Brady, & Hobday, 2006b; Galbraith, 2002b; Oliva & Kallenberg, 2003; Wise & Baumgartner, 1999). This suggests that to compete and gain competitive advantage product and service providers must develop capabilities to supply bundled systems rather than individual subsystems (Tidd, Bessant, & Pavitt, 1997). The diffusion of integrated solution is particularly relevant in the IT sector (Gager, 2006; Gerstner, 2002). In such a sector bundled systems are comprised of hardware and software often linked by proprietary interfaces, which tie customers into a solution with a single point of purchase and after-sales support. Suppliers of such solutions generate an increasing proportion of revenues through service-oriented activities (e.g. maintenance and technical support) rather than through manufacturing.

However, the trend towards the provision of bundled products and services poses a number of challenges to firms in this sector, as supplying integrated solutions entails a redesign of the boundaries of the firm, its offer, as well as its capabilities (Davies, 2001). In this new competitive environment, firms become integrators of components, resources, knowledge and services that are developed and produced also by external organizations (Brusoni, Prencipe, & Pavitt, 2001).

Restructuring a firm's organization, reconfiguring its internal capabilities or developing new ones to be able to provide integrated solutions are not easy tasks. Furthermore, firms that choose to offer integrated solutions have several choices, none of which has proved to be generally superior, as suggested by the fact that not all the firms in this space developed the same type of capabilities (Davies, Brady, & Hobday, 2006a). For instance, firms that decide to provide integrated solutions can move either up or down in the value stream. As a result, there is uncertainty about the most appropriate ways to conceive, implement and manage the provision of integrated solutions as well

as about the most appropriate organizational capabilities that need to be developed to achieve this goal.

The blurred picture on the practice side is also symptomatic of a knowledge gap at the theoretical level. Previous studies on this topic have stressed that - in order to be successful in the migration toward the offer of integrated solutions - firms must develop adequate capabilities (Galbraith, 2002a; Wise et al., 1999). Yet, while it advocates the need for new capabilities, the literature provides limited information on how firms should develop or reconfigure them and, also, on how they should shape their offer of integrated solutions. As a consequence, firms lack solid theoretical grounds to manage their transition towards the provision of integrated solutions.

The objective of this paper is to fill this gap in the literature and to examine the relationship between different strategies adopted by the providers of integrated solutions and the characteristics of the environment in which these firms operate. Recognizing the need for exploratory research in this field and following the increasing interest received by organizational gestalts (Bensaou & Venkatraman, 1995; Dennis & Meredith, 2000; Hambrick, 1984; Meyer, 1993; Miller, 1987, 1990; Miller & Roth, 1994), we conduct a configurational analysis. That is, we seek to understand whether integrated solution providers organize themselves according to "internally consistent combinations of strategy, organizational architecture and technology that provide superior performance in a given environment" (Tidd & Hull, 2002: p.7). By identifying and examining the most typical configurations of integrated solutions providers the paper addresses two research questions: i) what are the strategic decisions and the environmental factors related to the provision of integrated solutions that characterize the configurations? ii) Is there any specific configuration that provides performance advantages?

The remainder of this is paper is organised as follows: section 2 draws upon contingency theory and the resource based view to put forth a theoretical model of fit between the environmental requirements of the firm and the types of capabilities developed to provide integrated solutions. Sections 3 and 4 describe the process of data collection and the analytical procedure employed to test the model. Section 5 presents the results and describes four typical configurations of integrated solution providers that

emerge from the analysis. Section 6 examines performance differences among configurations and discusses the implications of these differences for integrated solutions providers. Section 7 concludes, discusses the limitations of this study and indicates some avenues for future research.

1. Literature review, theoretical model development and factors identification

The contingency approach is based on the main assumption that there is a link between environmental context, organizational structure, and performance (Drazin & Van De Ven, 1985; Duncan, 1972; Miles & Snow, 1978; Venkatraman, 1989). The organizational structure (internal variables) has to be coherent with the external variables, represented by the environmental context; strategies are the results of the interaction between external and internal variables. Following this approach, contingency scholars argue that no best strategy exists but a strategy is successful if there is coherence between these two sets of variables (Venkatraman, 1989). While discussing coherence among different elements, contingency scholars often refer to the concept of fit. The concept of fit is one of the key concepts in the contingency approach. For an extensive discussion of the possible interpretation that can be done to this concept please refer to Venkatraman (1989). In our specific approach, we are likely to define it as a "degree of internal coherence among a set of theoretical attributes" (Venkatraman, 1989: p. 432). This conceptualization of fit allows researchers (Child, 1975) to obtain configuration of different contingencies, each having distinctive implications for organizational design. What we argue is that do not exist one best strategy but each configuration of variables lead to different strategies and superior performance can be achieved combining differently internal and external aspects.

Following the indications provided by resources-based contributions, we consider the configuration of capabilities as internal variables. The resource-based view of the firm, based on Penrose's work (1959), gives central relevance to internal resources and capabilities as they constitute the source

of a firm's competitive advantage (Ansoff, 1965; Barney, 1991). Firms are perceived as a unique bundle of resources and primary task of management is to increase the value through an optimal deployment and development of the internal assets. The conceptual link between resources and capabilities is pointed out by Grant (1996) who defined organizational capabilities as the outcomes of resource integration, where knowledge is the most relevant factor (Chandler, 1990; Grant, 1996, 2002). Grant provided the example of American Express's billing system as complex and team-based productive activities that represent an organizational capability (Grant, 1996: p.116). Following Grant, we consider capabilities as the activity performed by firms, activities that require distinctive knowledge to integrate different resources. Capabilities and resources represent the bones, the skeleton of firms, using a biological metaphor. And as bones, capabilities cannot be easily modified. In fact, they have been defined 'sticky' in literature; each firm present a certain degree of organizational inertia that do not allow quick and painless change in capabilities configuration. In the present work, to discuss the configuration of capabilities and how such configurations are linked with external variables, we will make extensive use of two important capabilities-related concepts. The first one is the concept of core capabilities. With core capabilities, Hamel and Prahalad (1990) refer to all the capabilities that are essential and crucial for the achievement of competitive advantage for the firm (Barney, 1991; Leonard-Barton, 1992; Patel & Pavitt, 1997). The second concept is represented by the "dynamic capabilities" (Teece & Pisano, 1994; Zollo & Winter, 2002). Teece, Pisano and Shuen (1997) argued that capabilities are often studied and analysed as immutable and the dynamic dimension is often neglected. In fact, firms have to be able to change over time the way in which resources are organized and develop new type of capabilities to successfully face changes occurred in the external environment. Each firm has his own configuration of capabilities, and such configurations are developed over time. The analysis of capabilities configuration allows us to describe firms in a unique way and to capture their inner characteristics.

Contingency scholars largely studies how differences in the environment influence firms' organizational structures and firms' strategies (Ansoff, 1979;

Eisenhardt, 1989; Galbraith, 1973; Mintzberg, 1979). In a turbulent environment, firms need to implement changes as quickly as possible. A quick reaction allows the organization to face changes without loosing the fit between internal and external contingencies. Researches on this topic identified different elements that characterize the external context in relationship with internal dynamics of change; these elements are: (a) turbulence (Ansoff, 1979); (b) dynamism (Mintzberg, 1979); (c) speed (Eisenhardt, 1989); (d) uncertainty (Galbraith, 1973) (e) heterogeneity (Perrow, 1967). Although names are different, the concept is the same: an environmental context can be turbulent, dynamic etc in relationship to the types of changes, their rapidity and the difficulty in predict them. If firms' strategic decisions do not have any impact (or a very little impact) on the environmental context, such context can be defined as "simple". If decisions have an important impact on the context, we refer to it as a complex environment. This concept work also on the other way round: e.g. changes in the external context have a big (little) impact on firms' strategy. Each market is unique and has distinctive characteristics and the number of market where firms operate impact strategic decisions. Diversification plays an important role when defining the complexity of the environment. Firms that operate in different markets suffer a low impact from changes happening in one single market; in such situation firms' strategic decisions are little influenced by changes happening in one of the market served. On the other hand, firms operating in homogenous markets are largely influenced by changes in the context; possibility to be influenced by market changes is bigger. Moreover, speed, uncertainty and complexity differ from market to market and firms have to be aware of the different characteristics of each market. Operating in different markets decrease the risk of changes coming from one market but, on the other hand, specialization in a single market increase the possibility for the firm to acquire specific knowledge and to deepen the understanding of the market characteristics. The larger the heterogeneity of external stimuli, the more firms has to scan the environment, to collect information, to react rapidly to changed circumstances (Geser, 2001).

Insert Figure 1 about here

Departing from the literature contributions summarized before, we developed the analytical model illustrated in fig 1. According to the building blocks of contingency theory, strategies are the result of the combination of internal and external variables. Contingency studies analysed uncertainty, speed and complexity to define the characteristics of the external environment but a similar choice appear more adequate in a cross industry analysis. In the present work based on one single sector, it looks more appropriate to analyse the heterogeneity in the market to assess the influence of the context on firms' strategic choices. As internal variables we look at the configuration of capabilities adopted by the firms. Due to the importance of develop adequate capabilities to offer integrated solutions, capabilities configuration is a central aspect that has to be considered while looking at the strategies implemented by the firms (Davies, 2001). Due to the explorative approach used in this research, the number of cluster is not determined ex ante but it will be chosen on the basis of the results of the statistical analysis. The dependent variables are performance indicators. In our model differences in performance will be explained with the differences in combination of internal and external variables. The analysis of the collected data will allow us to identify what are the characteristics of the different clusters and to provide a preliminary taxonomy of different strategies adopted by firms offering integrated solutions.

2. Data Collection: Questionnaire, Sampling and Administration Method

Data has been gathered administering a survey to a sample of integrated solution providers operating in the information technology (IT) sector. With IT we refer to the science of managing information systems. These systems encompass all forms of technology used to create, store, exchange, and use information. The IT sector includes all the business related to hardware and software that enable data collection, storage, and

manipulation. This sector has been chosen because it is a large, important sector in which this trend appears to have taken hold. Authors developed the questionnaire used in the survey integrating empirical evidences and literature. The empirical evidences data has been collected using a multiple case study approach (*deleted*). Ten firms operating in the sector of IT solutions in Italy have been analysed. Data has been collected throughout the analysis of documental and archival data, interviews with project managers, marketing director and sales directors. This explorative phase allowed the development of a taxonomy of capabilities developed by integrated solution providers. To offer integrated solution firms must move into the value stream and the development of adequate capabilities is crucial for a successful migration (Oliva et al., 2003). This taxonomy allowed us to operationalize the concept of capabilities and to measure capabilities managed by firms. The analysis of the literature has been crucial to identify characteristics of the solution. The characteristics analysed has been selected departing from contribution to the topic offered by the literature on integrated solution, systems integration, project based organization and boundaries of the firms (Davies et al., 2006b; Davies & Hobday, 2005; Prencipe, Davies, & Hobday, 2003). In particular this analysis has been fundamental to identify the different characteristic that an integrated solution can present.

The survey has been administered in Europe and, to assure homogeneity in the sample, we restricted the analysis to four countries in Europe: Italy, Spain, United Kingdom and Sweden. Countries has been selected because representative of the overall population of firms in Europe and because of favourable opportunities for data collection. For the selection of the sample, we used an "ad hoc" sampling procedure, and the representation of the original population is assured by the stratification of the sample according to employees' category. We included in the analysis medium and large firms (more then 20 employees). A database of integrated solution provider does not exist so we estimated the overall population of integrated solutions providers as follows: firms that provide integrated solutions are former software house, hardware producer and consultancy firms; we selected a random sample from the Amadeus database (7 Million

European Firms Version) considering all the firms with the following NACE codes: 3001 and 3002 (manufacture of office machinery and computers); 7210, 7221, 7222, 7230, 7240, 7250 and 7260 (computer and related activities). 200 firms composed the sample. We stratified the sample by employee's categories, using three ranges: from 20 up to 99, from 100 up to 499 and more then 500. For each categories, we checked the website of the selected firms and we identified if the firm was an integrated solution provider or not. All firms selected from the database had a website, due to the fact that these firms operate in the IT sector and are familiar with new technologies. This preliminary analysis allowed us to identify which percentage of the population of firms operating in the IT sector moved into the integrated solution business. Results in table 1. Following these statistics, we calculated the population of firms offering integrated solution in the four countries as showed in table 2. Table 2 also indicates the composition of the sample. Distribution of the sample it is not significant different form the distribution of the population (P value = 0,019 obtained performing the Wilcoxon Signed Rank Test).

Insert Table 1 about here

Insert Table 2 about here

The total sample is composed by 102 firms. The administration process is described as follows: the ideal respondent for the questionnaire was a project manager that completed at least one project within the firm. We selected project managers as informants in order to homogenize the data collected. This approach is successful because this kind of professionalism was present in every of the selected firms despite of his size and his nationality; in fact all the firms that offer integrated solutions adopt a project-based organization (Davies et al., 2005). Moreover, to fill the questionnaire, a

direct and personal involvement in an integrated solution project was required. In order to increase response rate and willingness to participate in the survey, we guaranteed that all the data will remain absolutely confidential and will be used only for academic purpose and we granted the distribution of a personalised documents where the strategic decision taken by the firm will be benchmarked against a representative sample of firms across Europe. The researcher contacted the firms via e-mail and a follow-up calls were done one week after. In both cases, e-mails and calls, the researcher briefly explained the aim of the research, the content of the questionnaire and required a phone meeting with a project manager. The administration method selected was phone interview. Once obtained the phone meeting with the project manager, the researcher called the project manager and the questionnaire was filled during the phone interview. The use of phone interview allowed the researcher to obtain qualitative information that will be used to better describe the results obtained using statistical tools. Complete the questionnaire required 20 minutes. The 75% of the questionnaire followed the described procedure. The 10% of the questionnaire has been completed with a face-to-face interview and the 15% has been self-administered. In the latter case, the researcher has done a follow up call in order to clarify the meaning and the understanding of critical point in the questionnaire. Face to face interview and self-administration has been used in order to satisfy a precise request of the interviewee. The language used for the interview was Italian in Italy, Spanish in Spain, English in Sweden and United Kingdom. The initial version of the questionnaire has been written in English and was first translated into Spanish and Italian. Itself independently translated back into English to check for and eliminate inconsistencies as suggested in Bensaou and Venkatraman (1995). Pre-tests of each version of the questionnaire have been conducted with people working in the industry to ensure that the target informants understood the wording and that the Italian and Spanish versions were a valid translation of the English version. The response rate was 62%. The chosen administration method allowed us to increase it and the response rate obtained is higher then other studies of this nature (Bensaou et al., 1995; Miller et al., 1994).

3. Data analysis: operationalization of the variables and cluster analysis

The model explained in section one has been tested with the data collected. To identify the strategic groups we chose a cluster analysis as statistical method. To perform the cluster analysis we identified two set of taxonomic variables: variables that indicated the type of capabilities developed by the firms and variables that indicates the heterogeneity in the market. The first set of variable represents the organization variables and the second set the environmental variables (Ginsberg & Venkatraman, 1985) and this is consistent with the contingency approach that we adopted.

Seven variables define the type of capabilities. These variables represent the different capabilities that integrated solution providers can manage. For an accurate description of the capabilities please refer to Davies (2001) and -*deleted*-. We obtained the seven variables integrating subordinate variables that represent different items in the questionnaire. The subordinate variables investigated: to what extend each activity was considered "key" in the specific firm, the frequency of his provision in the firms projects, the involvement of external suppliers and the percentage of work outsourced in a specific project, representative of the activity of the firm. For more information on the items used, please refer to the questionnaire in appendix A. Subordinate variables has been integrated performing a confirmative factor analysis. Confirmative factor analysis has been used because the structure of the data was already known (Hair, Tatham, Anderson, & Black, 1998). Hypothesis on the data structure are based on previous research (*deleted*). We performed a factor analyses with principal factor extraction method and varimax orthogonal factor rotation on the set of data of 28 measures. Literature and pre-tests suggested retaining 7 factors. Cronbach's α varies from 0,84 to 0,96, and this provide a strong support that the measure are reliable. Table 3 reports factor loadings, Cronbach's α and eigenvalues.

Insert Table 3 about here

The taxonomic variables that define the heterogeneity in the market can be grouped in three different dimensions: heterogeneity in the offer (in terms of products and services), heterogeneity among typology of clients served and among projects managed. Heterogeneity in the offer is operationalised as the sum of activities carried out in house by the analysed firms. We asked to the project managers if his firm offers services and products listed on the questionnaire. The list of activities (appendix A, question 11) is the result of the analysis of the data collected in the exploratory phase of the research (*deleted*).The two variables SERV_A and PROD_A represent the sum of the indicated activities weighted for the service-component or the product-component of each activity. These two variables represent the range of products and service included in the offer.

The heterogeneity among typology of clients served and among projects managed represents the second and the third dimension and this set of taxonomic variables. These variables are constructed using the Herfindahl-Hirschman index for concentration. We calculated this index using the data on the percentage of clients of different sizes (H_SIZECL), and operating in different industries (H_IND). These two variables refer to heterogeneity among typology of clients served. We used the same index to calculate the heterogeneity among projects considering the concentration of the offer for the length (H_SIZEPR) and the value (H_VALUEPR) of the integrated solution projects managed by the firm.

Identification of clusters has been done using the Fclust procedure in SAS 9.1. To limit the spurious influence of different scale, we standardized the variables (Ketchen & Shook, 1996). As similarity measure we used the squared Euclidean distance and as a method for cluster formation we selected the Ward's minimum variance method, according to the recommendations provided by Punj and Steward (1983). We used two criteria to identify the number of clusters: we looked for pronounced increases in the tightness of clusters as measured by the R^2, the CCC and the pseudo-F

statistic (Milligan & Cooper, 1985) and we looked for managerial interpretability of the clusters (Hair et al., 1998; Ketchen et al., 1996). The four clusters model best satisfied these criteria. An overall multivariate test of significance using the Wilks Lambda criterion and the associated F statistic indicated that the null hypothesis that the four clusters are equal across all defining variables could be rejected ($p < 0.0001$) (Miller et al., 1994). To evaluate the performance of the classification criterion in the classification of future observations, we used the error-count estimates. The error-count estimate is calculated by applying the classification criterion derived from the training sample to a test set and then counting the number of misclassified observations. The group-specific error-count estimate is the proportion of misclassified observations in the group. The error count estimate has a value of 10%. Results in table 4. The classification criteria used provide a good classification of the data (Menor, Roth, & Manson, 2001). To test the statistical power of the cluster configuration, we performed a series of one-way comparisons among the four clusters and the 13 taxonomic variables included in the model. Table 5 describes the four strategic groups in terms of their respective group centroid (means) and reports the results of the pairwise comparisons. Results show that 10 out of the 13 variables included strongly discriminate among the clusters ($p<0,05$ with a Sheffe contrast).

Insert Table 4 about here

Insert Table 5 about here

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4. Descriptive validity: the four clusters

To better analyse how firms in different clusters present different alignments between internal and external variables, a matrix has been constructed (figure 2): the vertical axis represents the mean of cluster

centroids of variables that define the heterogeneity in the market. High values of the Herfindahl-Hirschman index indicate low heterogeneity among customers and projects. The horizontal axis indicates the core capabilities for each cluster. Capabilities have been ranked in a scale that varies from hard to soft, according to their internal degree of customizability. We define hard those capabilities that present a low propensity to be customized around customer specific needs. On the other hand, soft capabilities are those capabilities that present higher level of customization in the final solution. The customization level has been assessed with an item in the questionnaire; this characteristic has been measured with a 5 point Likert scale (with 1 as maximum value and 5 as minimum). The significance of difference of means among capabilities has been tested with a Sheffe contrast and the difference is significant with $\alpha = 0,05$. Results in table 6. Description of the clusters follows.

Insert Figure 2 about here

Insert Table 6 about here

Resellers

Firms included in cluster A offer a small range of products and services and heterogeneity among their clients and projects is very limited. They focalise their activities in a small niche of market. From a capabilities point of view, the delivering capabilities are the ones that differentiate this cluster from the others. With delivering capabilities we refer to all the capabilities that enable the provision of activities such as software customization and installation and hardware delivery. The internal degree of customization of this set of capabilities is low, so solutions offered by Resellers are standardized. We labelled this cluster "Resellers" because what they do is buying products (hardware and software) form third parties and deliver it with a minimum of

customization, just to make products able to work in the customer-specific environment. Typically they operate with clients working in a specific industry (i.e. health care, transportation, publishing, public administration). For this reason they can count on a specific knowledge of internal processes of their customers. With their solutions, they solve the typical or most common problems for the industry commercializing specific products developed and tested by third parties. The 29 members of cluster A represent the 28% of the cases.

Off-the-Shelf Solution Providers

Off-the-shelf solution providers are the firms included in cluster C. These firms manage a wide range of products and services in their solutions and deal with heterogeneous clients; besides, the projects managed are homogeneous (1st in the rank for the project-related variables). The capabilities that differentiate this cluster form others are the financial, post-sales and delivering capabilities. More specifically, with financial capabilities we refer to the capabilities that enable the provision of services such as leasing, flexible payment structure, competitive interest rate and buyout options. Post-sales capabilities are related to the following activities: hardware maintenance, software assistance, software problem solving, hotline services, software upgrading, and training of the users. As we discussed for the Resellers, also the solutions sold by Off-the-shelf solution providers are standardized, due to the fact that their distinctive capabilities have a low degree of customizability. What differentiate Off-the-shelf solution providers from Resellers, is not just the wider range of application but is that, although they both focuses on hard capabilities, the capabilities developed by the Off-the-shelf solution providers have an higher value added. In fact, especially the development of financial capabilities enabled firms in this clusterto add value to their offer differentiating it from the solutions provided by their competitors. The solutions offered are not customized around customer specific needs but are effective in solving the IT problem of their clients. The off-the-shelf solution providers without a deep analysis of customers' internal process solve the need for client organizations to have an IT system; a change in

customers' internal organization is not required. The solutions offered by these companies is not tailored around internal processes and organization of the clients but it works and with financial and post sales capabilities, the off-the-shelf solution providers are able to help their clients with a range of value-added services. Qualitative data collected during the phone-interview allowed us to identify which kind of solutions these firms offer: a good example of the typical solutions offered is web hosting and maintenance and server hosting. The IT solutions offered by Off-the-shelf solution providers could be considered as commodities that can be bought "off-the-shelf": this is why this name has been chosen.

Business Problem Solvers

Cluster B is the largest cluster; 48 firms are present and they represent the 47% of the population. Firms in this cluster offer a wide range of products and services, customers served and projects managed are heterogeneous. This cluster is the one with the widest range of applications, covering almost all the markets for integrated solutions. Besides this variety in the offer, the solutions provided are customized, since the capabilities that they developed have a high degree of customizability. Their distinctive capabilities are consulting, systems integration and post sales. Activities enabled by the consulting capabilities are business consulting, network and technology consulting and engineering consulting; systems integration capabilities refer to all these activities that create and high degree of integration between different components. In this cluster it is possible to find big consulting firms that moved up in the value stream adding products to the services that they used to offer. In particular, these firms focus on consulting activities and solutions that they provide are deeply tailored around clients' specific characteristics. Often a reengineering of internal process and a change in the internal organization is performed. They do not just solve an IT problem but they offer an IT system to solve any possible needs of the business of their client, needs that can go beyond simple IT aspects. This is the rationale beyond the name of business problem solvers. Since solutions are very customized, it is important to offer post sales services. Solutions are tailor-made for clients; the firm that developed it has the right knowledge to offer post sales services.

They cannot refer to any third party since products included have specific features and only who implemented it is able to deal with. There is a tie-in effect in the relationship between solutions providers and their customers; clients of business solutions providers cannot change their IT providers easily. The IT solution is not a commodity as for the off-the-shelf solution providers.

High-Tech Start-ups

Cluster D is composed by small and young firms operating in a market niche, with a small range of products and services. The distinctive capabilities of firms in this cluster are software development, consulting and systems integration. Software development capabilities enable the activities of software design, building and testing. The capabilities developed by these firms have the higher degree of customizability; they are able to offer a solution developed ad hoc for the client. In particular, they developed strong software capabilities; the important role that technology has in their solutions make this cluster different form the other ones and explain why the name high tech start ups has been chosen. Rarely they customize third part products; they usually develop their own products in house. They solve a specific need of the customer that cannot find the solution in the existing market. Due to the low heterogeneity in the markets, they have a deep knowledge of the industries where their customers operate. they operate in a niche that competitors do not have the possibility to address.

5. Validating clusters: assessing performance indicators

The existence of a fit between environmental and organizational variables studied in the model has been tested using performance indicators (Venkatraman, 1989). This test will also assess reliability and external validity of the proposed classification against an external criterion, as suggested in Ketchen and Shook (1996) (Miller, 1988; Robinson & Pearce, 1988). We conducted a series of one-way analyses of variance using a new set of measures of independent variables and the cluster membership as the explanatory variables. Table 7 reports the variables that exhibit significant differences among the clusters (Sheffe contrast). Five variables discriminate

with p<0,05 and two discriminate with p<0,10. To evaluate differences in performance among the clusters, we used seven variables that analyses performance at three different levels: (a) labour productivity level; (b) growth level; (c) micro level.

Insert Table 7 about here

Labour productivity level

The first level of analysis focuses on labour productivity performance, measured as the ratio between revenues (related to the business of integrated solutions) and number of employees working in the business area. Business problem solvers present the higher observed value (1st in the rank). This result reinforces the logic that the fit between internal and external variables is more important then either dimension alone. The alignment of soft capabilities and wide range of applications enabled the achievement of superior performance in terms of labour productivity. Superior performances are consistent with the characteristics of the firms labelled business problem solvers. Their core capabilities are the consulting capabilities and the offer of such services assure largest revenues then other activities (Oliva et al., 2003). Soft capabilities require employees more skilled, with a higher level of education and experience. Moreover, a wider range of applications makes them able to operate in bigger market and to reach a bigger number of potential clients. Such result also explains why this is the biggest cluster. The fit between the variables allow good returns and firms tend to modify their capabilities and to increase the range of the application to obtain better performance, moving in the value stream and shifting their market positioning.

Growth level

The analysis of the performance at growth level aims to understand which factors enable the growth of the firm. Growth is measured by the increase in revenues related to the business of integrated solutions and increase in number of integrated solution projects. Our results show that high

tech start-ups (1st in the rank) and business problem solvers (2nd in the rank) are the firms with higher indicators of growth. These findings are consistent with the contributions of the resource based view that suggest that performance is a function of the resource mix adopted by the firms and, differences in the capabilities portfolio allow firms to achieve competitive advantage (Ansoff, 1965; Barney, 1991). Despite of the external variables e.g. the market strategic decisions, we observed that firms that developed capabilities "soft" achieved a higher growth rate. Previous studies on integrated solutions pointed out that the characteristic that differentiates an integrated solution by a simple bundle of products and services is the customization of the bundle around specific customer needs (Wise et al., 1999). The rapid diffusion of this new type of offer is due to the possibility offered to clients to outsource part of their internal processes (i.e. development and management of an IT system, as in our empirical analysis). In this outsourcing process, solutions customized are preferred and firms that developed soft capabilities are able to satisfy this needs. Their growth is due to the increasing demand of personalized bundle exploded in the last years. It will be discussed further in the conclusions the contribution of these results in predicting the evolution of this offer's market.

Micro level

Analysis of performance at micro level takes into account performance of a project. The project has been selected by the interviewees because representative of the activity of the firm. Micro level performances are measured with two variables: the first variable represents the performance of the project, calculates as the mean of 5 different indicators: budget schedule deviation, time schedule deviation, degree of goal achievement, customer satisfaction and customer retention; the second variable is represented by the customer satisfaction index, calculated with a 5 point Likert scale. This level of analysis does not have any implications in the financial situation of the firms; although, we consider this performance indicator very important: successful projects make customers satisfied and customers satisfied are more willing to repeat business in the future. Successful projects generate a positive return in terms of publicity and reputation for the firms. Project performances have a

tech start-ups (1st in the rank) and business problem solvers (2nd in the rank) are the firms with higher indicators of growth. These findings are consistent with the contributions of the resource based view that suggest that performance is a function of the resource mix adopted by the firms and, differences in the capabilities portfolio allow firms to achieve competitive advantage (Ansoff, 1965; Barney, 1991). Despite of the external variables e.g. the market strategic decisions, we observed that firms that developed capabilities "soft" achieved a higher growth rate. Previous studies on integrated solutions pointed out that the characteristic that differentiates an integrated solution by a simple bundle of products and services is the customization of the bundle around specific customer needs (Wise et al., 1999). The rapid diffusion of this new type of offer is due to the possibility offered to clients to outsource part of their internal processes (i.e. development and management of an IT system, as in our empirical analysis). In this outsourcing process, solutions customized are preferred and firms that developed soft capabilities are able to satisfy this needs. Their growth is due to the increasing demand of personalized bundle exploded in the last years. It will be discussed further in the conclusions the contribution of these results in predicting the evolution of this offer's market.

Micro level

Analysis of performance at micro level takes into account performance of a project. The project has been selected by the interviewees because representative of the activity of the firm. Micro level performances are measured with two variables: the first variable represents the performance of the project, calculates as the mean of 5 different indicators: budget schedule deviation, time schedule deviation, degree of goal achievement, customer satisfaction and customer retention; the second variable is represented by the customer satisfaction index, calculated with a 5 point Likert scale. This level of analysis does not have any implications in the financial situation of the firms; although, we consider this performance indicator very important: successful projects make customers satisfied and customers satisfied are more willing to repeat business in the future. Successful projects generate a positive return in terms of publicity and reputation for the firms. Project performances have a

positive effect for the firms in the long term for their possibility to obtain future business opportunities and, as a consequence, to survive in the market (Anderson, Fornell, & Lehemann, 1994; Rust, Zahorik, & Keiningham, 1995; Xei & Harker, 2002). High-tech start-ups (1st in the rank) and off-the-shelf solution providers (2nd in the rank) are the best performers at the micro level. This empirical evidence supports the assumptions of contingency theory: the fit between the two variables is more important the either dimension alone. These results suggest the emergence of a new trend; customers appreciate standardised solutions. In fact, standardised solutions do not imply a close relationship between the IT provider and the client and the clients are free to change provider. Moreover, standardized solutions can be implemented achieving economies of scale and scope; such economies are impossible to obtain while working with customized products and services. In this situation, integrated solutions projects can be run smoothly, on time and on budget, more efficiently and with important savings. Off-the-shelf solution providers can do that. On the other hand, the small range of applications and the deep knowledge that high-tech start-up have of their clients make these firms able to control the process of providing a solution achieving better project performance. These results shed a new light on the understanding of the evolution of this offer. Although the distinctive characteristic of the integrated solution is, in fact, the customization around specific customer needs, the achievement of good performance at micro level obtained by off-the-shelf solution providers suggests that it is possible to offer integrated solutions developing hard capabilities. These results suggest a trend towards increasing standardization.

6. Discussion and Conclusions

In this work we discussed the possible strategies that firms can follow moving into the business of integrated solution. Using fresh empirical data from the IT sectors, we tested a model of fit between internal and external variables. Variables have been identified on the basis of contributions from contingency theorists and resources based view scholars. We used configuration of capabilities as internal variable and heterogeneity in the

markets served as external variable. These variables allowed us to identify 4 different strategies that represent 4 different ways to offer integrated solutions. Integrated solution is a new types of offering that combines products and services in a unique bundling. Due to the novelty of this practice it represent a good empirical context where analyse the influence of capabilities development and market characteristics in the adoption of a strategy and the impact that such combination has on firms performance. Contributions of the present work can be distinguished in three categories according to their implications: explorative, normative and practical.

Explorative contributions are related to the context object of this study: the practice of integrated solution offering. Trying to fill the gap in the literature that has been identified in the introduction, the present work provides an accurate description of the possible capabilities configurations that can be adopted while moving into the integrated solution business. It also offers a deep understanding of the actual competitive scenario in the IT solution sector. In fact, the identification of the 4 strategic groups represent the empirical proof that there are different ways to offer integrated solution. We confirm with fresh empirical evidence what has been suggested also by Davies et al (2006a): to offer integrated solutions do not exist only one best way but different strategic approaches can coexist in the same competitive scenario. A second important explorative contribution is represented by a dynamic interpretation of the results. As suggested also in section 5 while discussing the performance implication for the clusters, a trend toward more standardized solution is appearing: this is consistent with a natural evolution that has been observed also in other industrial sectors: IT systems are becoming a necessary condition to operate in the market, condition necessary but not sufficient. The adoption of a highly sophisticated it systems will not give any competitive advantage to the firms in the future and firms start to consider IT as a commodity. For simple IT needs, a standardised solution that not implies any tie-in effect with the supplier is preferred. We argue that the emergence of standardised solutions will cause a selection effect of the IT needs of the firms: problems easier to be solved will find the right answer in the standardized solutions provided by the off-the-shelf solution providers.

Other IT needs more difficult to be solved will remain the object of business problem solvers. According to this interpretation, in the future, we will assist to a growth of the market share of off-the-shelf solution providers and business problem solvers will continue working with the a similar kind of offering and will be asked to solve more complex problems and their market share will decrease. This interpretation of the results has been shared with managers and experts in the field that agreed with our view.

Normative implications of this work reside in the contribution that this work offers to the two bodies of literature that we used: contingency theory and resource based view. An important contribution is the operationalization of the concept of capabilities. As far as we know, the concept of core capabilities has been largely used but very rarely operationalized in a quantitative framework; we measured the capabilities present in each firms and provided some proxies to define the configuration of capabilities. A second contribution resides in the provision of fresh empirical evidences to support the main argument of contingency theory: no best strategy exits but a combination of internal and external variables enable the achievement of superior performance. We then argue that the contingency approach is a very useful theoretical lens to analyse economic phenomena. The last contribution is reinforcing the concept that core capabilities as sticky: according to analysis of performance at growth level we found the type of capabilities strongly influence the pace of growth of the firms. The existence of such difference among the type of capabilities is an empirical proof that resource matters and that it is not easy to develop new capabilities; in fact it is a painful and long process. If not so, firms with hard capabilities could have moved in a different quadrant in the matrix; growth it is strongly influenced by the type of capabilities and firms with hard capabilities experience lower growth indicators.

Implications for practitioners are relevant for managers and consultants operating in the business of integrated solution or willing to enter it. Contributions reside in the identification of possible strategies to offer integrated solutions, in the analysis of differences in performance and in the

dynamic interpretation of the results, interpretation that can give ideas about possible evolution of the market. Managers and practitioners can identify if their strategies are coherent with what has been discussed here and follow indications provided with the analysis of performance indicators to decide if a shift is needed and how to manage a possible change in the strategy. For example, resellers can change their strategic position modifying their capabilities or enlarging the market. An internal analysis should suggest the most feasible way that each firm can follow coherently with his internal set of resources and history.

Some issue still remain open and the research illustrated here presents also some limitations that will be shortly discussed. An aspect that can be debatable is if the growth for soft-focused firms will continue or if firms with this characteristic will shortly reach a maturity stage with a decrease in the pace of the growth. Another aspect is if the analysis of the performance at micro level can be considered successfully in predicting the path for the future. At this point of the analysis we are confident to suggest that the business problem solvers represent the established model and that the off the shelf solution providers represent the trend for the future but this idea should be tested with other empirical evidences. Research approaches that can be followed to confirm our hypothesis are: a survey conducted in few years time or a case study conducted in a firms in the IT sector chosen for his innovative approach to the business and his ability to anticipate new tendencies. Limitations are related to the explorative nature of this research: the findings here discussed should be tested to confirm our interpretations. Another limitation is related to the empirical context chosen for this analysis: the IT sector. To expand our findings and to overcome this limitation the collection of empirical data in other sectors, both via survey or case studies, is suggested.
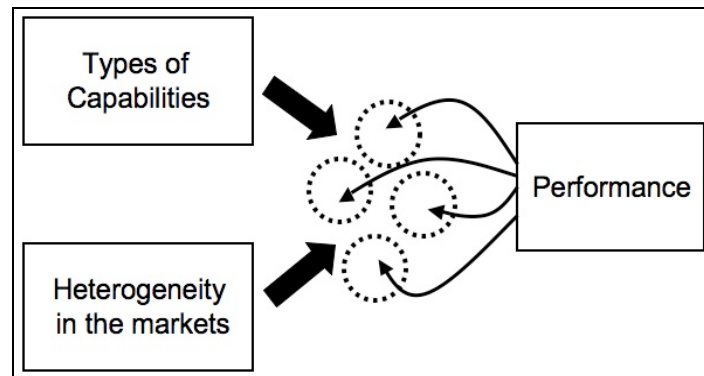
Tables and figures

Figure 1: Conceptual model

Table 1: Firms providing Integrated Solutions

Employees category	% of firms offering integrated solution
20 up to 99	*47%*
100 up to 499	*50%*
500 and more	*100%*

Table 2: Population and Sampling Characteristics

	Employees categories	20 up to 99	100 up to 499	500 and more	Tot.
Firms operating in the IT sector (source: Amadeus database)	Italy	895	293	65	1253
	United Kingdom	1791	792	202	2785
	Sweden	610	131	29	770
	Spain	813	301	56	1170
	Tot. Population	**4109 (69%)**	**1517 (25%)**	**352 (6%)**	**5978**
Firms offering Integrated Solutions (source: author elaboration)	Italy	421	147	65	632
	United Kingdom	842	396	202	1440
	Sweden	287	65	29	381
	Spain	382	150	56	588
	Tot. Population	**1932 (63%)**	**758 (25%)**	**352 (12%)**	**3042**
Sample (source: author elaboration)	Italy	20	6	4	30
	United Kingdom	16	4	7	30
	Sweden	12	7	4	23
	Spain	11	5	3	19
	Tot	**62 (61%)**	**23 (22%)**	**17 (17%)**	**102**

Table 3: Factor analysis

Variables	Subordinate variables (Questionnaire items)	Factor loadings	Eigen value	Cron-bach α
Hardware and Infrastructure Manufacturing Capabilities			5,00	0,93
	Importance for the business	0,88		
	Frequency of provision of the activity	0,92		
	Involvement of external suppliers	0,91		
	Percentage of work done internally	0,84		
Software Development Capabilities			4,08	0,96
	Importance for the business	0,95		
	Frequency of provision of the activity	0,87		
	Involvement of external suppliers	0,96		
	Percentage of work done internally	0,95		
Financial Capabilities			3,59	0,96
	Importance for the business	0,95		
	Frequency of provision of the activity	0,95		
	Involvement of external suppliers	0,98		
	Percentage of work done internally	0,89		
Consulting Capabilities			3,43	0,90
	Importance for the business	0,87		
	Frequency of provision of the activity	0,83		
	Involvement of external suppliers	0,89		
	Percentage of work done internally	0,90		
Systems Integration Capabilities			2,79	0,87
	Importance for the business	0,85		
	Frequency of provision of the activity	0,75		
	Involvement of external suppliers	0,85		
	Percentage of work done internally	0,88		
Post Sales Capabilities			2,45	0,84
	Importance for the business	0,76		
	Frequency of provision of the activity	0,79		
	Involvement of external suppliers	0,79		
	Percentage of work done internally	0,83		
Delivering Capabilities			1,59	0,84
	Importance for the business	0,85		
	Frequency of provision of the activity	0,79		
	Involvement of external suppliers	0,76		
	Percentage of work done internally	0,78		

Table 4: Cross-validation Summary using Linear Discriminant Function. Error Count Estimates

Assigned to cluster: From cluster:	Resellers	Business Solutions Providers	Off-the-shelf Solutions Providers	High-Tech Start-Ups	Total
Resellers	**26 (90%)**	3 (3%)	0 (0%)	0 (0%)	29
Business Solutions Providers	1 (2%)	**44 (92%)**	2 (4%)	1 (2%)	48
Off-the-shelf Solutions Providers	0 (0%)	4 (25%)	**12 (75%)**	0 (0%)	16
High-Tech Start-Ups	0 (0%)	0 (0%)	0 (0%)	**9 (100%)**	9
Misclassification rate	10%	8%	25%	0%	**10%**

Table 5: Characteristics of the clusters

	Resellers	Business Solutions Providers	Off-the-shelf Solutions Providers	High-Tech Start-Ups	F value
	(n=29)	(n=48)	(n=16)	(n=9)	Pr>F
Variables that define type of capabilities					
Hardware and Infrastructure Manufacturing Capabilities					
Cluster mean	0,20	-0,17	0,11	0,04	0,90
Std Deviation	*0,71*	*1,19*	*0,88*	*0,81*	*(0,44)*
Software Development Capabilities					
Cluster mean	-0,14	0,21	-0,21	-0,28	1,39
Std Deviation	*0,96*	*1,01*	*1,03*	*0,90*	*(0,25)*
Financial Capabilities					
Cluster mean	0,39	0,32	-1,81	0,26	52,10
Std Deviation	*0,07*	*0,47*	*1,37*	*0,06*	*(<,0001)*
Consulting Capabilities					
Cluster mean	0,76	-0,43	-0,01	-0,11	11,16
Std Deviation	*1,35*	*0,42*	*0,70*	*1,02*	*(<,0001)*
Systems Integration Capabilities					
Cluster mean	0,28	-0,13	0,12	-0,45	1,80
Std Deviation	*1,22*	*0,74*	*1,30*	*0,64*	*(0,15)*
Post Sales Capabilities					
Cluster mean	0,14	-0,19	-0,14	0,82	3,06
Std Deviation	*0,13*	*0,84*	*0,56*	*1,51*	*(0,03)*
Delivering Capabilities					
Cluster mean	-0,40	-0,20	-0,09	2,54	58,05
Std Deviation	*0,51*	*0,65*	*0,54*	*0,76*	*(<,0001)*
Variables that define the heterogeneity of the markets					
Range of services offered					
Cluster mean	-0,74	0,23	0,78	-0,28	13,24
Std Deviation	*0,97*	*0,77*	*0,69*	*1,12*	*(<,0001)*
Range of products offered					
Cluster mean	-0,13	0,24	0,03	-0,87	3,55
Std Deviation	*0,93*	*0,97*	*1,07*	*0,77*	*(0,01)*
Heterogeneity in the industries served					
Cluster mean	0,67	-0,26	-0,32	-0,22	7,34
Std Deviation	*0,94*	*0,84*	*0,05*	*0,94*	*(0,002)*
Heterogeneity in the size of the clients					
Cluster mean	0,44	-0,09	-0,67	0,25	5,18
Std Deviation	*0,98*	*0,97*	*0,76*	*0,93*	*(0,002)*
Heterogeneity in the size of the projects					
Cluster mean	0,39	-0,49	0,53	0,45	9,30
Std Deviation	*0,89*	*0,81*	*1,08*	*0,97*	*(<,0001)*
Heterogeneity in the value of the projects					
Cluster mean	0,50	-0,57	0,56	0,46	14,08
Std Deviation	*0,99*	*0,62*	*0,97*	*1,13*	*(,0001)*

Table 6: Results of the Scheffe's contrast for the customization level among the capabilities.

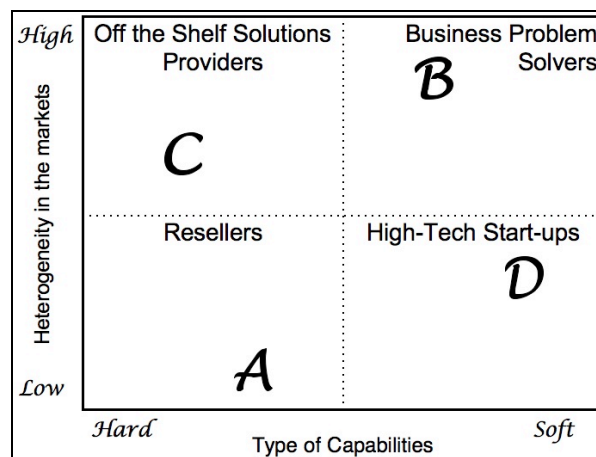|	Mean	St.dev
Systems Integration Capabilities	-0,28	0,71
Software Development Capabilities	-0,18	0,86
Consulting Capabilities	-0,02	1,08
Post-Sales Capabilities	0,10	0,98
Delivering Capabilities	0,13	0,97
Financial Capabilities	0,41	1,24
Hardware and Infrastructure Manufacturing	0,83	1,71
F value 4,40		
Pr>F *0,02*		

Figure 2: Cluster descriptive validity

Table 7: Predictive Validity: Performance Variables

	Resellers (n=29)	Business Solutions Providers (n=48)	Off-the-shelf Solutions Providers (n=26)	High-Tech Start-Ups (n=9)	F value Pr>F
Revenues per Employee					
Mean	-0,34	0,36	-0,39	-0,46	3,69
Std Dev	*0,33*	*1,25*	*0,39*	*0,38*	*0,01*
Increase in Revenues					
Mean	-0,34	0,15	-0,48	0,97	4,26
Std Dev	*0,25*	*1,04*	*0,29*	*1,89*	*0,008*
Increase in Projects					
Mean	-0,02	0,07	-0,59	0,77	2,80
Std Dev	*1,34*	*1,70*	*0,47*	*1,39*	*0,04*
Project Performance					
Mean	-0,30	0,02	0,13	0,64	2,34
Std Dev	*1,35*	*0,97*	*0,75*	*0,74*	*0,07*
Level of Customer Satisfaction					
Mean	0,01	-0,20	0,23	0,73	2,70
Std Dev	*0,89*	*1,02*	*1,08*	*0,70*	*0,05*
Age					
Mean	0,00	0,17	-0,09	-0,75	2,32
Std Dev	*0,96*	*0,94*	*0,09*	*0,94*	*0,07*
Size					
Mean	-0,45	0,40	-0,14	-0,43	6,11
Std Dev	*0,54*	*1,09*	*1,08*	*0,58*	*0,007*

7. References

Anderson, E., Fornell, C., & Lehemann, D. 1994. Customer satisfaction, market share and profitability: Findings from sweden. <u>Journal of Marketing</u>, 58: 53 - 66.

Ansoff, H. 1965. <u>Corporate strategy: An analytic approach to business policy for growth and expansion</u>. New York: McGraw-Hill.

Ansoff, H. 1979. <u>Strategic management</u>. London: MacMillian.

Barney, J. 1991. Firm resources and sustained competitive advantage. <u>Journal of Management Studies</u>, 17: 99 - 120.

Bensaou, M. & Venkatraman, N. 1995. Configurations of interorganizational relationships: A comparison between u.S. And japanese automakers. <u>Management Science</u>, 41(9): 1471 - 1492.

Brusoni, S., Prencipe, A., & Pavitt, K. 2001. Knowledge specialization, organizational coupling, and the boundaries of the firm: Why do firms know more than they make? <u>Administrative Science Quarterly</u>, 46(4): 597 - 621.

Chandler, A. D. 1990. <u>Scale and scope: The dynamics of industrial capitalism</u>. Cambridge MA: Harvard University Press.

Davies, A. 2001. <u>Integrated solutions</u>. The Knowledge Bridge.

Davies, A. & Hobday, M. 2005. <u>The business of projects</u>: Cambridge University Press.

Davies, A., Brady, T., & Hobday, M. 2006a. Organizing for solutions: Systems seller vs. Systems integrator. <u>Industrial Marketing Management</u>, In press.

Davies, A., Brady, T., & Hobday, M. 2006b. Changing a path toward integrated solutions. <u>MIT Sloan Management Review</u>, 47(3): 39 - 48.

Dennis, D. R. & Meredith, J. R. 2000. An analysis of process indstry production and inventory management systems. <u>Journal of Operations Management</u>, 18(6): 683 - 699.

Drazin, R. & Van De Ven, A. 1985. Alternative forms of fit in contingency theory. <u>Administrative Science Quarterly</u>, 30: 514 - 539.

Duncan, R. 1972. Characteristics of organizational environments and perceived environmental uncertainty. Administrative Science Quarterly: 313 - 327.

Eisenhardt, K. 1989. Agency theory: An assessment and review. Academy of Management Review, 14(1): 57 - 74.

Gager, R. 2006. Intergration: The integrators' perspective. SDM, 36(6): 56 - 62.

Galbraith, J. 1973. Designing complex innovations. Reading, MA: Addison-Weseley Publishing Co.

Galbraith, J. 2002a. Designing organizations: An executive guide to strategy, structure, and process. San Francisco: Jossey-Bass, Wiley.

Galbraith, J. 2002b. Organizing to deliver solutions. Organizational Dynamics, 31(2): 194 - 207.

Gerstner, L. 2002. Who says elephants can't dance? Inside ibm historic turnaround: Collins.

Geser, H. 2001. Market competition and the organizational demand for skills: Empirical evidence from swiss industrial and service enterprises.

Ginsberg, A. & Venkatraman, N. 1985. Contingency perspective of organizational strategy: A critical review of the empirical research. Academy of Management Review, 10(3): 421 - 434.

Grant, R. 1996. Prospering in dynamically-competitive enviroments: Organizational capability as knowledge integration. Organization Science, 7: 375 - 387.

Grant, R. 2002. Contemporary strategy analysis: Concepts, tecniques, applications. Malden, MA: Blackwell.

Hair, J., Tatham, R., Anderson, R., & Black, W. 1998. Multivariate data analysis: Prentice Hall.

Hambrick, D. C. 1984. Taxonomic approaches to studying strategy: Some conceptual and methodological issue. Journal of Management(Spring).

Hamel, G. & Prahalad, C. K. 1990. The core competence of the corporation. Harvard Business Review, May - June.

Ketchen, D. & Shook, C. 1996. The application of cluster analysis in strategic management research: An analysis and critique. Strategic Management Journal, 17(6): 441 - 459.

Leonard-Barton, D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. Strategic Management Journal, 13: 111 - 125.

Menor, L., Roth, A., & Manson, C. 2001. Agility in retail banking: A numerical taxonomy of strategic service groups. Manufacturing & Service Operations Management, 3(4): 273 - 292.

Meyer, A. D. 1993. Special research forum: Configurational approaches to organization. Academy of Management Journal, 36(December).

Miles, R. E. & Snow, C. C. 1978. Organizational strategy, structure and process. New York: Mc Graw- Hill.

Miller, A. 1987. The genesis of configuration. Academy of Management Review, 12: 686 - 701.

Miller, A. 1988. A taxonomy of technological settings with related strateges and performance levels. Strategic Management Journal, 9(3): 239 - 254.

Miller, A. 1990. A organizational configurations. Human Relations, 43: 771 - 789.

Miller, J. & Roth, A. 1994. A taxonomy of manufacturing strategies. Management Science, 40(3).

Milligan, G. & Cooper, M. 1985. An examination of procedures for determining the number of clusters in a data set. Psychometrika, 50(22): 159 - 179.

Mintzberg, H. 1979. The structuring of organizations. Englewood Cliffs: Prentice Hall.

Oliva, R. & Kallenberg, R. 2003. Managing the transition from products to services. International Journal of Service Industry Management, 14(2): 160 - 172.

Patel, P. & Pavitt, K. 1997. The technological competencies of the world's largest firm: Complex and path-dependent, byt not much variety. Research Policy, 26: 141 - 156.

Perrow, C. 1967. A framework for the comparative analysis of organizations. American Sociological Review, 32(2): 194 - 208.

Prencipe, A., Davies, A., & Hobday, M. 2003. The business of systems integration. Oxford: Oxford University Press.

Punj, G. & Stewart, D. 1983. Cluster analysis in marketing research: Review and suggestions for application. <u>Journal of Marketing Research</u>, 20: 134 - 148.

Robinson, R. & Pearce, J. 1988. Planned patterns of strategic behaviour and their relationship to business-unit performance. <u>Strategic Management Journal</u>, 9(1): 43 - 60.

Rust, R., Zahorik, A., & Keiningham, T. 1995. Return on quality (roq): Making service quality financially accountable. <u>Journal of Marketing</u>, 58 - 70.

Teece, Pisano, G., & Shuen. 1997. Dynamic capabilities and strategic management. <u>Strategic Management Journal</u>, 10: 509 - 533.

Teece, D. & Pisano, G. 1994. The dynamic capabilities of firms: An introduction. <u>Industrial and Corporate Change</u>, 3: 537 - 556.

Tidd, J., Bessant, J., & Pavitt, K. 1997. <u>Managing innovation. Integrating technological, market and organizational change</u>. Chichester: Wiley.

Tidd, J. & Hull, F. 2002. Organizing for service innovation: Best-practice or configurations? <u>SPRU Electronic Working Paper Series n.77</u>.

Venkatraman, N. 1989. The concept of fit in strategy research: Toward verbal and statistical correspondence. <u>Academy of Management Review</u>, 14(3): 432 - 444.

Wise, R. & Baumgartner, P. 1999. Go downstream: The new profit imperative in manufacturing. <u>Harvard Business Review</u>: 133 - 141.

Xei, M. & Harker, P. 2002. Customer efficiency: Concept and its impact on e-business management. <u>Journal of Service Research</u>, 4(4): 253 - 267.

Zollo, M. & Winter, S. 2002. Deliberate learning and the evolution of dynamic capabilities. <u>Organization Science</u>, 13(3): 339 - 351.