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# **Competitiveness of Firms: Review of Theory, Frameworks, and Models**

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## **Abstract**

The turbulent start of the new century has brought new challenges for firms, industries and countries. Success in such times is demanding new perspectives on competitiveness. Detailed structuring of competitiveness related problems of software firms in India identified weaknesses in understanding about the concept and its implementation as root causes. Review of competitiveness-related literature, by classifying it at three levels, clearly indicated the importance of the firm level. The focus of this paper is on review of literature at the firm level and study of competitiveness-related frameworks and models. The studies are further classified on the Asset-Processes-Performance (APP) framework. Key criteria and sources of competitiveness at the firm level are synthesised and depicted graphically as connotations of competitiveness. Select frameworks and models of competitiveness were reviewed and categorized. A sample matrix that can help select frameworks and models is demonstrated. Utility of the APP framework as a tool for integration competitiveness and strategy is explored.

Key words: Competitiveness, Strategy, Firm, Competitiveness process, Sources of Competitiveness, Flexibility, Frameworks and Models.

The 21st century seems to have begun with events indicative of the turbulence, challenges and opportunities ahead. Excesses during long economic boom in America surfaced with the dot-com crash. The attacks of September 2001 and the collapse of giants such as Enron and WorldCom have shaken confidence in business. With Japan passing through a decade-long painful transition, two biggest economies of the world are in poor shape.

Survival and success in such turbulent times increasingly depend on competitiveness. Competitiveness has been described many by researchers as a multidimensional and relative concept. The significance of different criteria of competitiveness changes with time and context. Theories and frameworks must be flexible enough to integrate the change with key strategic management processes if their utility is sustained in practice.

While there are many theories about competitiveness and related inter-

disciplinary fields of strategy, operations, resource-based view (Barney, 2001), and economics, they are not used widely by practitioners in their decisions for enhancing or sustaining competitiveness. Research efforts have brought many interesting perspectives and frameworks at the country, industry, and firm level. The popularity of the competitiveness benchmarking at the country level such as Global Competitiveness Reports, World Competitiveness Yearbooks, and National Competitiveness Reports is an indicator of growing interest in comprehensive frameworks and data for competitiveness-related decision-making. Research into issues of industry-level competitiveness confirmed importance of processes in enhancing competitiveness (Momaya, 1998). At the firm level, theories are many, but they have little relevance to help practitioners who use them rarely. Nonaka et al (2000) have also highlighted limitations of traditional theories and need for a new theory.

Efforts to understand the problems of the slow competitiveness journey in context of the software industry in India identified low clarity about the competitiveness concept and weak integration of competitiveness processes with traditional processes, especially the most important strategic management process. Most companies are organised on functional lines such as marketing, finance, operations, and have narrow views about their contribution to the competitiveness of the whole organisation. Competitiveness comes through an integrated effort across different functions and hence, has close linkage with strategy process. Let us look at some basic definitions to improve clarity of the discussion.

## **Definitions**

Competitiveness is a multidimensional concept. It can be looked at from three different levels: country, industry, and firm level. Competitiveness originated from the Latin word, *competer*, which means involvement in a business rivalry for markets. It has become common to describe economic strength of an entity with respect to its competitors in the global market economy in which goods, services, people, skills, and ideas move freely across geographical borders (Murths, 1998).

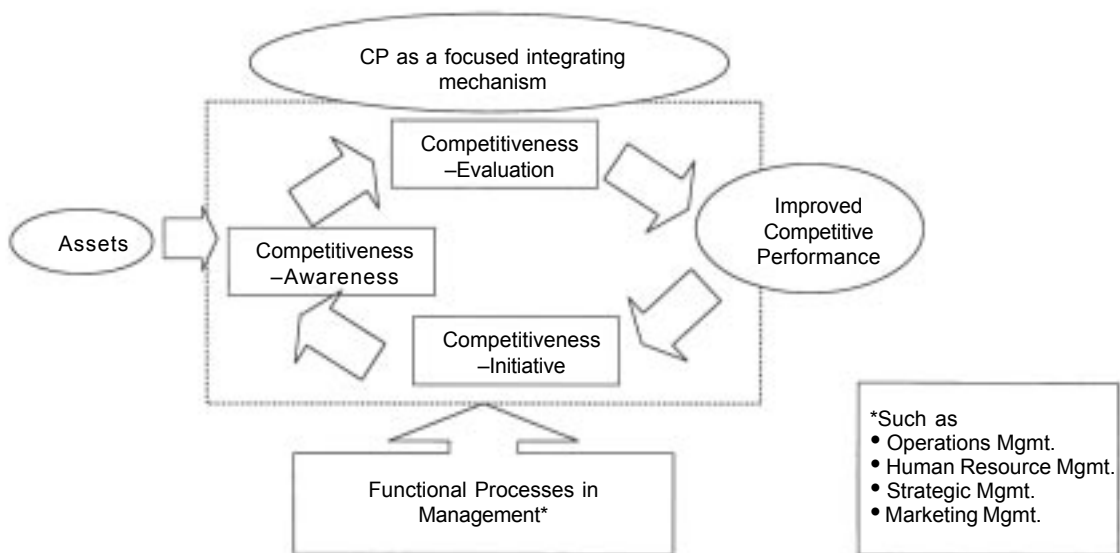
Firm level competitiveness can be defined as the ability of firm to design, produce and or market products superior to those offered by competitors, considering the price and non-price qualities (D'Cruz, 1992).

Competitiveness processes are those processes, which help identify the importance and current performance of core processes such as strategic management processes, human resources processes, operations management processes and technology management processes. The competitiveness process

can be viewed as a balancing process that complements traditional functional processes such as operations management and human resources management. It enhances the ability of an organisation to compete more effectively. Key constructs of competitiveness and linkages with performance are given graphically in Figure 1.

Sources of competitiveness are those assets and processes within an organisation that provide competitive advantage. These sources can be tangibles or intangibles.

**Figure 1:** Relation between Various Management Processes and Competitiveness Processes (CP)



## Firm-Level Competitiveness

Firm-level competitiveness is of great interest among practitioners. Nations can compete only if their firms can compete, argues Christensen of Harvard Business School. Porter says “it is the firms, not nations, which compete in international markets”, (Porter, 1998). The environmental factors are more or less uniform for all competing firms. Research shows that 36 per cent of the variance in profitability could be attributed to the firms’ characteristics and actions (McGahan, 1999). Other pro-firm views (Bartlett and Ghoshal, 1989; Prahalad and Doz, and 1987; Prahalad and Hamel, 1990) focus on individual firm and their strategies for global operations, and resource positions to identify the real sources of their competitiveness (Table 1).

**Table 1: Studies on Firms' Performance**

<b>Contributor</b>	<b>Key Findings</b>
McGahan (1999)	36 per cent of the variance in profitability could be attributed to the firms' characteristics and actions
Rumelt (1991)	Corporate—parent explains 1–2 per cent Industry membership explains 9–16 per cent Business unit effect explains 41–46 per cent in business unit performance
McGahan & Porter (1997)	Corporate—Parent explains 4.33 per cent Industry 18.68 per cent Business segment 31.71 per cent
Schmalensee (1985)	Corporate—parent effect is negligible Industry membership explains 20 per cent of firm's total performance Business unit effect is significant
Wernerfelt & Montgomery (1988)	Industry membership explains 12.3–20 per cent depending on controls
Roquebert et al (1996)	Industry explains 10 per cent variance in business unit performance

Source: Adapted from Brush (1999) and McGahan (1999)

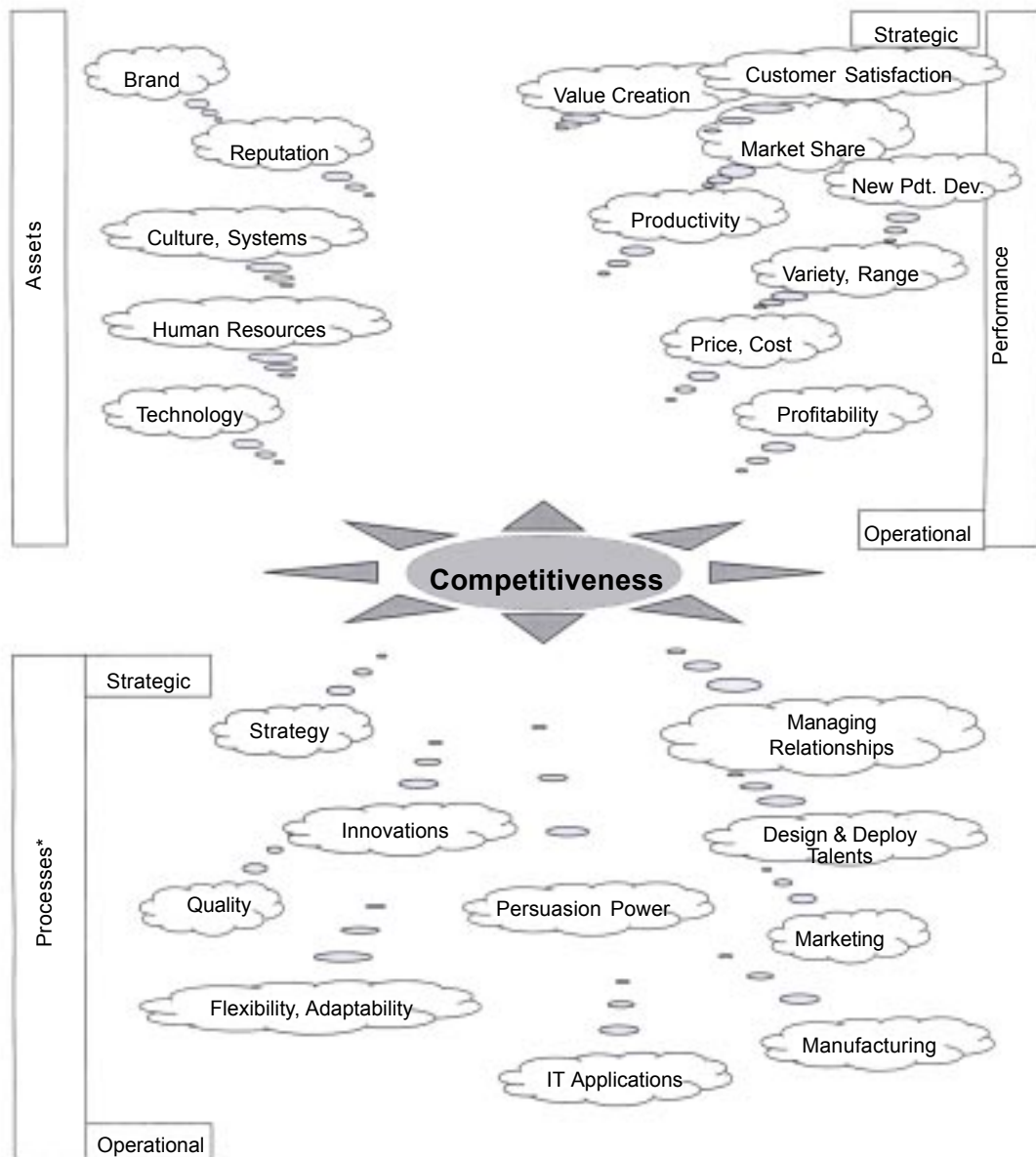
In light of the firm-level competitiveness, the objectives of the study are as follows:

- To understand the meaning of competitiveness at the firm level through literature review
- To identify these theories, concepts and their applicability at the firm level in software firms
- To identify the gaps in literature that will help in understanding the competitiveness dynamics of software firms
- To understand the usage frameworks and models in the industry at different stages and their complexity
- Implications of these theories, frameworks, and models in a practical sense.

Popular perspectives on competitiveness have been classified to aid in identification of sources of competitiveness. Select connotations of firm-level competitiveness from literature review provide richer and comprehensive views on sources of competitiveness, their relevance and performance (Figure 2).

These sources have been categorised under Asset, Processes and Performance on the spectrum of strategic and operational levers. This can be of help to industry professionals and aid in identification of relevant sources of competitiveness.

**Figure 2:** Select Connotations of Firm Level Competitiveness



\*These include management processes

Competitiveness can be treated as a dependent or independent variable, depending on the perspectives from which one approaches the issue. Berkely et al (1988) has suggested a framework that has three folds: the competitiveness performance, competitiveness potential, and the management processes. A similar framework can be found in the World Competitive Yearbook (WCY, 2002). In the WCY formula, “world competitiveness” is a combination of assets that are inherent and created as well as processes that transfer assets into economic results (Man, 1998).

Competitiveness involves “a combination of assets and processes, where assets are inherited (natural resources) or created (infrastructure) and processes transform assets to achieve economic gains from sales to customers” (DC, 2001). Outcomes can be achieved through competitive potentials through the competitiveness process (Berkely et al, 1988), similar to the Asset-Process-Performance (APP) framework (Momaya, 2000).

Some authors view competitiveness with the competency approach. They emphasise the role of factors internal to the firms such as firm strategy, structures, competencies, capabilities to innovate, and other tangible and intangible resources for their competitive success (Bartlett and Ghoshal, 1989; Doz and Prahalad, 1987; Hamel and Prahalad, 1989, 1990). This view is particularly among the resource-based approach towards competitiveness (Prahalad and Hamel, 1990; Grant, 1991; Barney 2001, 1991; Peteraf, 1993; Ulrich, 1993). Ability to develop and deploy capabilities and talents far more effectively than competitors can help in achieving world-class competitiveness (Smith, 1995).

For providing customers with greater value and satisfaction than their competitors, firms must be operationally efficient, cost effective, and quality conscious (Johnson, 1992; Hammer and Champy, 1993). Also related to this condition are a number of studies focusing on particular aspects like marketing (Corbett and Wassenhove, 1993), information technology (Ross et al, 1996), quality of products (Swann and Tahhavi, 1994), and innovative capability of firms (Grupp et al, 1997).

Productivity has often been termed as a surrogate of competitiveness and good indicator of long-term competitiveness of a firm by many authors. Porter defined competitiveness at the organisational level as productivity growth that is reflected in either lower costs or differentiated products that command premium prices. The generic strategies given by Porter also emphasises these criteria (Porter, 1990). It has been said the company, industry, or nation with the highest productivity could be seen as the most competitive (McKee and Sessions-Robinson, 1989).

In today's turbulent business environment, dynamic capabilities, flexibility, agility, speed, and adaptability are becoming more important sources of competitiveness (Barney, 2001; Sushil, 2000). O'Farrell et al (1992, 1989, 1988) have conducted a number of studies on the relationship between sources of competitiveness and firm performance, with focus on price, quality, design, marketing, flexibility, and management. The importance of firm-level competitiveness is confirmed by a large number of studies discussed above. Recognising the dynamic role processes play in enhancing competitiveness, the role of processes in firm-level competitiveness need to be examined.

### **Role of Processes in Firm-Level Competitiveness**

Process-centric perspectives have become popular. They can help bridge the critical gaps created by the silo mentality that emerges in functional-centric organisations. The popularity of business process re-engineering movement in the 1990s and resource-based view also has strong focus on processes. As review of the literature identifies the resource-based view (RBV) in context of explaining competitiveness of software firms. However, RBV has some limitations such as it lacks customer focus, market positioning, and is focused on large firms (Barnet, 2001; Mathur, 1999). The biggest limitations of RBV in context of competitiveness may be that hardly any framework or model exists which can guide professionals to integrate strategy with competitiveness. On the other hand, the APP framework that integrates resources to performance through processes understood by professionals may provide the better tool to integrate competitiveness with strategy (Shee, 2002; Momaya, 1998). It can, thus, provide a vehicle to understand the roles of processes and complete competitiveness dynamics at the firm level. An empirical study in context of software industry has confirmed dominant role of processes for superior performance (Shee, 2002). Select studies have been categorised on the Asset–Processes–Performance framework (Table 2). From the table, it follows that there has been few studies on asset, and more studies on processes and performance. This highlights the importance of processes, as identified in the literature review earlier (McGahan, 1999).

### **Competitiveness-related Frameworks and Models**

Abundance of research and publications at firm-level competitiveness has yet to make a real impact on competitiveness practices within firms. Interactions with industry professionals during research clearly hint that very few professionals have clarity about how competitiveness interventions can be planned, implemented, and integrated with existing processes or new pro-

**Table 2: Categorisation of Select Firm-Level Studies**

<b>Assets</b>	<b>Human Resources, Firm Structure, Firm Culture</b>	Chaston, 1997; Horne, 1992; Johnson, 1992; Patterns, 1991; Bambarger, 1989; Stoner, 1987	Common
	<b>Technology</b>	Shee, 2001; Khalil, 2000; Mehra, 1998	
	<b>Resource Based View (RBV)</b>	Barney, 2001, 1991; Peng, 2001; Peteraf, 1993; Amit, 1993; Grant, 1991; Teece, 1991;	
<b>Processes</b>	<b>Strategic Management Processes</b>	Sushil, 1997; Nelson, 1992; Grant, 1991; Prahalad, 1990;	
	<ul style="list-style-type: none"> <li>• <i>Competency</i></li> <li>• <i>Competitive Strategy</i></li> </ul>	Sushil, 1997; Porter, 1999, 1990; Grupp, 1997; Papadakis, 1994; Ghemawat, 1990;	WCY, 2002; DC, 2001; Momaya, 2000; Hofer, 1997;
	<ul style="list-style-type: none"> <li>• <i>Flexibility &amp; Adaptability</i></li> </ul>	Sushil, 2000; O'Farrell, 1992, 89, 88;	Barkham, 1994; Prahalad, 1996;
	Human Resources Process		Box, 1994; Heron, 1993; Dyke, 1992;
	<ul style="list-style-type: none"> <li>• <i>Design &amp; deploy talents</i></li> </ul>	Smith, 1995	Hamel, 1989, 90; Bartlett, 1989;
	<b>Technological Processes</b>	Khalil, 2000, Grupp, 1997; Bartlett, 1989; Hamel, 1989, 90;	Berkely, 1988; Keats, 1988;
	<ul style="list-style-type: none"> <li>• <i>Innovation</i></li> <li>• <i>Systems</i></li> <li>• <i>IT</i></li> </ul>	Doz, 1987, Johnson, 1992; Ross, 1996;	Man, 1998; Doz, 1987; Ibrahim, 1968
	<b>Operational Processes</b>		
	<ul style="list-style-type: none"> <li>• <i>Manufacturing</i></li> </ul>	Kanter, 1993; Dertousos, 1989; Hays, 1983;	
	<ul style="list-style-type: none"> <li>• Design</li> <li>• Quality</li> </ul>	O'Farrell, 1992, 89, 88; Dou, 1998; Swann, 1994;	
	<b>Marketing Processes</b>		
	<ul style="list-style-type: none"> <li>• Marketing</li> </ul>	Dou, 1998; Corbett, 1993; Hammer, 1993;	
	<ul style="list-style-type: none"> <li>• Managing relationships</li> <li>• Persuading power</li> </ul>	Porter, 2001; Chaharbaghi, 1994	

(Cont'd)



**Table 2:** Categorisation of Select Firm-Level Studies (cont'd)

<b>Performance</b>	Productivity	Mckee, 1989; Francis, 1989; Baumol, 1985
	Finance	Mehra, 1998;
	Market Share	Ramasamy, 1995; Buckley, 1991; Schwalbach, 1989;
	Differentiation	Porter, 1990;
	Profitability	Pace, 1996; Scott, 1989
	Price	Dou, 1998;
	Cost	Porter, 1990;
	Variety, Product Range	Dou, 1998;
	Efficiency	Porter, 1990;
	Value Creation	Porter, 1990;
	Customer satisfaction	Hammer, 1993
	New product development	Man, 1998

cesses for rapid scale-up of competitiveness.

Many questions about competitiveness remain unanswered despite rich literature about the concept. Some of the key questions such as: How can frameworks and models be adapted for a particular firm in a particular stage of development with different capabilities and resources? Which of the frameworks or models for industries like emerging industry (software)? remain unanswered. Attempts to understand the reasons for the failure of literature to find favour with practice hinted at weaknesses in theories or frameworks to integrate competitiveness with strategy and functional processes.

Interactions with industry professionals through two workshops (August 2002) and questionnaire surveys (May to August 2002) hint that a key reason for low usage of competitiveness theories may be weak understanding of these frameworks and models. Also, little is known about the usage and applicability of these frameworks and models in developing countries such as India (Chaudhri, 2001). There has been inadequate research on such practical importance of these competitiveness-related frameworks and models.

Recognising weaknesses that can link theory with practice, and review of select relevant frameworks and models is being done. Comparative review of various frameworks and models is a very difficult preposition; still knowledge of relevance of specific framework or models for a given context is a real need of the industry. Among a large list of frameworks and models, 10 were selected for preliminary review after short-listing some 20 frameworks and models.

**Table 3:** Comparison among Select Frameworks and Models

Model/ Framework	Main Focus of Model/ Framework	Usage	Complexity	Stage of firm that can use it
1. EVA	Financial—Cost of capital, profitability	H	L	S/G
2. Value Pyramid	Productivity	M	L	S/G
3. TSR	Value creation by cash value addition, economic growth	L	L to M	G
4. VCI	Market value addition through value drivers, accounting value (assets and liabilities)	L	M	G
5. Value Curve	Positioning by analysing the margin and technology/ marketing complexity	L to M	L	S/G
6. EFQM	Leadership (assets), processes and performance	M	L	G
7. CMM & P-CMM	Process maturity levels	M to H	L to M	S
8. APP	Company's internal assets, processes and performance	L to M	M to H	G
9. IVM	Corporate value creation through decision, incentive, & communication based	L	M	G
10. BSC	Financial, internal business process, learning & growth and customers.	L to M	M	G

Notations: H=High, M= Medium, L=Low; S=Survival, G=Growth

For simplicity, firms can be divided into two categories: survival and growth. A qualitative comparison among 10 models and frameworks on their usage, complexity and the category of firm that can use them is given in Table 3. The usage of simple ones is obviously higher than the complex ones. Firms can use the frameworks and models depending upon the objective of competitiveness intervention and category of a firm.

Selection of the right kind of frameworks and models is crucial for suc-

cess of competitiveness intervention of a firm. Among many criteria that can govern the selection of a framework or model, firm's capability and its situation have been used to classify the select frameworks and models. The selection of the relevant framework or model depends on both these attributes of the firm, among others. Results of the review are summarised on a graphical matrix (Figure 3) on four stages of a firm's capability—meet the budget, predict future, think strategically, and create the future. These stages have been used to denote the axis of firm's capabilities.

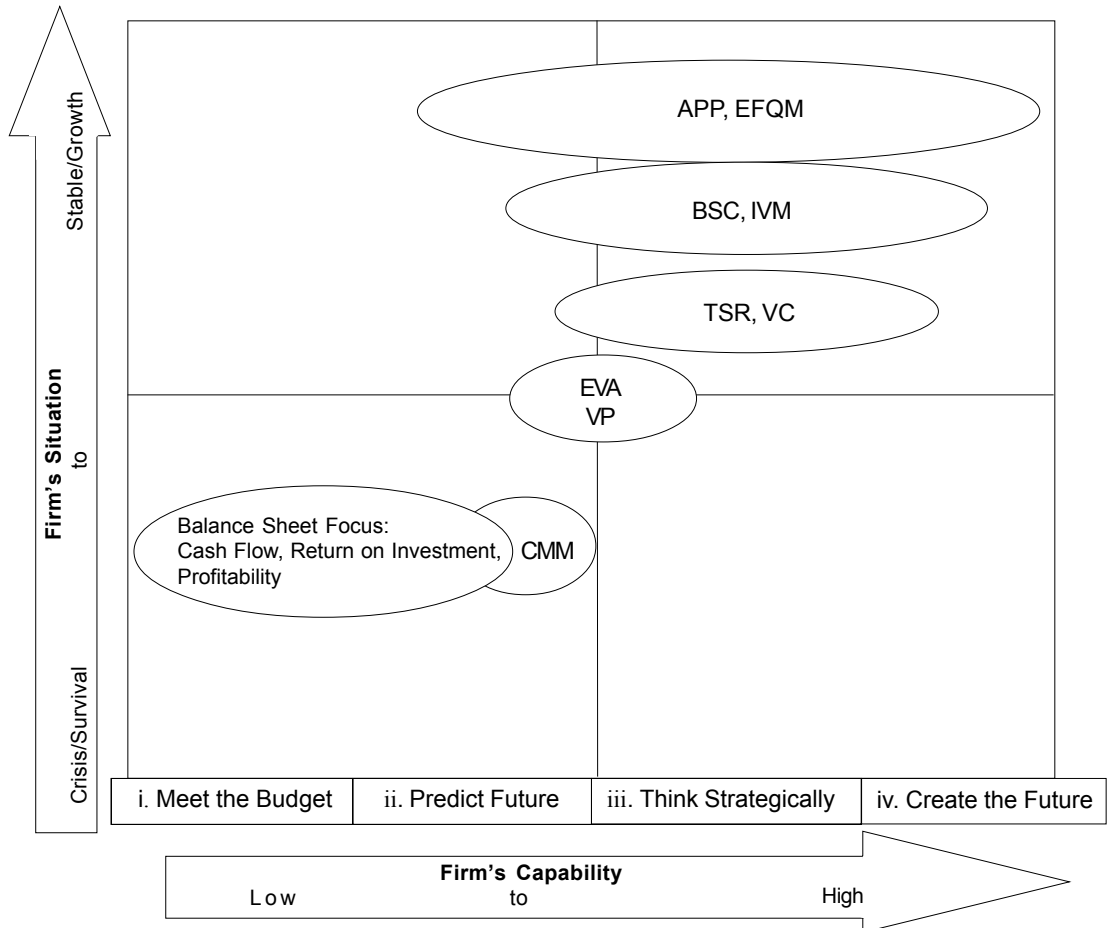
The graphical matrix provides an example of tools that can help professionals in the selection of right framework and or model. It follows from the study that simple financial ratios are most popular for evaluating a firms' performance. However, usage of more sophisticated frameworks and models, which naturally demands higher attention and commitment, can help in sustaining a firm's competitiveness. For firms that are in a stage of crisis or survival, focusing on balance sheet ratios and improving operational excellence helps; for firms that are relatively stable or are in the growth phase, more complex frameworks and models can be used to evaluate their competitiveness.

## Key Findings

Understanding the competitiveness dynamics at the firm level is crucial for competitiveness. There is some of research on competitiveness at different levels and specifically at the firm level. Some of the key findings are:

- Process perspective has attracted more research attention.
- Weaknesses in understanding competitiveness, specifically competitiveness processes from awareness to its integration with strategy, may be a root cause of low competitiveness of firms in India.
- The significance of resource-based view has increased, however, limitations have also emerged.
- There are many frameworks, models, theories on competitiveness; integrated frameworks that can help practitioners to take key decisions on competitiveness are few. There is need for frameworks that can help select right tools from the industry perspective.
- APP framework that integrates resources to performance through processes that are well understood by professionals, may provide the best tool to link competitiveness with strategy.

**Figure 3: Use of Different Competitiveness Models and Frameworks to Achieve Strategic Competitiveness**



Notes: APP=Assets-Processes-Performance Framework, EFQM=European Foundation of Quality Model, BSC=Balanced Scorecard, IVM=Integrated Value Management, TSR=Total Shareholder's Return, VC=Value Curve, EVA=Economic Value Added, VP=Value Pyramid, CMM=Capability Maturity Model.

## Implications

There is need for harmonising competitiveness and related terms, so that confusion can be minimised. While the Five Forces and Diamond Model by Porter and their variants provide useful insights, their limited use in competitiveness evaluations hints at the need for better frameworks. Use of the competitiveness process as a key coordinating process among key management processes such as strategic management, human resources management, technology management, and operations management may provide a power-

ful tool.

It is necessary for a firm to define competitiveness as part of its strategy. Competitiveness is a multi-dimensional concept with dynamic weightages of different factors. A systematic evaluation of competitiveness will be of great help to firms. There are many frameworks and models with their own strength and weaknesses. While there are some very rich frameworks, their utility is limited due to their rigidity. Generic frameworks such as APP, that have been empirically tested in specific contexts (Shee, 2002), may provide a better platform for firms to develop their own models for simulation. There is need for a research network that can develop better tools to improve competitiveness processes in collaboration with industry.

## Conclusion

The hyper-competitive era in the last few decades has created the need for an explicit management of competitiveness. Consequently, considerable research has been undertaken on competitiveness issues at different levels. Systematic frameworks such as WCY, GCR and NCR at the country level are examples of useful tools that have been developed through research. The literature review identified that the firm level has received the maximum attention among the three levels. There are also a large number of frameworks and models, but usage of such frameworks and models is still very minimal, especially in a developing country such as India. Most of the frameworks or models are useful to evaluate some specific dimension of competitiveness, their utility in other context becomes limited due to low flexibility. Empirical evidence has demonstrated the utility of APP framework as a useful and robust tool. Many such frameworks need to be upgraded through research and validation to evolve flexible frameworks that can be used widely by practitioners for making key decisions concerning the competitiveness of their firms.

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