Knowledge, Skills & Competencies: A Capability Approach With Strategic Implications

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ABSTRACT:

This paper aims at reconsidering knowledge, skills and competencies from a capability perspective while addressing firms' strategic response. This is a one of recent attempts in adressing capabilities from a two dimensional form, and identifying the nature of capabilities (knowledge, skills and competencies) with respect to this classification and aligning them with the firms' strategic growth objectives. This paper has identified four forms of capabilities based on this classification. These include; Localized capabilities, Blocked (sticky) capabilities, Narrow capabilities, and Multiplex Capabilities. Though localized capabilities are hard for competitors to imitate, they add less value to firms' growth options. Multiplex capabilities have a possibility to provide firms with multiple growth options but this come at the expense of more risks from competitor's attempts to imitate, which lead to their value erosion. Responding to the risky nature of multiplex capabilities, firms need to insulate themselves by ensuring their value generation is contingent on other assets inside the firm.

Keywords: *Capabilities, Knowledge, Skills, Competencies, Transferability, Generalizability*

1. Introduction

Studies have indicated the extent to which capabilities are important firm resource (Ulrich & Lake, 1991; Ulrich & Wiersema, 1989; Day, 1994; Lenz, 1980; Irvin & Michael III, 1989). This importance is associated with how they contribute to firm's value through transfer (Luo, 2000, Fang & Zuo, 2009, Björkman et al, 2007). Though value creation can be increased upon transfer, there are difficulties associated with it (Szulanski, 2000; Argote & Ingram, 2000). Researches have highlighted on how firm capabilities influences its performance and growth through transferring resources either within the firm or outside the firm by diversifying in similar or different industries (Teece et al, 1997; Barney, 1986). In spite of all this literature we don't know the nature of capabilities a firm transfer (level of transferability and generalizability of capabilities). Knowing nature of capabilities firm possess provides a step towards understanding growth/expansion options they provide and corresponding strategic implications to the firm.

This paper brings into light the two key dimensions of capabilities used in firm's strategic growths/expansion i.e. their level of generalizability and transferability. The lowest level of generalizability refers to specific capabilities which can be used within a particular firm, industry or country. High generalizability means that the capability can be used in many firms, industries or countries. Some capabilities are very specific and hard to transfer or not transferable (Localized capabilities), some are specific and very highly transferable (Narrow capabilities), others are highly generalizable and are hard to transfer [blocked (sticky) capabilities], while others are very generalizable and highly transferable (multiplex capabilities).

Strategic question raised from such a classification is 'what are implications to firm growth/expansion opportunities'. Closely related question is whether these capabilities (knowledge, skills and competencies) maintain their competitive advantage (valuable, rare, inimitable, non-substitutable) as noted by Barney, (1986) after transferring them through variety of growth strategies.

2. Theoretical Background

2.1. Concept Of Capabilities

Ray et al (2004) pointed that 'resources' and 'capabilities' are used interchangeably and refer to the tangible and intangible assets firms use to develop and implement their strategies. 'Firms can attempt to develop better expectations about the future value of strategic resources by analyzing their competitive environment or analyzing skills and capabilities they already controlled' (Barney, 1986). Ulrich & Lake (1991) defined two elements of competitive advantage: (1) perceived customer value and (2) uniqueness. Uniqueness is present when the organization develops capabilities that are idiosyncratic and non-imitable. Extension to this is VRIN concept of Barney (1991) where he noted the key attributes of firm-specific resources must be (1) valuable; (2)

rare; (3) inimitable; (4) non-substitutable. By developing unique capabilities that add value for customers, organizations attain and sustain competitive advantage in the marketplace.

'Strategic vision pulls together the insights that help to focus managerial attention and indicate which core capabilities the firm must develop further and how, so as to succeed in its chosen business segments' (Schoemaker, 1992). The term 'capabilities' emphasizes the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and external organizational skills, resources, and functional competences to match the requirements of a changing environment (Teece et al, 1997). Capabilities approach places emphasis on the internal processes that a firm utilizes, as well as how they are deployed and how they will evolve (Teece et al, 1997). This is consistent with (Sirmon et al, 2007) view that resource based veiw (RBV) requires further elaboration to explain the link between the management of resources and creation of value.

Ulrich & Wiersema (1989) defined Organizational capability as a firm's ability to establish internal structures and processes that create firm-specific competencies and enable it to adapt to changing external pressures. Capabilities are considered core if they differentiate a company strategically (Leonard-Barton, 1992).

Ulrich & Lake (1991) presented a model which indicated that organizational capabilities are made up of technological capabilities, economic/financial capabilities together with strategic/marketing capabilities. Authors as well specified four critical elements of capable organization. First they noted a capable organization has a shared mindset both inside and outside the organization. Second, they use management practices to build a shared mindset. Third, they create a capacity for change through understanding influence and managing organization systems and finally empower all employees in an organization to think and act as leaders. In the same line of argument Ulrich & Wiersema (1989:120) as well pointed out that Organizational capability is enhanced when internal practices adapt to external demands. Knowledge and skills has been a fluid to which the capability approach is shaped both from theoretical and practical view.

Day (1994), on the other hand distinguished between business/organizational assets from business/organizational capabilities. To him business assets included scale, scope, efficiency, financial conditions, brand equity and location, while business capabilities included skills and accumulated knowledge and they enable activities in a business process to be carried out. Wong (2009) argued that skills and competence of business continuity management are integral parts of strategic management. Irvin & Michael III (1989) noted the skills to be critical capabilities that an organization as a whole has- as distinct from the capabilities of individuals in the organization.

Managerial, technological, leadership, innovation, negotiation and communication are some of capabilities that are mostly referred in most articles with respect to this subject (Lenz, 1980; Ulrich & Lake, 1991). Sometimes competences are used to mean skills, for example (Hafeez, 2002) defined firm competencies as valuable capabilities in terms of enabling the firm to deliver a fundamental customer benefit. As luo (2000) noted, building, diffusing, and transferring learning capabilities are all processes vital to the growth of MNEs.

2.2 Towards Classifying Capabilities

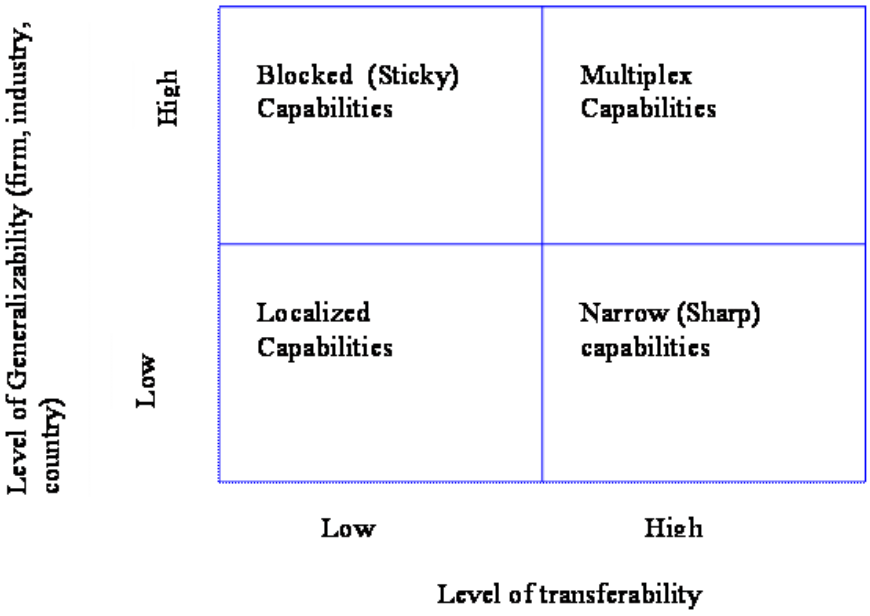
Because capabilities are deeply embedded within the fabric of organization, they can be hard for the management to identify (Day, 1994:38). This paper tries to indicate a step forward on how we can identify these capability but more important present their nature. Knowledge has been studied by looking at one dimension (transferability) where tacitness and explicitness refers to the easy or hardness of transfer. This paper goes beyond this one dimension by looking on the level to which knowledge or capabilities in general apply. The tacitness or explicitness does not provide us to full understanding on where value generation potential lies. For example knowledge that is highly tacit and yet not applicable outside a particular country is different from a tacit knowledge which is applicable in more than one country.

Capabilities in this paper has been classified with respect to the level of their transferability (low versus high) and also with respect to the level of how they can be generalized (specific versus generalizable). The generalizability ranges from low to high, where low mean a particular capability is specific either to a particular firm (product) or to related firms (products), industry or a country. Highly generalizable means a capability can be used within a wide range of firms, industries or countries. On the other hand Level of transferability ranges from low to high (where a low transferable capability are hard to transfer or not transferred at all) and highly transferable capabilities are those which can be transferred highly (not necessarily easily).

This way of classification has provided a two by two matrix with four different types of capabilities. These includes; localized capabilities (low level of transferability and very specific or low level of generalizability),

Sticky /blocked capabilities (highly generalizable with low level of transferability i.e. hard to transfer), Narrow/ sharp capabilities (highly transferable but very specific or low level of generalizability) and lastly Multiplex capabilities (highly transferable and highly generalizable). The Figure 1 below introduces us to this perspective and a detailed description will follow.

Figure 1: Transferability And Generalizability Of Capabilities



2.2.1. Blocked/ Sticky Capabilities

These are those which are highly generalizable yet they have low level of transferability. This means they are literally blocked in spite of the fact that they can be used in various firms, industries or countries. Being sticky or blocked contrains the firm scope of value generation. Attempt to transfer will more likely result to no value. (Wernerfelt, 1984) noted that 'resource position barrier operates through lower expected revenues for prospective acquires'. This means that the barrier for transferring the capability will inhibit the value to be transferred to the acquirer if capability is transferred through acquisition. On the other hand (Szulanski, 2000) termed this as barren and formerly he argued that 'context that hinders the gestation and evolution of transfers is said to be barren'. To him in a barren organizational context transfer related problems might be more difficult to resolve. 'Resource endowments are 'sticky' at least in the short run, firms are to some degree stuck with what they have and may have to live with what they lack' (Teece et al, 1997).

2.2.2. Localized Capabilities

These are those which are very specific to a particular firm, industry or a country and have low level of transfer (hard to transfer). Again such capabilities provide firms with few options for growth and their value is limited though they could be optimized through different combinations. This relates closely to (Penrose, 1959) view that size of firm's productive opportunity could limit its growth. Firm-specific technologies have small value because of their limited use to outsiders, even though they may contribute to a large joint value when used in combination with other firm resources (Zhao, 2006). Knowledge transfer can occur even inside the organization. 'Knowledge transfer occurs when experience in one unit of an organization affects another unit' (Argote & Ingram, 2000).

In some cases contracting is not possible because the core and supporting products must be integrated within one organization (Mitchell, 1989). This idea brings us into an understanding that the localized capabilities could be hard to transfer because their value is a function of integration within a particular organization. The same could apply for a particular industry or country. If self-replication is difficult, imitation is likely to be harder (Teece et al, 1997). Localized capabilities could be associated with high level of architecture and path

dependency which together formulates tacitness that in turn provides even more limitations for imitation by competitors. In some respect their sustainability could be higher compared to the generalizable and high transferable ones.

2.2.3. Multiplex Capabilities

These are those which have high level of generalizability and also high level of transferability. This nature gives firm more options for growth and profitability but with this comes more risk of imitability and possible substitutes from competitors. Mitchell talked about contracting capabilities. 'If an incumbent can contract for others to use one of its specialized assets, it need not to enter new subfield at all but can reap the value of the assets by allowing other entrants to use it' (Mitchell, 1989). In the efforts to speed the replication of current and new knowledge, there arises a fundamental paradox that the codification and simplification of knowledge also induces the likelihood of imitation (Kogut & Zander, 1992).

Resource can be used in several products (Wernerfelt, 1984). Honda for example has been able to apply its companywide mastery of engine and drive train technology development and manufacturing processes to create distinctive capabilities in variety of related markets like generators, outboard marine engines and lawn movers (Day, 1994). In multi-business organization, technology of general management is different from that of an individual business unit.

2.2.4. Narrow/ Sharp Capabilities

These are those capabilities which are specific but yet are highly transferable. They give firm limited options for growth because they can be transferred in a narrow range. Ulrich noted the idea that some capabilities can be valuable for certain types of organizations or settings and not applicable to others, and on that case copying and pest does not necessarily work. 'Those who understand and implement the principles of organizational capability avoid the 'quick fix' trap of copying a competitor's practice only to find that the copied practice does not fit the organization' (Ulrich & Lake, 1991). Narrow range in spite of limiting the firms options they could also offer chances for firms to develop high levels of specialization. This specialization comes at cost and risk of being held up in a limited scope.

3. Level Of Capability Transfer

Transferring capabilities involves the reallocation of capabilities from the firm to another firms (related or unrelated), another industries (related or unrelated) or even outside the geographical area and more specifically from a particular country. Transferring capabilities in this respect is linked closely to firm's growth strategies where within a firm, capabilities can be transferred to serve new products. Outside transfer occur when capabilities can be used to serve similar firms i.e. growth through acquiring and merging with similar firms in the same industry or different firms and industries through various diversification forms. Transfer of best practices inside the firm connotes the firm's replication of internal practice that is performed in a superior way in some part of the organization and deemed superior to internal alternative practices and known alternatives outside the company (Szulanski, 1996). Replication and transfer are often impossible absent the transfer of people, though this can be minimized if investments are made to convert tacit knowledge to codified knowledge (Teece et al, 1997).

Transfer of capabilities across country borders give firm an opportunity to grow internationally through exploiting opportunities. Some capabilities are hard to transfer or there is little or no value in transferring them while others are highly transferable. Capabilities are obscured because much of their knowledge component is tacit and dispersed (Day, 1994). Szulanski (2000) noted that organizational context where the transfer is embedded may affect the eventfulness of the transfer. The highly transferable capabilities posses a threat to imitation from competitors and firms need to draw a balance between the value generated through transfer and the associated risks. There are difficulties in transferring capabilities even inside the firm. For example Dyer & Hatch (2006) noted that transfer of knowledge even within firms might likely be difficult. Kogut & Zander (1992) provided two dimensions that influence transferability i.e. codifiability and complexity (of information and know-how). Codifiability refers to the ability of the firm to structure knowledge into a set of identifiable rules and relationships that can be easily communicated. Coded knowledge is alienable from the individual who wrote the code. Complexity viewed as number of parameters to define a system. Codifiability and complexity are related though not identical.

Szulanski (2000) viewed knowledge transfer as a process which an organization recreates a complex, causally ambiguous set of routines in new settings and keeps it functioning. Szulanski (1996) noted some of factors that contributes toward tacitness of knowledge to be; Characteristics of knowledge to be transferred (casual

ambiguity, unproveness), characteristics of source of knowledge (lack of motivation, not perceived reliable), characteristics of the recipient of knowledge [lack of motivation, lack of absorptive capacity (Mowery et al, 1996), lack of retentive capacity, characteristics of context (barren organizational context, arduous relationship)]. Later after conducting empirical analysis the author found out that the origins of stickiness are the lack of absorptive capacity of the recipient, causal ambiguity, and an arduous relationship between the source and recipient.

4. Level Of Capability Generalizability

Penrose (1959) laid the basis for resource-based theory of the firm by arguing that 'a successful firm creates a 'strong base' by specializing in physical resources tangible assets such as raw materials, plant, equipment and human resources intangible assets such as financial, managerial or technical knowledge and skills'.

Capabilities can be generalizable by being useful to multiple firms, industries or countries and not being specific to a particular area. 'Not surprisingly, industry observers have marked that companies can accumulate a large stock of valuable technology assets and still not have many useful capabilities' (Teece et al, 1997). Specific capabilities are constrained within a particular category and its usefulness is not broad while generalizable capabilities on the other hand move beyond such a constrained pattern. A rival might acquire some of the technologies that comprise the core competence, but it will find it more difficult to duplicate the more or less comprehensive pattern of internal coordination and learning (Prahalad & Hamel, 1990). For example a firm technological capability could be useful in other firms. Szulanski (1996) pointed that 'larger firms have more diverse technological portfolios and therefore are more likely to possess technology that is relevant to the alliance'.

Capability can be generalizable but yet difficulty to transfer. 'The fact that information leaks out quickly does not mean that imitation will occur equally fast' (Mansfield, 1985). These arguments give us an understanding that the highl level of generalizability does not mean transferability. For a transferability to be achieved capabilities have to overcome the sticky part. Szulanski termed the hardness to transfer as sticky, where all aspects of transfer cannot be handled. Organization equipped with effective routines to handle all aspects of a transfer is unlikely to consider that transfer sticky (Szulanski, 1996). The speed of replication of knowledge determines the rate of growth; control over its diffusion deters competitive erosion of the market position (Kogut & Zander, 1992). This indicates possibility where a generalizable capability can achieve firm growth objectives and still be protected for its erosion.

5. Discussion

It has bee pointed out by Kogut & Zander (1992) that 'opportunism is not a necessary condition to explain why technology is transferred within a firm instead of the market'. This observation leads us into understanding the fact that there are more issues which can explain why some capabilities can be transferred and while others cannot. This paper goes beyond in unlocking some of issues which explain transfer and firms' challenges related to this in terms of strategic focus. Identifying nature of capabilities a firm possesses from a two dimensional is one of the important steps toward understanding the firm growth/expansion options. At any segment where the firm finds its capability, draws attention towards the question of not only value generation opportunities but as well a strategic implications attached.

Transferring capabilities from one firm to another within the same line of business or from one industry to another or from one country to another has to take into account on; (1) What is the nature of capability that is transferred [general or specific (products/ firms, industry or countries)], (2) What is the level of transferability (easy to transfer or hard to transfer) and (3) will the capability retain the competitive advantage after transfer or using it for growth and if yes, how much value will be transferred or lost in that respect (capability residue).

The localized capabilities (specific and hard to transfer) have small value to the firm but other authors have suggested this value could be increased when combined with other capabilities. Architectural, path dependence and resulted high level of tacitness maintain these capabilities. Though they may ensure high level of inimitability they limit firms' options for other alternative growth opportunities.

Sticky capabilities (generalizable but hard to transfer) do not differ much with specific and hard to transfer capabilities but the only different is that they can be used in different firms, industries or countries. What limit these capabilities to cross their held positions is barriers to transfer, most literature that focus on the limits in transferring capabilities have included; Lack of motivation and problems of absorptive capacity to be some of barriers for interfirm transfers, but legal, political, cultural and social barriers limits international transfers or transfers between industries (Zhao, 2006; Duysters & Hegedoorn, 2000; Tushman & Anderson, 1986). Narrow

capabilities (specific but highly transferable) give the firm more growth options but within a limited range. This narrow range could be specific for particular firms, industries or countries. Reasons that capabilities are narrow are partly attributed by the fact that they can be useful in those niches and not outside. The fact that they are highly transferable poses a threat for imitability by competitors but a firm need to be aware of strategies to use in securing such a move as it has been suggested by Prahaland & Hamel (1990) and Kogul &Zander (1992). Though there are more options to growth using narrow capabilities the value in terms of profitability is limited by the fact that they are specific. This was pointed out by Teece et al (1997) that rents from capabilities depend on their applications in different industries.

Multiplex capabilities (generalizable and highly transferable) are perhaps one of those capabilities which simultaneously give a firm more growth options and more value in terms of profitability, but this comes at a cost of high risk of imitability from multiple sources and even potential substitutes. Again firms have to take this into account in their growth moves i.e. in different firms, industries, and countries. Multiplex capabilities can be insulated whenever their value is based on specific combination with other forms of capabilities or resources in a firm. This means tacitness is still maintained even though they are generalizable as was noted by Mansfield (1985) that highly transferable does not mean easy to be copied quickly. The motivation to imitate is low when the value of a technology is highly dependent on the proprietary firm's internal resource (Zhao, 2006). Kogut & Zander (1992) noted on possibilities to grow with highly gereneralizable capabilities and highly transferable but still be able to protect against erosion from competitors. Knowledge embedded in products spill over to other firms more quickly than knowledge embedded in organizational process or routines (Mansfield, 1985). 'Winners in the global marketplace has been firms that can demonstrate timely responsiveness and rapid and flexible product innovation, coupled with management capability to effectively coordinate and redeploy internal and external competences' (Teece et al, 1997). Kogut & Zander (1992) noted that even for the same technology, some firms may have evolved 'codes that differ in their efficacy'. Day (1994) noted that the problem surrounding capabilities could partly be resolved through 'communication and capability mapping'. The need to develop a flexible manufacturing strategy that continuously expand and conscientiously maintains the stock of critical technical and managerial knowledge becomes increasingly important (Galbraith, 1990). Prahalad & Hamel (1990) talked about 'strategic architecture as a roadmap of the future that identifies which core competencies to build and their constituents' technologies. All these theoretical prepositions lead us into an understanding that the firm need to realize nature of capabilities they possess and in addition create strategic dimensions that will ensure their transfer for sustainable competitive growth.

6. Research Implications

6.1. Managerial Implications

A need for managers in the firms to identify nature of capabilities they possess with respect to their generalizability and transferability. Next step from that is a question of strategic response around these capabilities in ensuring that a firm do not find themselves in a danger of exploiting short term returns in the expense of long term loss of competitive advantage through imitation and capability erosion by competitor actions. In the same line of thinking, managers have to consider possibility for capability incremental through transfer. Incremental possibilities relate with level of transferability but this should take into account the cost-benefit analysis component.

Firm growth/expansion opportunities should be aligned with capability components of the firm and whenever possible the firm could formulate capability architecture in ensuring that the capabilities themselves are not the only centre for the value and competitive advantage but this occur with other assets inside the firm so as to limit competitors reaction and sustain the firm performance.

6.2. Research Implications

This paper has been limited with respect to analyzing the cost components associated with transferability. The transferability does not happen without costs and whenever costs exceed benefits there is no need for transfer even multiplex capabilities. In such respect it could be interesting for future researches to study what are the key drivers for the cost component. Addition to this is a need to expand the strategic implications of these different capabilities in different markets.

7. Conclusion

Firms' assessment with respect to nature of capabilities they possess is quite necessary in ensuring that they understand growth/expansion options and corresponding strategic implications. This is due to the fact that though capabilities might have necessary criteria for competitive advantage (rare, valuable, inimitable, and non-

substitutable); they still differ with respect to level of generalizability and transferability. This paper has also highlighted that an attempt to exploit a capability have risky consequences. Such risks include among others the threats of imitability and creation of substitute by competitors or loss of value which relates to residue left after transfer (most specifically with multiplex capabilities). Addressing all these issues is important for firms to follow different strategies discussed whenever there is a transfer of capabilities through various growth/expansion strategies. This paper has not gone beyond in addressing the possible limits of these strategies but this should save a room for future research on this area.

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