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Brain Drain, Talent Mobility And Academic Networking

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ABSTRACT

Talent is the key to economic development and the network built among talents is the resource crucial for national competitiveness. Talent is highly mobile and a more talented individual tends to show higher tendency to move on and respond to better economic opportunities. Therefore, managing talent is a challenging job. This paper examines the evolution of brain drain to talent mobility and also analyses talent networking for a special group of talent, that is, academics. The purpose of this paper is to explore the nature and patterns of academic networking, and the challenges in forming and maintaining this network.

KEYWORDS

Talent Management, Networking, Globalization, Knowledge Economy

Introduction

In this era, probably the most hotly debated topic in any contemporary business economic forum, besides the debt crisis, is the talent crisis. In the World Economic Forum, Schwab stated: “… the world is moving from capitalism to talentism” (World Economic Forum, 2012). Talent crisis is widely recognized as today’s problem rather than a problem of the future. It

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Introduction

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has resulted not only from talent shortage in the labor market, but most importantly, from skills gap or mismatch. On one hand, people are complaining about the difficulty in finding a job while on the other hand, companies are lamenting about the difficulties that they face in finding the right people to fill vacancies. This talent constraint is one of the key reasons preventing companies from innovating and exploring market opportunities (PwC, 2012). No one can make an argument about the importance of talent in economic development. But the question arises, what is talent? Generally, human talent refers to a highly educated and skilled person, who has distinct capacity to acquire new knowledge and learn quickly, to create new ideas as well as produce high economic value products (Kuznetsov and Sabel, 2006; Salimano, 2008). Many terms are associated with talent, such as human capital, knowledge workers, experts and professionals. In addition to this, there are many types of talent such as technical talent, scientists, academics, entrepreneurs and cultural talents (Solimano, 2008). In this paper, talent is used as a general term to refer to skilled knowledge workers. We will focus on one specific type of talent; namely academics, while discussing the nature of networking among talents. Talent is a source of innovation, creativity, and a key to success and competitive advantage in today’s knowledge-based economy. Quoted from McKinsey & Company, Inc. (2001) “We have found repeatedly that having strong talent in key positions creates huge improvements in performance”. The competition for talented people is becoming more intense than ever before. At the same time, talent is highly mobile. The intensity and patterns of mobility have changed significantly in the wake of advancement in information communication technology, cheaper transportation cost, expanding globalization activities and more integrated labor markets worldwide.

In the quest for talent, governments are developing various attractive schemes and policies. As far as companies are concerned, they are engaging in proactive talent management practices. On the other side, individuals are seeking opportunities to upgrade their own value. The relentless competition for talent is changing the way it is being managed; from the protectionist approach to reduce brain drain, to more open approach in managing talent mobility and nurturing talent networking, many new issues have risen. For instance: What are the obstacles in talent mobility? How to create a win-win strategy in dealing with talent mobility? How to promote networking and improve connection among talents? This paper examines three interconnected issues, namely brain drain, talent mobility and networking. The main objective of this paper is to provide an insight into the nature, patterns and problems associated with talent mobility and networking. A special group of talent has been studied in this paper for the development of networking framework. The focus is on academics because academics are highly mobile and it is common for academics to form various
types of collaborative relationships. But it is to be noted that there are many questions linked
with these collaborations among academics that need to be answered, such as, to what
extent such collaborations are formed? How such networks are formed? How effective are
government programs and institutional efforts in facilitating knowledge networking?

After effective deliberations with several academics, we are able to provide a preliminary
understanding on the patterns of academic networking and challenges in forming and
maintaining this network as well as some suggestions to harness fruitful connection between
academics. This paper is organized into different sections. The next section discusses brain
drain and its evolution to talent mobility. It is followed by discussion on academic network-
ing. The last section of this paper concludes the study.

From Brain Drain to Talent Mobility

For decades and for various reasons, people have been moving across national borders. Both
push and pull factors associated with personal considerations, socioeconomic, cultural and
political issues have contributed to such movements. According to the World Bank statistics,
more than 215 million people in the world are international migrants (World Bank, 2011).
Empirical evidences have often demonstrated that migration involves permanent movement
of intellectual workers in one direction from developing to developed countries, particularly
OECD countries and at a scale that would endanger the development in the home country in
the long term (Carrington and Detragiache, 1999; OECD, 2002; Jalowiecki and Gorzelak,
2004; Leipziger, 2008; Solimano, 2008). Hence, international migration is often associated
with the reduction of the stock of human capital in sending countries, which is termed as
“brain drain”. Based on the estimate provided by Lowell, Findlay, and Stewart (2004), about
10% of the tertiary educated elites living in advanced countries, particularly North America,
Western Europe and Australia in 2001, were born in developing countries. About 40% of
India's emigrants had education above high school level (Economist, 2011). The scale of
talent migration is pretty staggering. Since the term “brain drain” was first introduced by the
British Royal Society to indicate the massive outflow of scientists and highly educated
persons from Europe to North America, the conventional view has often regarded brain drain
as harmful to the migrant's home country. There are sufficient but not substantial amount of
studies and literature to showcase the asymmetric effects of brain drain on sending and
receiving countries. Generally, sending countries bear decline in potential contributions
made by highly educated people in social, economic, political, cultural, scientific and educa-
tional development in the home country. On the other hand, receiving countries benefit from
the knowledge and skills of these highly skilled migrants, without investing too much on
them. Brain drain causes greater divergence and greater inequality in income distribution between developed and developing countries. In order to reduce the damage caused by brain drain, some governments have taken protectionist approaches to restrict, limit or discourage emigration of skilled workers to other countries. For example, in the old days, the authorities could threaten potential emigrants with the death penalty (Jalowiecki and Gorzelak, 2004).

However, there are also counter arguments on the relative advantages and disadvantages of brain drain on sending countries and receiving countries. One argument is that sending countries greatly benefit from the remittances received from emigrants for domestic development. In addition to this, other positive externalities in sending countries include greater incentive to invest in higher education due to positive migration prospects and this may result in the accumulation of human capital in the home country. On the other hand, receiving countries may suffer from overcrowding effects which cause higher unemployment in the labor market. Based on this argument, the idea of migration seems to be a zero-sum game. In fact, there is no conclusive finding on the negative and positive effects of talent migration, especially when we open up the discussion to more than one-way flow of knowledge workers. Lowell, Findlay, and Stewart (2004) called it “brain strain” rather than brain drain to reflect both the positive and negative consequences of two-way flow of talents.

Basically, the phenomena of brain drain was built on the premise that it engages only a one way linear directional flow of talented people, from peripheral to core countries, which resulted in net permanent loss to sending countries. In today’s global context, what is more relevant is multiple-way talent mobility or “brain circulation” (The Royal Society, 2011). Due to increasing accessibility to travel, communication and open door policies of many countries, movement of people is not limited to one way flow only. People are constantly on the move, especially skilled knowledge workers. Theoretically, multiple direction movements of talented individuals in response to better economic opportunities create optimal resource allocation, encourage skills transfer, exchange of ideas and reduce skills mismatch. As mentioned earlier, talent crisis is partly due to skills mismatch at company and national levels. The existence of critical gaps between skills acquired by employees and required by businesses creates massive challenges for individuals, businesses and governments. From brain drain, the focus has now shifted to managing talent mobility. The need for talent movement is more critical than ever before as the world is becoming increasingly integrated and interconnected. It is generally accepted that well managed talent mobility strategy will provide win-win strategy for all parties involved in the game.
**Talent Mobility and Networking**

Moving talents are valuable economic, political and social agents. They are not only bridging skills gap but also connecting the world. Solimano (2008) wrote, “economic development is about mobilizing valuable resources...”.

Talent mobility is a powerful term; it covers different types of movement, such as (i) physical movement (people moving physically within and across organization, countries and industries, both nationally and globally), (ii) professional movement (people moving across occupations and skill sets), (iii) job movement (people moving from unemployment to employment, moving jobs to people) and (iv) virtual movement (knowledge and skills moving without physical movement of people), (World Economic Forum, 2012). Essentially, all variables are brought back to the same equation, which is to solve the imbalances in the human capital markets (World Economic Forum, 2012). Solimano (2008) provides an encompassing analysis on the determinants of talent mobility. Generally, individuals consider the following factors in making a decision related to movement: (i) earning and development gaps (whether income difference justifies the cost of movement and whether living standard and productive potential differences are substantial), (ii) personal factors (whether family responsibility, personal experiences, expectations and goals support the move), (iii) career prospects (the potential to produce better output and move up the career ladder), (iv) concentration effects (whether there is enough critical mass of professional peers and opportunity to interact with quality peers in order to upgrade one's own skills), (v) signaling effect (whether mobility offers greater reputation and recognition), (vi) socio-cultural affinity (whether there is obstacle in language or cultural differences), (vii) network of contacts (whether there is possibility to associate with international elite of talent), and (viii) policy regimes (whether policies in home and host countries are friendly to talent mobility).

As highlighted above, the mobility decision is determined by a mixture of social, economic, political, cultural and individual concerns. It is a complex decision making process. However, understanding the motivations and considerations behind talent mobility would greatly assist businesses and countries in designing appropriate strategies, measures and instruments to attract, retain and engage talent in the process of development. In the current context, we observed the co-existence of huge unemployment and/or underemployment on one hand and talent shortages in many industries on the other hand. The mismatch resulted in misuse of talent or untapped human resources for productive activities. Most probably, the clue to solve this labor market puzzle relies on finding effective mechanisms to optimize talent flow. However, the World Economic Forum (2012) has pointed out that at least two fundamental...
issues have led to limit talent mobility. The first one is the existence of public and private interventions that constrain the mobility. Apparent examples are special visa requirements imposed by some countries or special qualification certification made mandatory by some industries. The other is the existence of information gap in the labor market. Employees face lack of information about current and future skills and needs, while employers do not have enough information about the capabilities of employees. To overcome talent mobility challenges, World Economic Forum has recommended establishment of platforms to connect various stakeholders in order to solve the problem through collaborative efforts. Indeed, connection and collaboration are essential in today’s economy. As mentioned earlier, talent mobility provides a possible solution to talent crisis and would contribute to more optimal resource allocation. However, to benefit from them, network must be built to connect the moving nodes. Talent connections through formal or information links, physical or virtual networks, diaspora communities or professional groups, are useful in transferring information, generating new ideas, sharing technology, stimulating innovation and resolving global problems (The Royal Society, 2011). However, the puzzles is; how to create and maintain such connections? The Royal Society (2011) comments that despite the fact that the connectivity and collaboration among scientists is becoming increasingly important, still little is known about the nature and dynamics of these networks. This paper attempts to take up the challenge to explore these issues. There are different types of talent. Each type of talent has different characteristics and needs different mechanisms for network formation. As such, we have decided to focus on one special group of talent, i.e., academics, for our study on networking issues.

A Study on Academic Networking

As defined by Solimano (2008), “academic talent” widely includes students, professors, researchers and scientists, whose workstation is located in universities, laboratories or research institutes. In this paper, our target group consists of scholars who are teaching and doing research in Malaysian universities. A total of 28 academics from various disciplines, holding different positions in the universities (from lecturers to Vice Chancellors) and having different years of working experiences, were selected randomly from five different universities in Malaysia. Face-to-face interviews were conducted to reveal the motivations, challenges and patterns of networking among academics. From feedback received during the interviews, we observed the following trends:

i. Motivation

Generally, collaboration and networking is a norm in academia. Since most of the issues that we are facing now are much more complex, the scope as well as scale of the research ques-
tions often required multidisciplinary analysis in a broader perspective. Although not totally impossible, it is relatively more difficult to produce quality research without collaborative effort. In addition to this, there are also other reasons that motivate academics to work in a team instead of doing solo work. This is done with a view to increase productivity and impact of the research, share research equipment, and gain greater recognition and visibility. Most of the respondents gave positive reasons for collaboration. However, a small number of respondents informed us that they are forced to work in a team in order to fulfill the KPIs (Key Performance Indicators) set by the university in which they are providing their services.

ii. Network Structure

The network can be either random or non-random. Normally, young (junior) academics and those from social sciences background are less specific about their research partners and requirements for collaboration. They are more willing to work with whoever shows interest in collaborating with them and they are less certain about the outcome. Such academics are following the random walk model in networking. On the other hand, senior academics, especially those from medical or science background, are more determined to work with certain partners or topics and may not accept requests for collaboration easily without knowing the researchers in person. They follow a systematic or more predictable network pattern.

iii. Network Formation

Networks can be formed either through bottom-up approach or top-down approach. The bottom-up approach is widely adopted where academics initiate and organize informal linkage first and bring it to the university level for official endorsement when the network is matured, stabilized and working well. On the other hand, there is also top-down approach where the universities organize academics into purposeful research groups. This approach is typically used when the universities have specific research goals to achieve.

iv. Platform

There are various platforms for academics to form network with colleagues. The most popular places for academics to find potential collaborators are conferences, seminars or workshops. Conferences play an important role in connecting academics as it is specially designed to bring researchers working in the same or related areas together, hence the matching probability is higher. Personal contact is another effective platform where colleagues, friends and even students play a role to connect academics. Another increasingly important platform is social media. Many respondents said they are connected via LinkedIn,
Google Scholar or Facebook. Some respondents identified their partners by going through journals. After reading an article, an author seeks possibility for joint research with article writer or other forms of collaborations. But many respondents have complained about the high failure rate of this method as most of the authors chose not to respond to the invitation. Government initiatives such as fellowship and research funding are important platforms as well, but they are more useful for senior academics who have accumulated enough credential records to compete for limited opportunities. Other less visible platforms are R&D collaboration offices in universities, professional associations and alumni networks.

v. Network Strength

There are both strong and weak ties in a network relationship. Strong ties entice highly committed members to nurture a lasting relationship. The strong ties are built based on trust, sharing of common interests, respect for each other and other positive attitudes such as willingness to share, take risk, invest in the relationship and act as open minded individuals. Most of the strong ties originate from informal networks based on bottom-up approach and these ties are more successful in achieving network objectives. On the other hand, some respondents shared their experiences of dealing with weak network where there is loose interaction, lack of sharing of responsibility and lack of team commitment. The weak ties emerge from formal arrangement or the random network model where team members do not know each other very well. The weak ties normally die out after a while and it is a waste of effort for those who put too much effort in them.

vi. Network Maintenance

Many respondents recognize that the success of a relationship depends heavily on personal effort. And they are willing to invest time and effort to maintain the relationship. Geographical distance is no longer an issue as many respondents cited that they are using email, Facebook and/or Skype to communicate with their partners. However, despite the increasing popularity of virtual networking, the importance of physical meetings and interactions is emphasized at the same time by the respondents. Therefore, respondents will arrange regular meetings, conferences, social gathering, study group or short term visiting to keep the network active.

vii. Challenges

There are many challenges in managing academic networking, right from identifying to forming and maintaining the network. Basically, lack of information impedes the effort to identify the right partner, and a lot of time and energy has been wasted in searching for
collaborators. There are insufficient databases about professionals, either at institutional level or government agencies level. There are also not enough platforms or opportunities for academics (especially young academics) to explore and form the network. Funding and other supporting services for networking are also limited. Both ecosystem and performance evaluation criteria are not favorable for academics networking, as the outcomes from networking are often not immediate, direct, concrete and visible.

**Conclusion**

At a time when the global economy is getting more integrated and industries are moving from production to knowledge-based industries, the most important currency for wealth creation is talent. However, attracting and retaining talent is a challenging job as talent is highly mobile. The old practice of limiting talent mobility to prevent brain drain is dying out. Strategies have been suggested to optimize talent flow and to build networks for linking up the talents. Network among talents is increasingly seen as a resource crucial for the competitiveness of modern nations. This paper examines a special type of talent, and explores the nature and patterns of academic networking. Generally, it is common for academics to form networks with colleagues from the same institution. Local or international researchers help them to improve the quality, efficiency and effectiveness of their research work and their teaching performances as well. Personal effort is fundamental in developing and maintaining the network. There are many ways for academics to form their networks, but the most effective way is through personal contacts and/or recommendations by colleagues, mentors or even students. Building up a strong network takes time and it works well when there is trust element embedded in the relationship. Social media plays an important role in academic networking but physical interaction remains vital. Even though the primary driver for successful networking is academics itself, universities should play more active role to promote and nurture academics networking. It is found that universities are not providing enough support to facilitate academic networking, especially to young academics, despite stating enhancement of scientific collaboration and networking as their mission. Bureaucratic and rigid systems often drive away potential collaborators and the desire to involve in networking activities. Although the findings presented in this paper are limited to a small number of sources, but as the respondents represent academics from different backgrounds, progressing at their career path, the results shed some light on the nature, patterns as well as challenges of academic networking, which may be useful for future research.
References


Effect of Market Orientation on Channel Strategy-
An Empirical Analysis of Pesticide Industry

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KEYWORDS
MO, Market Orientation, Channel Strategy, Distribution Channels, Commodity Markets

ABSTRACT
Research in market orientation has overlooked the importance of its impact on various aspects of marketing strategy, especially on distribution channel strategy. Using Kohli & Jaworski’s framework of measuring market orientation (MO) and pesticide industry of Pakistan as a context, this article explores the relationship between various constructs of MO with channel strategy. This paper draws survey data from the pesticide industry in Pakistan. Given the low response rate, a norm in developing countries, bootstrapping technique is employed and tests are run. The results reveal that level MO has an impact on how channel strategies are formulated. Findings of the research indicate that higher level of MO is associated with selective channel strategy involving low intensity of distribution and higher channel control. The results also suggest that the right channel strategy helps an organization to create differentiation and to improve performance in a commodity market.

Introduction
In the literature related to marketing, researchers argue that success of a firm depends upon the extent to which it adopts the marketing concept (Armario, Ruiz, & Armario, 2008; M. A. Farrell & Oczkowski, 1997; Narver & Slater, 1990; Ngai & Ellis, 1998). Following Drucker’s (1954) introduction of this concept, the extant literature proposes that market orientation (MO), an operationalization of the marketing concept, has a positive impact upon the firm’s
performance (Kohli & Jaworski, 1990). Though the assertion is accepted in general, however, there still exists some equivocality in the results regarding the impact of MO on various performance measures, especially in the context of developing countries (Qu & Ennew, 2008; Shoham, Rose, & Kropp, 2005).

Literature also suggests that the role of MO in developing and influencing the internal processes and strategy of the firm has not been well understood (Murray, Gao, & Kotabe, 2010) as yet. In other words, the question - what strategic actions devolve from the market oriented behaviour, needs to be investigated. This need has been indirectly voiced by Murray et al. (2010) in his article where he proposed that, “only if a firm takes appropriate strategic actions to capitalize on market orientation, it can create a competitive advantage in achieving higher performance” (p253). Thus a gap exists in the literature in the shape of limited empirical research, leading to our understanding of the phenomenon of market orientation and its impact on various aspects of marketing strategy. For example, few articles have researched the relationship of MO and channel behaviour (Siguaw, Simpson, & Baker, 1998) and not much research has been conducted in understanding the impact of MO on designing the marketing channel strategy. As part of marketing strategy, distribution channel decisions are one of the most critical decisions (Kotler, Keller, Koshy, & Jha, 2009). These channels act as assets that help the organization to achieve competitive advantage through creating and differentiating positions in the market (Coughlan et al. 2006). Since distribution channels are directly involved with the customer, they have the ability to also generate a lot of market related information which in turn feeds the strategy development process. Kotler et al. (2009) focuses on the information gathering functions of distribution channel while on the other hand, Kohli & Jaworski (1990) propose that generation of market intelligence is one of the important dimensions of MO. Therefore, one can propose a relationship between the two. Further along the way, a distribution strategy is developed or implemented and affects the performance of the firm (Coughlan et al. 2006). Given the two propositions, it will be of significance to both academicians and practitioners to advance their understanding of the impact that MO may have on the development of distribution strategy as well as its impact upon the firm’s performance. Contextualizing the study in a developing country adds further significance as it will help our knowledge of the manner in which the above mentioned relationship plays out in economies which have as yet to fully evolve their marketing structures (Appiah-Adu, 1998). Organizations which are to enter the developing world will also draw insights on how to proceed with developing skills and capabilities that have long term implications for designing the distribution channel.
For the purpose of this paper, the pesticide industry of Pakistan has been selected. Pakistan is an agricultural country. Share of the agriculture sector in GDP is around 25%. Agriculture inputs like seeds, fertilizers and pesticides constitute a major part of this sector. The agriculture industry is highly competitive in nature. Seed and pesticide industry is a deregulated business while companies that manufacture urea are governed by strong governmental policies.

This paper will focus only on the pesticide sector. The subject industry is fragmented in nature and scattered all over the country. This means the task of distributing the product to farmers in far flung areas at affordable prices is one of the biggest challenges confronting any company in the business. This challenge is further compounded by the fact that most of the products offered are commoditized products with very little differentiation and fetch low prices.

A manner of competing in this industry is to differentiate the services associated with the product itself requiring heavy investments in distribution systems which enables them to reach geographically dispersed segments to achieve economies of scale. Thus, in this highly competitive environment, service differentiation offers an opportunity to the companies to create competitive advantage.

The paper is organized in the following manner. First, literature review of market orientation, distribution channels and industry context is presented, followed by hypothesis development. Subsequently, research methodology is explained followed by data analysis, results and recommendations. Finally, conclusions are stated along with few research limitations.

**Literature Review**

**Market Orientation**

The term “market orientation” has now become synonymous with implementation aspect of marketing concept (Lafferty and Hult, 2001). At present, there are many definitions, operationalizations and measurements of market orientation (M. Farrell, 2002; Lafferty and Hult, 2001). However, two perspectives have received the most attention; namely activity based perspective of Kohli & Jaworski (1990) and cultural perspective of Narver & Slater (1990). In their seminal paper, Kohli & Jaworski (1990) defined the construct and also presented a framework to empirically test the hypothesized relationship of market orientation and business profitability. Almost at the same time, Narver & Slater (1990) also presented their definition and findings on MO.
According to Narver & Slater (1990), MO comprises of three cultural aspects or orientations such as customer orientation, competitor orientation and inter-functional coordination. They defined MO as “the organizational culture that most effectively and efficiently creates the necessary behaviours for the creation of superior value for buyers, and thus, continues superior performance for the business” (p. 21).

Kohli & Jaworski (1990) defined MO as “Market orientation is the organization wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization wide responsiveness to it” (p7). According to their definition, MO consists of three activities that an organization may undertake. These are: Market intelligence generation; organization wide dissemination; and responsiveness which is the ability of the organization to take action based on the information generated. They propose that their MO construct is a continuum where organizations may fall at any level. Hence it is an issue of degree of market orientation rather than the case of presence or absence of it. The difference, they argue, may lie in managing any of the three aspects of MO.

The paper will utilize Kohli & Jaworski’s (1990) frame work of MO as the activities highlighted therein are germane to our understanding of how these may impact the formulation of the distribution strategy. In this form, the manner and type of information gathered and distributed across the organization results into the decision on the strategy.

**Market Intelligence Generation**

Market intelligence generation refers to the ability of the organization to collect information regarding not only current customer needs but also about the changing trends of the market, both in the task and macro environment, that may influence the future needs of the customer.

**Intelligence Dissemination**

It is the process that enables the organization to make the information available with and across various departments of the given organization. The dissemination of intelligence should occur through both formal and informal channels and should lead to a consensual interpretation and agreement on what the intelligence really means for the organization as this will enable a collectively planned response.
Responsiveness

Responsiveness is the ability of the organization to take action as a result of the generated and disseminated intelligence. This aspect covers both planning in response to market information and speed and coordination among various departments regarding implementation of various marketing programs like segmentation and new product development (Kohli & Jaworski, 1990).

Channel Strategy

Development of marketing strategy requires taking decision not only in choosing segments, targeting and positioning, but also in taking decision on the marketing mix (product, price, place, promotion). Unlike the other P’s (price, product, promotion), place is highly fixed, most capital intensive and greatly impacts the positioning of the firm (Coughlan et al. 2006); and is more difficult to change. According to Kabadayi et al. (2007), channel decisions have a direct bearing on the company’s long term performance as it is a long-term commitment to its markets (Rangan, 1987).

Thus, selecting a distribution channel is not only one of the key decisions in marketing strategy (Kotler 2009), managing them can also be considered as one of the key strategic capabilities of an organization (N. Morgan, Vorhies, & Mason, 2009). Channel strategy not only impacts the product positioning but also the level of service the organization intends to provide. Traditionally, channels fill the gap between production and consumption and these gaps may arise due to various factors like geographic separation or time, etc. Moreover, channel choice is dependent upon the objectives that the organization seeks to pursue.

It needs to be recognized that a marketing channel is actually an integrated effort by a number of organizations trying to satisfy a customer need. Hence marketing channel is defined by Coughlan et al. (2006) as “a set of interdependent organizations involved in the process of making a product or service available for use or consumption” (p.2). As has been stated earlier distribution channel design decisions are, therefore, of a long-term nature and are more difficult to change than other decisions of the marketing mix as they involve more than one organization (Rangan, 1987). Channel design varies considerably in a given market as well as for a given product, thus necessitating a more thoughtful and calculated approach requiring significant input of particular information to help in making the long term decision.

The simple model of distribution system is manufacturer – distributor – retailer – customer. Other variations do exist (Coughlan et al., 2006). For example, a supplier may use multiple
channels and may not depend only on a single channel. It is to be noted that a producer has only two basic options regarding distribution: either to work with intermediaries or else assume their role and push the product directly to consumers.

Channel decision is also dependent upon the level of communication between the firms that comprise the channel members (Mohr & Nevin, 1990) and is also affected by the MO of both the manufacturing and distributor firms. The decision of channel strategy, of necessity, is information intensive which according to Kabadayi et al. (2007) enables the alignment of the channel strategy with the overall strategy of the firm and its environment, and positively affects the firm’s performance. As the market sensing and information generation activity can become a source of competitive advantage (Elg, 2002; Siguaw et al., 1998), the centrality of MO in developing a channel strategy becomes desirous. Based on this Siguaw et al. (1998) are one of the few to recognise the significance of market orientation in inter-organisational settings. They discuss how the degree of market orientation of one member of a distribution channel will influence market orientation of another channel member, and how market orientation is related to other relevant distribution channel characteristics. Their research has highlighted the fact that the ability of a firm to communicate and coordinate its activities are especially crucial if the network is to develop successfully and this becomes a critical element in the overall marketing strategy.

**Channel Strategy Formulation**

According to Rosenbloom (1991), there are six major decisions areas that are required while designing channel strategy. These are: 1) channel strategy formulation, 2) channel structure, 3) selection of channel members, 4) motivation of channel members, 5) evaluation of channel performance, and 6) channel control. According to Bucklin (1965), channel structure decision requires decisions on the issues of substitutability, postponement and speculation. According to Rangan & Jaikumar (1991), the design of channel requires two types of decisions which are 1) strategic - number of levels required, and 2) tactical - that discusses issue of intensity. Whereas according to Keller, Koshy, & Jha (2008), channel design decision requires three steps; namely, analyzing customer needs, establishing channel objectives, and identifying and evaluating alternative channels (p 410). They also highlight channel control as a major decision factor.

Coughlan et al. (2006) present a four step process of designing the channel. Their model includes: performing segmentation, choosing channel structure, splitting workload, and degree of commitment. They also discuss channel power as an important aspect in channel
design decision. Process of segmentation refers to choosing the channel flows to be performed, while structure refers to various types of channels available and their intensity.

Synthesizing the discussion, it can be seen that issues of channel structure, control and commitment are amongst the most important decisions in the channel strategy perspective though other factors are important but are company specific and difficult to generalize.

**Channel Structure**

As mentioned earlier, channel structure refers to various types of channels available and the intensity or the number of members in the channel.

Channel structure may be in the form of single channel or multichannel. In the context of channel development, multichannel strategy is a very significant area of research. However, not much work has been done to explore the strategic dimension including the impact of MO behaviour on this issue. Few articles that have discussed multichannel strategy have focused either on consumer satisfaction or on management aspects of multichannel implementation issues (Coelho & Easingwood, 2008; Kabadayi et al., 2007; Montoya-Weiss, Voss, & Grewal, 2003). Multiple channels are becoming very popular in current business environment. In their article, Rangaswamy & Bruggen, (2005), defined the role and function of multichannel marketing as: “Multichannel marketing enables firms to build lasting customer relationships by simultaneously offering their customers and prospects information, product, services and support (or any combination of these) through two or more synchronized channels” (p. 6). They also highlight the fact that managing multiple channels is more complex than managing single channel system.

Rosenbloom (2007), on the other hand, highlights various issues which precede the channel strategy decision and include: channel integration, channel mix optimization, conflict in multiple channels, channel tradeoffs, and financial performance. As mentioned earlier, an organization can go to the customer through many ways. It can go directly without any intermediary, may use an intermediary, use sales force channel along with traditional retail channel or may choose to use various other formats of distribution (Kabadayi, et al., 2007). The logic behind going through various channel formats lies in the number of customer segments available to the firm (Coughlan et al., 2006). Higher the number of customer segments, larger will be the number of different types of channels that a firm will utilize. Wallace et al. (2004) also find that the multiple channel format increases customer satisfaction and loyalty, and the firm can focus on any one of the four outcomes that an organization may pursue in developing its channel strategy which includes: performance, commitment,
coordination and satisfaction (Mohr & Nevin, 1990). Thus managing multiple channels requires managing multiple outcomes. According to literature, multiple channel may help in increasing sales growth, extended market coverage and also generate better market information but at a lower profitability (Coelho, Easingwood, & Coelho, 2003).

Based on the discussion from here to fore including the intuitive link between MO and channel strategy, the following section presents the theoretical framework.

**Multichannel Strategy**

Since market orientation means that a firm has a higher ability to notice, prepare and respond to changes in the marketplace, it is logical to suggest that this alignment will lead to the firm’s superior performance. Information dissemination pertains to sharing of data between firms and collective responsiveness takes place when both parties join hand to serve the customer in a better way. In other words, high level of MO will induce the organization to undertake and execute key MO activities across a number of distribution formats with the goal of serving its customers across segments in a better manner. Hence it can be argued that organization with high MO will prefer multichannel strategy.

*Hypothesis 1: Organizations with high MO will prefer multichannel strategy*

**Intensity**

Decision regarding intensity requires company’s objective of reach (Coughlan et al., 2006). Intensity refers to the number of intermediaries to be used. There are various factors that determine the level of intensity that an organization will choose while developing its channel strategy. These include environmental issues, cost, control, brand strategy and quality issues among other critical issues.

Environmental factors also play a critical role in selecting a channel of distribution (Kotler et al., 2009). These environmental factors include, but are not limited to, competition, type and location of customers, legislation, product characteristics, and company’s own strengths and weaknesses. These factors may push a company to choose from the three basic segmentation strategies: undifferentiated, differentiated and concentrated marketing. It is also to be noted that each of these options is accompanied with relevant distribution strategies, i.e., intensive, selective and exclusive distribution (Kotler, 2009). Undifferentiated segmentation strategy requires intensive distribution while concentrated will generally utilize exclusive distribution to achieve the company’s objectives. An important criterion for channel intensity calculation is the tradeoff between channel cost and channel control, also referred to as
channel power (Chung, Jin, & Sternquist, 2007). In line with their thoughts, an increase in channel intensity will result in the reduction of channel control (Coughlan et al., 2006).

According to Frazier (1996), decision on channel intensity requires consideration on the following issues: manufacturer brand strategy, quality, manufacturer channel practices including manufacturer coordination efforts and support programs. He also proposes that low quality brands normally use high intensity while high end brands are selective in distribution (ibid). Although by increasing the intensity, the overall flow of information to the firm may increase but the cost required to process, filter and analyze the diversity of information flowing in may increase manifold, which may impact the overall responsiveness of the organization due to dissipation of effort. According to Rosenbloom (1999), manufacturers that require close coordination will prefer low intensity distribution and would prefer to have low inter-brand competition, hence projecting a tendency to have more channel control and thus using selective channel strategy. Hence, it can be argued that organizations with high level of MO will prefer to have low intensity as their channel strategy.

Hypothesis 2: Organizations with high MO will prefer selective channel strategy

Channel Control

"Power, in its most general sense, refers to the ability of one individual or group to control or influence the behavior of another" (Hunt & Nevin, 1974, p. 186). Bucklin (1973) defines channel control as the ability of one channel member to control the behaviour of another channel member. Organizations that seek to gain competitive edge through channel control will like to control the behaviour of other channel partners and will require the channel members to behave in a manner which is in line with its own requirements (Siguaw et al., 1998). Frazier (1996) points to the fact that using contracts, the manufacturer can reduce the retailer’s freedom of choice. It can set various standards of performance regarding goals, behaviours and duration of contract for a retailer. Companies that use franchising seek higher level of control than those who do not. A market oriented company therefore, will prefer to have policies that are targeted at channel control.

Hypothesis 3: Organizations with high level of MO will have higher channel control

Research Methodology

The paper will utilize Kohli & Jaworski (1990) construct to measure MO which is superior to other instruments as it measures activities rather than culture and according to Siguaw et al. (1998), is more feasible to measure MO. Moreover, the instrument was also used by Siguaw et...
al. (1998) in their research that discusses the same two variables, i.e., market orientation and channel. The construct also appears to be easily adaptable to the Pakistani environment as it is simple to use and understand. Moreover, it is more strategy oriented (Siguaw et al. 1998) and also covers specific actions of the firm. Hence, it provides a better measure of activities undertaken by a firm related to its strategy.

**Measuring Channel Strategies**

**Channel Control**

According to Bucklin (1973) factors of channel control are: resale price control, power to dictate the terms, overall channel power and knowledge function in terms of training and experience. For the purpose of the paper, interviews were conducted along the line proposed by Bucklin (1973). Issues of power are highlighted from the interviews and a scale comprising of six elements is constructed. The elements reflect the everyday issues of channel control like selling on cash, dictation of the terms and conditions to the channel member, impact of knowledge function on channel power and channel commitment.

Channel commitment is also a major issue in the literature that directly affects the overall level of commitment of channel members (Brown Robert & James, 1995). Although literature presents various measures of commitment (Frazier & Lassar, 1996), for the purpose of the paper, it is measured directly through a single item given below.

- Dealers are committed to the business of your firm

**Channel Structure**

This paper utilizes the following channel formats for the purpose of the research: direct marketing, dealer, franchising, missionary sales people, telemarketing, company sales force.

Definitions of various sales force types have been taken from Moncrief (1986). This is in line with channel descriptions given by Friedman & Furey (1999.) as cited by Rosenbloom (2007) and includes sales force as one such channel (p. 4). Therefore, in line with that thinking this paper treats various types of sales force being used in the pesticide industry as separate channels as given above.

**Channel Intensity**

Frazier and Lassar (1996) define channel intensity as “the number of intermediaries used by a manufacturer within its trade areas” (p. 1). Hence intensity is simply the number of intermediaries that a firm chooses to carry its products. Literature on channel intensity and interviews
with the experts reveal that three main types of situations may exist for any given product in the pesticide industry of Pakistan: intensive where “n” number of intermediaries can carry the product; selected few can carry the product; or exclusive distribution. i.e., only one intermediary can carry the product. Adopting the methodology of paragraph formulation typology of Miles & Snow (1978), four possible formats of channel decisions were developed in consultation with industry experts (see Table 1 for formats).

The instrument for measuring channel control, structure and intensity is developed using methodological process of Miles & Snow (1978). In order to identify what questions are to be included, semi-structured interviews have been conducted with three industry experts. The purpose of the interview was to identify relevant issues for developing and managing channels in pesticide industry. The scales were then purified by obtaining inputs from academic experts to improve the wording of the questions. Pre-testing was done with a small sample of respondents. Internal consistency was checked by measuring coefficient alpha (for the construct of channel control only) before conducting the final survey. Reliability analysis was done and satisfactory results were obtained.

### Table 1

<table>
<thead>
<tr>
<th>a. Situations for channel structure</th>
<th>b. Situations for measuring channel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>We sell our products through dealers</td>
<td>In any given market many dealers/franchises can carry our product</td>
</tr>
<tr>
<td>We use franchise system for distribution and sales force that goes to the farmer to market our product</td>
<td>In any given market few dealers/franchises can carry our product</td>
</tr>
<tr>
<td>We use franchise, sales force that gets in touch with farmer and telephone sales department to sell our products</td>
<td>In any given market only one dealer/franchise can carry our product</td>
</tr>
<tr>
<td>We sell directly to the customer</td>
<td></td>
</tr>
</tbody>
</table>

**Population and Sampling Frame**

To gather data, a list of companies was secured from the association of the industry, i.e., Pakistan Crop Protection Association (PCPA). The list contained around 140 members. An expert opinion was taken to identify active vs. inactive companies, and consequently, inactive companies were removed from the list resulting in around 110 companies. Further shortlisting was done to identify and eliminate the small companies (5-10 employees) with very small scope of operations. The final list of around 70 was finalized. Since the final number was not very large, hence, for the purpose of the research, all 70 were included in the sample frame.
**Data Collection**

Since the pesticide industry is highly dispersed around the country with offices spread all over Pakistan, questionnaires were mailed to respondents. As the study relates to decision making, the target respondents were CEOs, marketing managers and GMs of companies. The respondents represent educated cadre versed in reading, writing and speaking English, hence no translation of the questionnaire was needed.

Questionnaires were sent to all the 70 companies with a return envelope. In the first week, only 10 questionnaires were returned representing 7% of the population. To increase the response follow-up letters were sent after two weeks of the first mailing. As mentioned by Krishnaswamy (2006), that as multiple contacts increase response rate also increases, hence phone calls were also used to improve the quantity of data collected. As a result, 6 more questionnaires were received taking the total to 16, which is around 22% response rate. This response rate though is low but for a developing country like Pakistan, is in line with the findings of other researchers (Azhar, 2008).

**Results**

For the purpose of analysis, data was entered in SPSS. Presented below are the summary results of statistical analysis. As the data collected was very small to run any significant test, bootstrapping procedure was run (Zikmund, 2003). Bootstrapping is a computer-based method for assigning measures of accuracy to sample estimates (Efron and Tibshirani 1993). It estimates the standard error of the median by re-sampling the actual dataset. Bootstrap technique was proposed by Bradley Efron (Davidson, 2009) and further developed by Efron and Tibshirani (1979). According to Adèr et al. (1993), bootstrapping can be used in situations when the sample size is insufficient for straightforward statistical inference, given that the underlying distributions are well known. Since there was representation from all sectors of the industry (see Table 2 for the descriptive), the procedure was suitable to apply in the present case. After performing bootstrapping procedure, the size of the data increased to 47 values.
Further reporting reliability statistics of the constructs is an important consideration in research. In the present case, the reliability statistic of the scale MO and channel control is reported in Table 3.

Table 2: Respondents Organization’s Profile

<table>
<thead>
<tr>
<th></th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>62.5</td>
</tr>
<tr>
<td>Medium</td>
<td>31.3</td>
</tr>
<tr>
<td>Small</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3: Reliability Statistics

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel control</td>
<td>.771</td>
<td>6</td>
</tr>
<tr>
<td>Market orientation (overall)</td>
<td>0.90</td>
<td>30</td>
</tr>
<tr>
<td>Information generation</td>
<td>0.775</td>
<td>10</td>
</tr>
<tr>
<td>Information dissemination</td>
<td>0.874</td>
<td>8</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>0.889</td>
<td>12</td>
</tr>
</tbody>
</table>

**Hypothesis 1a: There is a positive relationship between MO and channel structure**

**Hypothesis 1b: Organizations with high MO will prefer multichannel strategy**

To test the Hypothesis 1a, Pearson chi-square test was done. Results (Table 4) show that relationship is significant at p=0.000 with a positive value of 0.576. Hence we fail to reject our hypothesis. In order to test Hypothesis 1b, ANOVA is performed. Results show that the mean of MO is significantly different (see Table 4a), subsequently Tukey test was performed to compare mean of dealer strategy with franchise and telemarketing strategy. Results depict clearly that franchising strategy with missionary sales force option has the highest mean. Hence Hypothesis 1b has been supported (see Table 4b).
### Table 4: MO and Multiple Channel Strategy

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Approx. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval by Interval</td>
<td>Pearson's R</td>
<td>.576</td>
</tr>
<tr>
<td>Ordinal by Ordinal</td>
<td>Spearman Correlation</td>
<td>.583</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td></td>
<td>46</td>
</tr>
</tbody>
</table>

### Table 4a: ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>9.146</td>
<td>2</td>
<td>4.573</td>
<td>25.646</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>7.845</td>
<td>44</td>
<td>.178</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16.991</td>
<td>46</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4b: Multiple Comparisons

**Dependent Variable: mean over all MO**

**Tukey HSD**

<table>
<thead>
<tr>
<th>(I) channel structure</th>
<th>(J) channel structure</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound Upper Bound</td>
</tr>
<tr>
<td>dealer</td>
<td>Dealer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Franchise</td>
<td>-.99729*</td>
<td>.19547</td>
<td>.000</td>
<td>-1.4714 - .5232</td>
</tr>
<tr>
<td></td>
<td>Telemarketing</td>
<td>-.84774*</td>
<td>.13193</td>
<td>.000</td>
<td>-1.1677 - .5277</td>
</tr>
<tr>
<td>franchise</td>
<td>Dealer</td>
<td>.99729*</td>
<td>.19547</td>
<td>.000</td>
<td>.5232 1.4714</td>
</tr>
<tr>
<td></td>
<td>Franchise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Telemarketing</td>
<td>.14956</td>
<td>.19655</td>
<td>.729</td>
<td>-.3272 .6263</td>
</tr>
<tr>
<td>telemarketing</td>
<td>Dealer</td>
<td>.84774*</td>
<td>.13193</td>
<td>.000</td>
<td>.5277 1.1677</td>
</tr>
<tr>
<td></td>
<td>Franchise</td>
<td>-.14956</td>
<td>.19655</td>
<td>.729</td>
<td>-.6263 .3272</td>
</tr>
</tbody>
</table>

**Hypothesis 2:** Organizations with high MO prefer selective channel strategy
Hypothesis 2: Organizations with high MO prefer selective channel strategy

Relationship between MO and channel intensity is measured using Pearson chi-square. The relationship is significant at p=0.000. Results (Table 5) show that there exists a strong association between MO and channel intensity. Since the result says nothing about direction or preference, ANOVA is performed to check whether the difference between the mean of “many dealers/franchisees can carry” versus “only one dealer/franchisee can carry” is significant or not. Analysis reveals that the means are significantly different (see Table 6). To further check directionality, means are compared (see Table 7). The results clearly show that organizations with high MO prefer selective channel strategy. Finally to check the strength of the relationship, Pearson Contingency Coefficient (Lancaster & Hamdan, 1964) is calculated (see Table 8). The maximum value for chi square is calculated using the formula of \( \sqrt{(k-1)/k} \), where k is the number of row/column whichever is lower. As intensity variable has three outcomes, hence it is of lower value than MO which is measured on a scale of 5, the value

<table>
<thead>
<tr>
<th>Table 5: MO and Channel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval by Interval</td>
</tr>
<tr>
<td>Pearson's R</td>
</tr>
<tr>
<td>-.705</td>
</tr>
<tr>
<td>Approx. Sig.</td>
</tr>
<tr>
<td>.000(^c)</td>
</tr>
<tr>
<td>Ordinal by Ordinal</td>
</tr>
<tr>
<td>Spearman Correlation</td>
</tr>
<tr>
<td>-.755</td>
</tr>
<tr>
<td>Approx. Sig.</td>
</tr>
<tr>
<td>.000(^c)</td>
</tr>
<tr>
<td>N of Valid Cases</td>
</tr>
<tr>
<td>47</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
</tr>
<tr>
<td>df</td>
</tr>
<tr>
<td>Asymp. Sig. (2-sided)</td>
</tr>
<tr>
<td>Pearson Chi-Square</td>
</tr>
<tr>
<td>94.000*</td>
</tr>
<tr>
<td>26</td>
</tr>
<tr>
<td>.000</td>
</tr>
<tr>
<td>Continuity Correction</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
</tr>
<tr>
<td>100.049</td>
</tr>
<tr>
<td>26</td>
</tr>
<tr>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
</tr>
<tr>
<td>22.848</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
</tr>
<tr>
<td>47</td>
</tr>
<tr>
<td>a. 42 cells (100.0%) have expected count less than 5. The minimum expected count is .47.</td>
</tr>
</tbody>
</table>
Hypothesis 2: Organizations with high MO prefer selective channel strategy

Relationship between MO and channel intensity is measured using Pearson chi-square. The relationship is significant at p=0.000. Results (Table 5) show that there exists a strong association between MO and channel intensity. Since the result says nothing about direction or preference, ANOVA is performed to check whether the difference between the mean of “many dealers/franchisees can carry” versus “only one dealer/franchisee can carry” is significant or not. Analysis reveals that the means are significantly different (see Table 6). To further check directionality, means are compared (see Table 7). The results clearly show that

### Table 6: ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>9.306</td>
<td>2</td>
<td>4.653</td>
<td>26.638</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>7.685</td>
<td>44</td>
<td>.175</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16.991</td>
<td>46</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 7: Mean comparison

<table>
<thead>
<tr>
<th>Channel Intensity</th>
<th>Mean overall MO</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many can carry</td>
<td></td>
<td>2.7790</td>
<td>.31073</td>
</tr>
<tr>
<td>Few can carry</td>
<td></td>
<td>3.5751</td>
<td>.47466</td>
</tr>
<tr>
<td>One can carry</td>
<td></td>
<td>3.7787</td>
<td>.50989</td>
</tr>
</tbody>
</table>

### Table 8: Contingency Coefficient

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Approx. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal by Nominal</td>
<td>.816</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>47</td>
<td></td>
</tr>
</tbody>
</table>

Hypothesis 3: Organizations with high level of MO will exhibit high level of channel control

The relationship between MO and channel control is measured by using Pearson chi-square test. The relationship was positive (0.839) and significant at p=0.000 as hypothesized. Results (Table 9) show that there exists a strong positive relationship between MO and channel control. Hence we fail to reject the hypothesis. To measure the impact and directionality, regression is also performed. The results are highly significant at p=0.000 (see Table 10).
Hypothesis 2: Organizations with high MO prefer selective channel strategy. Finally to check the strength of the relationship, Pearson Contingency Coefficient (Lancaster & Hamdan, 1964) is calculated (see Table 8). The maximum value for chi square is calculated using the formula of $\sqrt{(k-1/k)}$, where $k$ is the number of row/ column whichever is lower. As intensity variable has three outcomes, hence it is of lower value than MO which is measured on a scale of 5, the value comes out to be 0.816, highlighting a very strong model fit. Hence the paper fails to reject the hypothesis.

**Hypothesis 3: Organizations with high level of MO will exhibit high level of channel control**

The relationship between MO and channel control is measured by using Pearson chi-square test. The relationship was positive (0.839) and significant at $p=0.000$ as hypothesized. Results (Table 9) show that there exists a strong positive relationship between MO and channel control. Hence we fail to reject the hypothesis. To measure the impact and directionality, regression is also performed. The results are highly significant at $p=0.000$ (see Table 10).

### Table 9: MO and Channel Control Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>282.000</td>
<td>78</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>170.280</td>
<td>78</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>36.151</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td></td>
<td>47</td>
<td></td>
</tr>
</tbody>
</table>

a. 98 cells (100.0%) have expected count less than 5. The minimum expected count is .09.

### Table 10: Regression

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.839$^a$</td>
<td>.703</td>
<td>.697</td>
<td>.0000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), mean over all MO1
Discussion and Conclusion

This final section discusses the empirical findings. The aim is to present and discuss potential implications of the results in light of the theoretical frameworks. It also provides conclusion along with limitations and future research directions.

Market orientation has been researched extensively in various parts of the world and it has been more or less established that there exist a positive link between MO and firm performance, but it has been under-researched in the context of Pakistan (Azhar, 2008). The article seeks to fill this gap. The main aim of the article is to establish the link between MO and channel strategy. Three important elements of channel strategy are tested; namely, channel intensity, channel structure and channel control.

Hypothesis 1 states that organizations with high level of MO will pursue multiple channel strategy. Our results indicate that high level of MO is associated with multichannel strategy. Since the number of channels that an organization will use is dependent upon customer segments available and channel service requirements (Vieira, 2010), hence an organization that seeks to serve number of customer segments or to improve its service levels will tend to use multichannel strategy.

Implementation of a successful multichannel strategy depends on the level of cooperation and coordination between these channels. To achieve this end, organizations resort to develop strategic alliances. Such alliances help organizations share goals and resources. Hypothesis 2 signifies clearly that as the level of MO increases, channel intensity decreases. According to Siguaw et al. (1998), manufacturers’ MO affects distributors’ MO and according to Rosenbloom (1999), higher the level of closeness of relationship, lower will be the intensity. Hence, it can be clearly seen that as the level of MO of an organization increases, so does its requirement of close cooperation with distributor. On the other hand, as the number of channel members in any given area increases, the level of coordination decreases. Moreover, as discussed earlier, product strategy is also an important factor in channel design. In the case of pesticide industry, the product is specialized and generic in nature which is being differentiated using the services that are being provided through the channel. What this means is that the channel is being used as a source of differentiation or as a source of differential advantage. Literature generally suggests that close coordination with channel members requires managing channel flows (Coughlan et al. 2006), hence organizations that are using channel as a basis of competitive strategy will seek to control channel intensity and will pursue selective strategy of channel design.

Conclusion

All hypotheses were supported and we can conclude that MO does impact all aspects of channel strategy that an organization pursues. Higher level of MO is associated with not only low intensity strategy but also with multichannel format. Organizations that have high level of MO also enjoy higher level of channel control and commitment from their channel members.

Looking at the results from the managerial perspectives, it can be clearly seen that activities of MO help an organization define its competitive strategy, especially in terms of designing its distribution channel structure and policies.

Limitations and Future Research Directions

The research has a number of limitations. First of all, it is a one-industry study that makes
Hypothesis 3 states that organizations with high level of MO will exhibit high level of channel control. The results show that as level of MO increases so does the level of control on channel. In the literature channel power and channel commitment are studied side by side (Siguaw et al., 1998). Channel control is measured in terms of power that one party has over the other (Brown, Lusch, & Nicholson, 1995; R. M. Morgan & Hunt, 1994). The results of regression analysis clearly suggest that higher the level of MO, higher will be the control of the organization on its distribution channel.

**Conclusion**

All hypotheses were supported and we can conclude that MO does impact all aspects of channel strategy that an organization pursues. Higher level of MO is associated with not only low intensity strategy but also with multichannel format. Organizations that have high level of MO also enjoy higher level of channel control and commitment from their channel members.

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The research has a number of limitations. First of all, it is a one-industry study that makes
generalizability an issue. However, in industries where channel is being used as a basis of creating differentiation, the results can be helpful in developing a focus on MO as it has been demonstrated that with higher level of MO the choice of appropriate channel strategy will be formulated. Secondly, the major constraint faced has been imposed by the low response rate. This low response rate in developing economies has been a constraint in studies carried out in the region (Brown et al., 1995). This low response rate is due to cultural value system where a need for protecting information and lack of understanding of the aim of research cause reluctance in responding. This led to bootstrapping data in this instance. An attempt to conduct similar research with higher level of participation is indicated.

It is a first of its kind research in this direction, therefore further research in this area is needed. Channel strategy and MO relationship need to be studied from the capability framework also to ascertain the relationship between MO as a capability framework and channel strategy. Moreover, using dynamic capability framework, it should also be studied that whether selection of channel strategy improves the level of MO or not.

References

Effect of Market Orientation on Channel Strategy

Hall.


Descriptive Approach Towards Managing True E-governments

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ABSTRACT

The role of true e-Government is becoming vital and gaining much attention as modern businesses need adaptive, dynamic and strategic business partnerships in the form of Virtual Organizations and e-Enterprises to survive in the turbulent and global competitive environment. Therefore, managing today’s dynamic, collaborative and networked nature of government environment is quite challenging. Real e-Government solution is expected to use, flexible and reusable technology to support valuable citizens and modern business expectations to access necessary government services and information. Here comes the requirement for more efficient ways of integrating their systems together under appropriate e-Government solution. It enables citizens and business organizations to interact with government on nearly all matters, 24/7, without knowing which part of the government is providing the required service. In fact, much research work is being done in e-Business Integration but e-Government Integration is comparatively ignored. As a matter of fact, practical implementation of ‘seamless’ government across jurisdiction is the most challenging aspect of the future of e-Government which is the subject of our research. In this research, we first formalize the basis/requirements of such e-Government Integration framework as standard and then analyze all candidate software solutions which could help us in development of better and appropriate integrated solution of e-Government, and finally develop the required e-Government Integration framework that adheres to the requirements. Fulfilling our requirement, major approaches like SOA and EDA, transformation of supporting technologies starting from Electronic Data Interchange to WS’s and integration at processes level through XML are primarily examined with the intent to give easy to use, reusable, flexible, scalable and adaptable e-Government Integration solution. Our proposed solution encompasses the most difficult problem of efficiently connecting varied inter e-Governments and intra e-Government activities with citizens and modern business configurations like: Virtual Organizations (VO), e-Enterprises, etc. allowing the governments to respond efficiently.

KEYWORDS

Introduction

It is very obvious that the immense growth of the internet and web technologies is making way for a new paradigm shift in the mode of efficient government interaction with its citizens, as well as business organizations. Based on compelling benefits of e-Business and e-Commerce, many governments are being convinced to come up with their online versions. They have transformed some mission-critical modules of their operations/services on-line, and couple of them strive towards workflow management like version (Michael, 1997) and others (Boualem, 2003). Therefore, in many advanced countries, governments are becoming e-Governments for delivering improved services and now they are striving towards integration of such e-Governments which attracts the interest of research community towards standardization and solution development. Making use of information technology to facilitate all government operations, interacting with citizens and business and providing efficient services is called e-Government. It also enables citizens and business organizations to interact with government on nearly all matters, 24/7, without knowing which part of the government is providing the required service. Few important dimensions that outline the basic functions of e-Government are as follows:

- e-Services refer to the digital mode of delivery used for government services, information and government programs, not always but mostly through the Internet.

- e-Democracy means that all interaction are made through citizens for public decision making process only by making full use of electronic mode of communications for participation maximizations.

- e-Commerce means that for all goods and services, the exchange of money between business organizations, citizens and government is made electronically.

- e-Management means drastic improvement in the management of government by making use of modern information technology such as improved business processes, better maintainability of electronic records, better information integration and flow.

Considering the proposed framework development, we must be aware of connected government strategies as well. Different strategies of connected governments are based on few necessary pillars (Willi, 2004) which are:

- Citizen-centricity
- Standardized common infrastructure
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- Citizen-centricity
- Standardized common infrastructure
- Governance
- New organizational model
- Social inclusion
- Back-office reorganization

For global consideration of our proposed e-Government Integration framework development, we have to support different standard interaction models such as G2C, G2B and G2G, etc. which definitely require, in this context, quiet flexible and global solution for complete integration. In fact, there are following few critical challenges in addition to many others, which must be addressed by only a comprehensive and completely integrated e-Government solution that makes use of:

- Integration of information and services
- Privacy and data sharing
- Dynamic use of the Web
- Partnerships and other organizational networks

In true e-Government Integration solution framework, special attention must be given to support completely collaborative nature of new business configuration, named Virtual Organizations (VO), which are goal-oriented and opportunity-based organizations defined as a dynamic, temporal consortium of autonomous legally independent organizations which collaborate with each other to attend a business opportunity or cope with a specific need, where partners share risks, costs and benefits, and whose operation is achieved by coordinated sharing of skills, resources and competencies and whose interactions are entirely supported by computer networks (Drissen-Silva & Rabelo, 2008), (I. Karvonen).

On the other hand, if we take another example, that of Internet Enterprises or e-Enterprises: enterprises that accomplish business by making efficient use of the Internet (Hoque, 2000) and carry out their complete business processes electronically (Urcan, 2001), (Hoque, Faisal, 2000); having entirely different set of complexities which should also be considered and supported in the framework.

However, regarding the development of proposed e-Government Integration solution framework, supporting the idea of Virtual Organizations and e-Enterprises gives rise to certain dilemmas among which some are new and others are old. New problems have been
raised due to the technology advancements that include interaction with new technologies like mobile agents, etc. Among the old problems, “integration of heterogeneous services” tops the list (Shegalov, Gillmann, & Weikum, 2001). When talking about integration, the major goal is to make the task simple and easy to use so that further integration of new services becomes easy. There have been several attempts to provide tools and architectures to facilitate the integration of heterogeneous applications. However, all these tools and frameworks like BizTalk, WISE, eCO and SOA require a degree of manual intervention and customization. Therefore, an e-Government Integration solution framework is presented that will minimize human intervention. The following section provides necessary details of e-Government Integration (e-GI) and its architectures, followed by discussion on important candidate technologies. Other integration platforms are listed and then complete e-GI solution is presented with details. Finally, conclusion is presented.

**e-Government Integration (e-GI)**

For delivering improved services, it is very necessary that e-Government Integration must fulfill the primitive requirements of all our valuable citizens, dynamic business organizations, and government organizations in addition to other governments to efficiently access necessary information and services. It is quite evident that the role of true e-Government Integration is becoming vital and gaining much attention as modern businesses need adaptive, dynamic and strategic business partnerships in the form of Virtual Organizations and e-Enterprises to survive in the turbulent and global competitive environment.

Therefore, managing today’s dynamic, collaborative and networked nature of government environment is quiet challenging. Real e-Government Integration solution is expected to use, flexible and reusable technology to support citizens, business and government organizations in addition to other governments to share their necessary information and services directly with each other. Here comes the requirement for more efficient ways of integrating their systems under appropriate e-Government Integration solution. It enables citizens and business organizations to interact with government on nearly all matters, 24/7, without knowing which part of the government is providing the required service. In fact, much research work is done in e-Business Integration but e-Government Integration is comparatively ignored. As a matter of fact, practical implementation of ‘seamless’ government across jurisdiction is the most challenging aspect. For example, integration must be done without making much modification to legacy systems and sources of data. On the other hand, software applications which were initially developed in standalone fashion are supposed to
be completely collaborative at government level, enterprise level and community wide (Danesh, 2012). There are wide ranges of diversified and complex systems which are participating and need to be integrated appropriately, such as the type of interaction needed by government departments in real-time. In contrast with government, business processes are collaborative and distributed across multiple enterprises and business lines over multiple countries in different time zones and need off-line interaction support. Therefore, to integrate them efficiently, adoption of best suited e-Government Integration approach is needed (Jurgen Dorn, 2007). To provide the government with greater competitive advantage, legacy and newer systems can be integrated. As we know, government requirement seems volatile in nature and we are always interested in decreasing total cost of ownership, whereas it is expected by e-Government to rapidly introduce new services which could only be fulfilled by having decoupled, service oriented (SOA) and event driven (EDA) functionality of government and its stakeholders’ applications. This way, we efficiently add new functionality to system services by making full use of legacy system dealing with critical application and save our investments and resources successfully. Advantage of the approach is manifold which not only provide autonomy and adoptability but also required level of flexibility through reusability.

**Architectures of e-Governments**

There are several architectures/frameworks that have been proposed in order to facilitate such integration. Among the architectures is “The Zero-Time T-Strategy framework” (Urcan, 2001). Regarding any Process Centric Management – PCM, following three aspects are identified as the most important in the success of an e-Government:

- Time to Market
- Strong positioning on the basis of competency
- Ability to adapt to changing government /market needs

Keeping these considerations in mind, the developers of this framework recommend a component based integration and application of engineering concepts for the e-Government framework development. The major focus of any architecture is to enable following major activities in the environment:

- Necessary government information could easily be integrated and managed electronically
- All types of processes could be effectively managed and evolved
At each level, decisions will be made by workers through advance decision support capabilities provided by the system.

USA’s Federal Enterprise Architecture (FEA) is component and business based framework for government-wide improvement, based on five interrelated ‘reference models’ designed to facilitate cross-agency analysis and the identification of duplicative investments, gaps and opportunities for collaboration within and across government agencies. Models are: Performance Reference Model (PRM), Business Reference Model (BRM), Service Component Reference Model (SRM), Data Reference Model (DRM), and Technical Reference Model (TRM). e-Govt. Interoperability Framework (e-GIF) is collection of policies and standards endorsed for New Zealand Government IT systems. Brazil’s Interoperability framework e-PING is a reference model used to guide the development of solutions and the implementation of e-Government technology infrastructure nationwide (Willi, 2004).

**e-GI Enabling Technologies**

Through detailed literature search, we found that different technologies have been used over a period of time for developing varied level of collaborative systems/integration solutions; the modern one’s are evolutionary. Major such technologies are classified as:

1. Electronic Data Interchange Based Integration
2. Component Middleware Based Integration
3. Business Process/Workflow Based Integration
4. XML Based Interaction Framework
   4.1. Microsoft BizTalk Server
   4.2. eCO, etc.
5. Web Services Based Integration Framework

**Service Oriented Architecture (SOA) Paradigm**

To develop and efficiently manage e-Government services for business organizations, citizens, public sector agencies and other governments, SOA, an architectural paradigm, is used, which could be able to access the necessary information and Information Technology assets, dispersed and heterogeneous government functions, by having single interface independent of the structural composition of function and data, as well as its location. It is very important that such interface be mutually accepted by all stakeholders who are inter-
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**Web Services (Wss)**

SOA’s important feature and implementation is Web Service (Carlson & Tyomkin, 2004). WSs applications are loosely coupled, being cross-platform and open standard utilized. Therefore, they provide interpretability between trust boundaries. WSs applications are developed and used regardless of the context of the consumer and platform (Yinong Chen, Paul, & Chung, 2006), (Holley & Arsanjani, 2010).

Following distinct and important features of Web Services make them very well suited candidates for e-Government Integration Solution (Arsanjani, Zhang, Ellis, Allam, & Channabasavaiah, 2007), (Simmons, 2005), such as service oriented components, firewall friendly, easily found and invoked at run time, widely accessible, platform independent, and most important, loosely coupled. Because of utilizing such protocols (see Table 1) which are Internet-based and open XML (W3C; Universal Description, Discovery, and Integration (UDDI), Simple Object Access Protocol (SOAP), Business Process Execution Language for Web Services (BPEL4WS), the Web Services are first described then registered therefore it could easily be found and invoked at run time. In Figure 1, interaction among WSs is shown.

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**Figure 1: Web Services Reference Model**

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Finally evaluations of Web Services are being done for e-Government Integration framework and the following aspects have been highlighted:

- Using document-based communication instead of traditional interface like communication and introducing XML messaging framework (SOAP) provides integration of distributed and heterogeneous applications in loosely coupled fashion.

- As far as integration of heterogeneous applications (designed in Java, CORBA, etc.) is concerned, that can easily be reused by wrapping them and exposed as Web Services to be integrated. To enable Web Services to be developed through business process definition, Business Process Execution Language for Web Services (BPEL4WS) could be used and the advantage of adding BPM layer in our integration framework could be taken (S, P, & K, 2002).

To get maximum advantage, SOA’s best practices and guidelines have to be followed in composition of Web Services. They must be divided in three well defined layers, which enable autonomacy and dynamic business process management (Fiammante, 2010).

<table>
<thead>
<tr>
<th>Protocol Name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Services Description Language (WSDL)</td>
<td>Describing operational features</td>
</tr>
<tr>
<td>Universal Description, Discovery and Integration Language (UDDI)</td>
<td>Provides programmatic interface for publishing and discovering</td>
</tr>
<tr>
<td>Simple Object Access Protocol (SOAP)</td>
<td>Lightweight messaging framework for exchanging XML formatted data, supported by variety of transport protocols (HTTP, FTP, SMTP), and structured as envelope containing header (features like Security, transaction, etc.) and body (actual data)</td>
</tr>
<tr>
<td>WS-Security, Monitoring &amp; Management (WS-DM)</td>
<td>In standardization process</td>
</tr>
<tr>
<td>Others</td>
<td>WS-Reliable Messaging, WS-Eventing, WS-Notification, etc.</td>
</tr>
</tbody>
</table>

Table 1: WSs Protocols Summary

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Qureshi, and Hussain

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- **Collaborative Services**

  Those high-level processes developed among integrating participant.

- **Public Services**

  Those processes within an individual participant which are developed through different components and properly orchestrated.

- **Private Services**

  All local activities within a component

Following are few common scalability issues. Therefore, care must be taken in developing scalable integration solution: specifically when data is exchanged in tagged language and complex data types are being used (unsupportable by SOAP) then XML parser will load XML schema and network will be overloaded. On the other hand, web services registry which is a scalability issue, could be distributed, centralized and replicated.

![Figure 2: e-GI Solution Framework Service Layers](image)

**Standards for Composition of Web Services for Business Process Management**

e-Government Integration solution highly demands easy to use, process oriented way of managing system integrations. Therefore, we are looking for well defined set of standards to be developed for Web Services composition for Business Process Management. A few have
already been designed like Web Services Choreography Interface (WSCI), Web Services Flow Language (WSFL), Web Services for Business Process Design (XLANG)), and Business Process Execution for Web Services (BPEL4WS) preceded to Business Process Modeling Language (BPML), etc.

**e-Government Integration Platform**

It is very important to get familiar with platforms that could be used to develop or implement the framework of e-Government Integration solution. These platform are: See Beyond E*Gate Integrator, Web Methods, BEA WebLogic Integrator, Versata Global, Vitria Business Ware, Sun Open Net Environment, Microsoft .NET, Microsoft BizTalk Server, IBM Websphere Business Integration Suit (IBM SOA foundation), HP Net Action IOE, Oracle Integration Server, Mercator Enterprise Broker 5.0, TIBCO Active Enterprise, etc.

<table>
<thead>
<tr>
<th>Architectural</th>
<th>Real-time</th>
<th>e-Government</th>
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<tbody>
<tr>
<td>Scalability</td>
<td>Asynchronous</td>
<td>Flexibility</td>
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<td>Decoupling</td>
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</tr>
<tr>
<td>Manageability</td>
<td>Publish/Subscribe</td>
<td>Reliability</td>
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<tr>
<td>Adoptability</td>
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<tr>
<td>Distributivity</td>
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<tr>
<td>Heterogeneity</td>
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<td></td>
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<tr>
<td>Security</td>
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</tbody>
</table>

**Table 2: e-GI Solution Framework Requirements**

**e-GI Solution Framework Requirement**

The most important aspect for developing appropriate solutions is their requirements. Therefore, after going through detailed literature search, we are going to first formalize the basis/requirements of ideal e-Government Integration framework as standard to ensure productivity. Requirements are comprehensively covered under the following heads:

Architectural requirement, Real-time requirements, e-Government requirements. Each of them are expecting list of necessary features, which are shown in Table 2.
**e-GI Solution Framework Architecture**

As per the purpose of our research, major approaches like: SOA and EDA, transformation of supporting technologies starting from Electronic Data Interchange to WS’s and integration at processes level through XML are primarily examined with the intent to give easy to use, reusable, flexible, scalable and adaptable e-Government Integration solution framework which adheres to our recommended requirements. In this section, we are going to present our proposed solution encompassing the most difficult problem of efficiently connecting varied inter e-Governments and intra e-Government activities with citizens and modern business configurations like Virtual Organizations (VO), e-Enterprises, etc. allowing the governments to respond efficiently. The proposed framework consists of the following layers.

**Architecture Service Layers**

e-Government Integration solution framework comprised of three service layers primarily in addition to three framework’s administrative service layers, across each layer (see Figure 2). Functions of each layer are described as under:

- **Government Process Integration/Value Aided Services (VAS) Layer**

The primary role of Government Process Integration Layer or Value Aided Service Layer (see Figure 5) is to enable e-Government to efficiently integrate autonomous and diverse e-Government processes and data within and across the e-Governments, citizens and modern business configurations like Virtual Organizations (VO) and e-Enterprises, allowing the government to respond efficiently. Here very well-defined mutually agreed upon government process among relevant stakeholders is required to address the challenging issue of the interpretability of this layer. Information is transferred to Government Process Integration/VAS layer from presentation service layer which performs identification and transformation process to business document. Then, VAS layer performs the actual activity required for the collaborative government process regarding the document. The framework is developed in different levels of layers to support peer-to-peer communication between all framework users. Each layer will be used in order when its services will be required. If only transport services are required, then the document will be served by transport layer only and there is no need to pass on to higher level layers. In case, if applications need government process integration services/VAS, only then does the document need to be processed till the framework’s highest level layer known as VAS, by passing through all its lower level layers.
Very important concept discussed and proposed in Danesh, Raahemi, Kama, & Richards, “Implementation of a Framework for Process Management in Service Oriented Virtual Organizations Using Service Zones, 2013, of extracting service choreographies which is acting as a roadmap to design lower level services for implementing VO’s (Danesh, Raahemi, Kama, & Richards, 2013) could easily be employed at this layer.

- **Presentation Service Layer**

The main role of presentation service layer is identification and understanding of government document such that all provided information could easily be used by VAS layer and other framework layers.

Basically, the presentation layer performs tasks like transformation of documents by mappings, and the translation of information contained in the document to get distinct document representation integrated (see Figure 4). Primarily, the layer focuses on the content semantics concerning nature of document and performs integration of document layouts and data models.

- **Transport Service Layer**

Two types of communication in pure loosely coupled architecture could be configured using Web Services: one is interface based and the other is document based whereas the second one has more advantages over the first. In our framework, all applications will interact via varied documents using variety of protocols. The layer gives suitable protocol support to government users for document exchange. It simply provides gateway service to translate documents (see Figure 3).

**Administrative Service Layers**

There are three administrative service layers, across each layer, to claim manageability and reliability, which are as follows:

- **Configuration and Failover Recovery Services**

Here the monitoring of services is done continuously and when any failure is reported, it is notified to the Notification Manager. On the other hand, to maintain configuration and recovery operations system’s metadata is also managed by the same service. In case, if any document is not served because of any error, either in document or service breakdown, it is reported to Configuration Manager and then all configuration at the state of failure is properly recorded in the configuration database. Simultaneously, administration staff will be
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  - **Tracking Services**

    The main role of this service is to monitor and track the activities of each service, and a log is maintained in Tracking Database. In case of any failure, the activity is transferred to the notification service.

  - **Notification Services**

    Simply offer the reporting services to framework’s administrative personnel to recover the failure. Different types of formats are available for reporting like sms, e-mail, Fax, etc. As soon as the failure is reported, it will be recovered.

### Figure 3: e-GI Solution Framework’s Transport Layer Interactions

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### e-GI Framework’s Compatibility Towards Requirements

We are expecting that every true e-Government Integration framework must fulfill such group of requirements titled as real-time, architectural and government requirements for productivity. Therefore, the following section presents level of framework’s compatibility with these requirements.

Compatibility of features concerning architectural requirement of the framework are discussed as follows:
- **Heterogeneity**

Could be defined as the degree of dissimilarity among stakeholders’ applications; therefore e-Government framework’s stakeholders could have heterogeneity of different levels such as semantic, structural, etc. Making use of document based interaction method in our proposed framework, heterogeneity support is provided through services/processes applied in sequence like: first document transportation in varied formats, transformation, document translation and finally validation.

- **Security**

Most important requirement of e-Government integration framework, which primarily needs few basic security features like mutual authorization, confidentiality, authentication, and perfect non-repudiation. It is completely provided with typical Public Key Infrastructure securities, system stakeholder’s authentication, SHTTP, SSL, and S/MIME, etc.

- **Scalability**

In today’s globalized world, the system could rapidly extend/grow in many dimensions and this capability is called scalability. It is very much desirable that new integrations must be established in the easiest way, with low cost and efforts. Our framework’s scalability is guaranteed through such features like creation of government processes with the help of simple orchestration, enabling reusability by wrapping old service with extensions, and support of built-in government services templates.

**Figure 4: e-GI Solution Framework’s Presentation Layer Interactions**

- **Adaptability**

Refers to the capability as to how quickly the framework’s applications adapt to dynamic changes. To claim our framework as being highly adaptable, it is developed in component based layered architecture to limit the impacts of changes to only specific layer, and within that layer to specific components. Therefore, changes can easily be incorporated only in that service component.

- **Autonomy**

Maintains organization’s privacy and control over local services, while at the same time provides maximum flexibility to manage collaborative processes, rules and events as if we are their owner without affecting each other. This is completely supported through adhering to SOA best practice and rules for composing WSs in three layers such as Collaborative Layer, Public Layer and Private Layer. Therefore, integration is done in such a simple way that each participant is considered as “Black-Box”. Similarly, by removing our integration developed in e-GI star/spoke Model will not affect local working of any participant.

- **Loose Coupling**

In our proposed framework, the exchange of information is completely on-demand; therefore participants are not dependent. Partner’s system components are behaving as Black-Box when integration is made because of loosely coupled system. Coupling determines effect of change. Effect of change is reduced to negligible in loosely coupled systems. Making...
- **Distributivity**

At distinct integration levels/layers, collection of similar services could be divided and then capability to properly integrate them to give required level of integration is called distributivity. Our framework supports distributivity through orchestration to enable integration of appropriate service-components at distinct framework’s layers and simply publish them as Web Service for fulfillment of certain government service.

- **Manageability**

Refers to degree of ease in the framework’s administration to provide smooth operations and increase productivity. In other words, manageability means level of system’s administration and visibility like control, supervision and performance of system’s execution. Therefore, manageability is provided in our framework through following managers, across each framework’s service layer, which are named as notification manager, configuration manager, tracking manager and recovery component.

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use of SOA and composing document based Web Services interaction ensures loose coupling feature support of our framework. From event driven architecture’s perspective, following are few real-time requirements which must be supported in our proposed framework:

- **Publish/Subscribe**
  A very typical type of interaction is known as Publish/Subscribe, in which, when information publisher generates some piece of information then it must be sent to all official subscribers. Our framework supports it through its database, which creates publisher/subscriber relationships utilized by each government process service of our framework.

- **Asynchronous**
  Talking about 24/7 services delivery/continuity management and location independent boundary less government, we must expect fully asynchronous support. In such situations, connection-less services are similarly treated as connection-oriented services, and offer more independence. In many real-time situations, it is allowed to send the information of an activity without hope of instant response and at-least processed as well, although in offline fashion, such as in case of failure or service unavailability. Therefore, asynchronous support is compulsory. We have provided asynchronous support through queued document functionality by using message queuing facility. On the other hand, regarding communication SOA, document Based Web Services interaction supports both synchronous and asynchronous.

- **Usability**
  Easy to use descriptive way to business process management, including orchestration and choreography, provision of framework ultimate usability.

- **Flexibility and Agility**
  Such features support like BPM based service description, highly scalable service oriented approach, reusable functionality of service components, having separate layer for each service ultimately makes e-GI implementation very flexible and provides required level of agility inherent in government service provision.

- **Reliability**
  Most important provision of the framework is complete recovery service provided by recovery component in addition to parallel deployment of several instances of the solution framework that ensures required reliability.
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Following requirements are supported specifically for e-Government:

- **Usability**

Easy to use descriptive way to business process management, including orchestration and choreography, provision of framework ultimate usability.

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Such features support like BPM based service description, highly scalable service oriented approach, reusable functionality of service components, having separate layer for each service ultimately makes e-GI implementation very flexible and provides required level of agility inherent in government service provision.

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Most important provision of the framework is complete recovery service provided by recovery component in addition to parallel deployment of several instances of the solution framework that ensures required reliability.
**e-GI framework Technologies and Architecture**

In our proposed integration framework, business process management, a descriptive approach towards integration, BPM engine is used to illustrate the government process workflow by simply choosing pre-developed appropriate services within relevant framework’s service layers and finally composed as simple Web Service. Keeping in mind the nature of e-Government, variety of transport forms must be supported. Therefore, framework provides complete layer named transport layer which is furnished with different commonly used pre-build .Net COM components which are used as transport wrapper components to convert the government document’s native format into required transport form and vice versa. Facility of commonly used templates is provided to create and customize them as well. For identification and understanding of document, in such way that all provided information could easily be used by next framework layer, our framework’s presentation layer is furnished with many commonly used Web Services which are pre-build for document mapping and transformations. Similarly, to make our framework government centric and user friendly, government process integration layer is fully furnished with pre-build and easily customizable Web Services containing commonly used government logics. Such Web Services are categorized under different government services sectors. MSMQ is used for making inter layer communication possible (see Figure 2).

**e-GI framework’s topology: star/spoke model**

Our framework provides different topologies for integration like peer-to-peer, star/spoke/hub and supply-chain and therefore productively respond to dynamic market changes because of its loosely coupled architecture. But as far as the specialized nature of e-Government is concerned, only star/spoke topology would appropriately support all e-Government requirements and therefore star/spoke model is recommended for e-Government framework. In such configuration, e-GI will be configured centrally and all stakeholders are supposed to export their appropriate documents towards the star/spoke and vice versa where integration is actually configured. That’s why stakeholders’ applications will remain unchanged. Sometimes, appropriate application adaptors could be used (see Figure 6). Provision of continuity management, fault tolerant and load balancing features, just only the e-GI Framework star/spoke is supported by the backup exchange.

**Conclusion**

Conclusively, many solutions regarding e-Government are found in advanced countries and few in other countries as well. Eventually some problems are still unsolved; among them the
most important is the appropriate integration of e-Governments and its stakeholders for emerging economies. Such integration will surely make it possible that the government and all its stakeholders would be able to minimize costs by enabling them to use legacy systems and at the same time, make electronic interaction convenient to one another. Problems could be solved by various emerging technologies and tools.

The most important thing is appropriate adoption and structuring which will make many e-Government Integration technologies complementary. However, we found the following basic guidelines as base line for solving the integration problem. For example, most effective graphical BPM could be used to expose services and compose SOA compliant Web Services. It seems scalable that the interaction between government and all its stakeholders must be through loosely coupled document based model. Using Web Services for data transfer in XML will increase network traffic therefore avoided. For global adoption by all stakeholders, solution must be able to export document in various form of transport protocol. Our solution adheres to the guidelines and therefore it is appropriate for emerging economies.

References


Outsourcing Decision in Capabilities Perspective

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KEYWORDS
Outsourcing Strategy, Strategic Outsourcing, Strategic Capabilities, Strategic Liabilities, Parity Effect, Value Chain, Strategic Competitive Advantage, Organization Resources, Resources' Rarity & Value, Competitive Intensity, Competitive Heterogeneity, Robust Advantage, Core Competencies, Integrated Decision Making Model, Make or Buy, Business Cost

ABSTRACT
There are many theories and framework which suggest performance link to strategy and/or resources. In order to succeed in the market, the organization must transform its core strengths into competitive advantages so that it becomes harder for its rivals to snatch its customers and market share. This paper has attempted to integrate the issue of weakness emanating out of the capability frame in terms of strategic decision in outsourcing. With the help of our proposed “Integrated Decision Making Model” for strategic outsourcing, significant advantage can be achieved by directing investments and efforts in areas where firms perform better as compared to others. Over time, a continued effort to develop core competencies by building strategic capabilities (strengths) and minimizing strategic liabilities (weaknesses), bar the present or future competitors to expand into the company’s areas of interest, thus helps to defend the strategic competitive advantages lying in the firm’s value chain.

Introduction
In strategic management, decisions are made on purpose in order to have the performance outcome in the form of competitive advantage. By the same logic, it follows that performance would only increase in a firm that has competitive advantage. Managers use many tools when it comes to strategic decision making; the stakes are high and managers want to
use reliable techniques to uncap the mystery of uncertainty and test the dependability of the decisions that they make. Many authors (Miles & Snow 1978, Porter 1980, Miller 1986) have suggested that there is a link between performance and strategy. Recently, authors (Wernerfelt 1984, Barney 1991, Sirmon 2010) have emphasized linking performance to resources through which decision makers can analyze their core strengths and bolster their competitiveness against industry rivals. Rothaermel (2008) theoretical model investigates further the factors that contribute towards competitive advantage.

Frank-2008 model suggests that organizational resources and capabilities make an impact through various integrated or complex frameworks on competitive advantage and performance.

However, this model is not comprehensive in capturing the decision in its totality or in complexity. Therefore, this research paper presents a comprehensive model that will incorporate the original with elaborated framework as well as target the strategic outsourcing decision which has been ignored because outsourcing is normally based on the weakness of capabilities. In theory, there is definitely a relationship between resources, capabilities and a whole frame. These resources do not interact directly with the market. The interaction comes into play through strategies. Organizational resources and capabilities are actually converted into strategies to achieve competitive advantage. Strategic management is targeted into decision making which improves competitive advantage and makes an impact on performance as defined by literature (Covin & Miles, 1999).

Competitive advantage can be achieved through two logical frames; one is resource based while the other is the strategic frame. However, in an integrative frame, strategies are devel-
Outsourcing Decision in Capabilities Perspective

developed on the basis of the strengths and weaknesses of capabilities. Theory also suggests (Sirmon, Hitt, Campbell-2010) that a firm’s performance is largely influenced by external environmental factors. These factors impact its performance, strengths, and weaknesses in a positive or negative way. In a dynamic competitive environment, strong parity effect occurs when organizational strength shifts towards weakness. The test lies in figuring out a way to build a sustainable competitive advantage, and deal with capability weaknesses in a dynamic marketplace that is continually evolving.

In resources strategy, outsourcing has attracted significant attention in the contemporary business world. For example, Apple Inc. focuses its internal resources on its own Apple IOS operating system and products only. The architecture section of the company developed software that exactly met the consumers’ needs and expectations. Apple not only benefited from its internal capabilities but also from the Research & Development efforts by its value chain members and raw material vendors. It continuously adapts to changing market trends and brings innovation in its products in order to stay competitive in the industry. With the help of these strategies, Apple Inc. remained the top market leader on the basis of market share and capital turnover in the 1980’s (Moritz 1984).

This type of outsourcing is like “make or buy” examples in HR. There are many functions that may be outsourced, even in marketing. For example, distribution, advertisement or in the entire value chain where except core competence area, rest can be outsourced. According to survey (Outsourcing Institute-1998), there are ten top reasons which require companies to outsource their operations. These reasons include: (1) minimizing the business costs, (2) improving organizational focus (3) reaching world-class capabilities and opportunities (4) capitalizing on internal resources and capabilities (5) getting access to the resources which are not readily available in the local markets (6) improving the research, manufacturing, and engineering capabilities, (7) managing complex organizational procedures (8) strengthen financial position (9) controlling environmental threats, risks, and complexities, and (10) avoid cash crisis or financial difficulties. Thus the goal of the article is “To suggest outsourcing as a significant strategy which has not been given as much significance as other type of strategies which are generic strategies. We will approach this by reviewing literature which will cover these three points: (1) Competitive Advantage (2) Capabilities and (3) Strategies which are actually applied and then come through outsourcing strategies. To do all this, the basic model we are using is as proposed by Frank T. Rothaermel 2008. And to further dig that model, we will demonstrate how outsourcing strategies will apply on capabilities outcome or strategy outcome on performance.

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**Literature Review**

Achieving and sustaining competitive advantage is the outlining question of a strategy. Similarly, managers are motivated by attempting to answer basic questions like, “How the firm’s overall performance is determined and why some organization succeed in the start-up and others fail”. As an entrepreneur or manager, what can you do about it?

Another reason why researchers make efforts to figure out the effectiveness of the strategies formulated and implemented by different companies is to identify and explain the internal performance parameters which these companies use while designing their strategies. Research suggests that a firm’s strategy entails each and every element which a manager considers during the course of achieving a competitive advantage for his firm (Drucker, 1994). An organization cannot achieve a competitive advantage if it does not capitalize on its strengths and core competencies on continuous basis (Dierickx and Cool, 1989). In strategizing resources, among many strategies, one strategy is to either build and transform the weak capability into strength in-house or outsource to achieve or maintain competitive advantage. Grant (1991) believes that an organization chooses outsourcing strategy in order to gain a competitive advantage which is not possible to be gained through its internal capabilities, competencies, or resources.

Firms, as a whole have to survive in dynamic atmospheres and many factors affect decisions. The work of Wernerfelt (1984) and Barney (1991) discusses an important theory which explains the importance of an organization’s internal resources and competencies for gaining competitive advantage in the industry. This theory is called RBV – The Resource Based Theory that describes the characteristics of an organization’s resources which can help it in gaining competitive advantage. This theory focuses on rarity and value of such resources. A typical organization has both tangible and intangible resources. The most common resources which an organization can possess comprise of workforce, brand identity, technology, plant and machinery, building, patents, and of course – the money which is invested by the shareholders of that company (Wernerfelt, 1984).

RBV theory also suggests that outsourcing strategy may be considered successful when the company observes a positive improvement in all or any of its business operations. For example, the improvement can be observed in sales performance, technology, inventory management, quality of the products, customer satisfaction, market share, etc. Teng (1995) believes that strategic outsourcing decisions are successful when the performance of an organization is according to its set expectation or when the efficiency of its value chain
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Montgomery (1995) explores the negative impact of resources which cannot give any competitive advantage to the firms. These resources can only be considered normal operational necessities of the firm without giving them any credit towards competitiveness. A number of researchers have discussed the negative impacts of competitive disadvantages which are caused by weak organizational resources (Leonard-Barton, 1992; West and DeCastro, 2001, Powell, 2001). Arend (2004) believes that weak organizational resources are basically the company’s strategies liabilities which always hinder its performance against its industry rivals. Therefore, they can be put on the liability side of the balance sheet (Arend, 2004). Sirmon (2010) believes that an organization’s strengths and weaknesses have a direct impact on its operational and financial performance. In order to succeed in the market, the organization has to capitalize on its strengths and overcome its weaknesses so that it can compete with its competitors in a more profitable and competitive fashion. However, the organization must transform its core strengths into competitive advantages so that it becomes harder for its rivals to snatch its customers and market share.

<table>
<thead>
<tr>
<th>Relative weakness set</th>
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<th>Low</th>
<th>High</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td>I</td>
<td>Offset - undifferentiated Neutral performance effect (0)</td>
<td>II Robust advantage Positive performance effect (+)</td>
</tr>
<tr>
<td>High</td>
<td>III</td>
<td>Undermining Negative performance effect (-)</td>
<td>IV Precarious advantage Positive performance effect (+)</td>
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Eisenhardt & Martin (2000) believe an organization’s dynamic capabilities are those which can easily be identified by the external stakeholders. These capabilities may include manufacturing processes, decision making approaches, strategic business relationships, etc. In contrast to the Resource Based View (RBV) theory, Eisenhardt & Martin (2000) argue that a firm can achieve competitive advantage through its dynamic capabilities; not from its resources which may be strong or weak at any point in time. Therefore, they suggest that organizations should capitalize on their dynamic capabilities like quality management, production efficiency, value chain, inventory management, leadership and personnel management, etc. in order to achieve success in the industry.

<table>
<thead>
<tr>
<th>Focus on Strategic Attention</th>
<th>Porters Frame Work</th>
<th>RBV Frame Work</th>
<th>Dynamic Interplay of Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry/Business (Outside in)</td>
<td>Corporation Extended (Inside out)</td>
<td>Integrative Effects Of Strengths / Weaknesses sets</td>
<td></td>
</tr>
<tr>
<td><strong>Type of Competitive Advantage</strong></td>
<td>Low Cost or differentiation / Lock In</td>
<td>Resources / Capabilities</td>
<td>Capabilities</td>
</tr>
<tr>
<td><strong>Basic Unit of Competitive Advantage</strong></td>
<td>Activities</td>
<td>Core Products, Strategic Architecture</td>
<td>Robust Advantage / Precarious Advantage</td>
</tr>
<tr>
<td><strong>Strategy As</strong></td>
<td>Rivalry</td>
<td>Resources / Capabilities Optimization</td>
<td>Shift from Parity to strengths over time</td>
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</table>

Source: http://www.12manage.com/methods_hax_wilde_delta_model.html
(Adopted and rework by adding Dynamic Interplay of Capability)

Outsourcing is a commonly accepted and growing practice and helps the organization to achieve sustainable competitive advantage. However, outsourcing is not the answer to every capability weakness and is highly subject to a careful analysis of internal resources and core competencies for successful outsourcing strategies.
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Source: James Brian Quinn & Frederick G Hilmer,
The Mckinsey Quarterly 1995 Number 1

The above figure presents a comprehensive depiction of strategic vulnerability and competitive edge. When these two factors are high, the company needs to invest heavily in its competitive strategies. It may enter into joint ventures or start business expansion projects to become stronger and more competitive. A company should only go for outsourcing when its internal capabilities and in-sourcing opportunities are insufficient to give it competitive advantage against its industry rivals. Although in-sourcing is easier, less expensive, and more time and cost-efficient strategy, a company should only choose it if it believes that it will help it in maintaining the existing market share and level of competitiveness. Some companies keep on investing in their internal capabilities and in-sourcing and neglect the significance and positive impacts of outsourcing for greater competitiveness and profitability. These companies fail to maintain their market position and lose their customer base.

Elaborated Theoretical Model

Our detailed literature review gave us insight into developing a robust theoretical model. In the integrated framework, all components have an impact on the type of strategic decisions taken by a firm. Since, in the original model, the author presented strategies in the general frame but outsourcing strategy which is being ignored at this point of time with the changing dynamics of the country. Specifically, when we have vendors system moving in, then
outsourcing will become critical strategy which has to be linked with the company’s capabilities. The original model (by Frank-2008) does not provide comprehensive look in capturing the whole frame and ignore the areas of weakness where outsourcing comes in. Therefore we are going to present that integrated decision making model incorporating the strategic outsourcing decision.

**An Integrated Decision Making Model for Strategic Outsourcing**

Our proposed “integrated Decision Making Model for Strategic Outsourcing” explains how the tangible and intangible resources of an organization help in shaping up the strategy. Porter 5 forces model guidelines help us in achieving objectivity in industrial analysis that is a vital part of a firm’s strategy development. Normally for any strategic decision, people would carry out the external analysis suggesting a framework. Capabilities (competencies – strengths) aid into successful strategy development and execution. Research suggests that an organization’s strengths and capabilities support each other which are ultimately helpful for the organization in achieving competitiveness and superior operational and financial performance.
Since different environmental factors impact a firm’s performance in one way or another, the firm’s capabilities strength may not sustain for a longer period of time and thus parity effect occurs. To avoid parity effect, the firm should continue to build capability strengths. Original model has actually ignored certain critical factors like competitive intensity and market dynamism which affects competitive advantage. Therefore, we are incorporating them as moderators. In one of the strategic choices, outsourcing, as explained in our proposed model, is alternative to those capabilities weaknesses. Weaknesses of the capability which is usually ignored but logic says that if it is not in the core capability area then it should be outsourced which means that it is not your strength. Last, we propose that strategy alone is not enough in building the firm’s resources and capabilities but positive financial performance will also be vital in the firm’s resourcefulness.

**Conclusion**

This paper has attempted to integrate the issue of weakness emanating out of the capability frame in terms of strategic decision in outsourcing. With the help of our integrated Decision Making Model for Strategic Outsourcing, significant advantage can be achieved by successful combination of some critical approaches. Firms capitalize on their resources, for example, they improve their operational and financial performance by investing in manufacturing processes, research and development, quality management, inventory management, etc. These sound business practices accompanied by the core organizational resource improve their Return on Investment (ROI).

Secondly, a continued effort to develop core competencies through strategic capabilities upgradation (strengths) and minimizing strategic liabilities (weaknesses) also help them in gaining competitive advantage.

Thirdly, companies can execute the outsourcing strategy in order to leverage full utilization of outsourcing partners with innovations, investment and specialized professional capabilities that are costly to acquire internally.

Finally, in a rapid technological shift and robust market dynamics, outsourcing strategy minimizes risk, improves manufacturing capabilities, operational efficiency, and customer relations.
References

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