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Project Management Maturity Models: The Silver Bullets of Competitive Advantage?

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Abstract

Project management maturity models are important assessment tools for the profession. Maturity models identify organizational strengths and weaknesses as well as provide benchmarking information. They capture explicit, codified practice (know-what), but do not include the intangible assets of project management (know-how). Some have made the claim that project management maturity models (MMs) can lead to a competitive advantage for firms. This paper uses four resource-based frameworks to assess whether or not maturity models lead to a sustained competitive advantage. In the context of the strategy domain, the authors conclude that MMs can result in a temporary competitive advantage but not a sustained competitive advantage. Clearly, a sustained competitive advantage is rooted in a combination of know-what and know-how.

Keywords: resource-based view; project management maturity models; competitive advantage; strategy

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Worldwide, firms are in a race to create value and survive in the increasingly competitive marketplace. They combine various organizational assets in unique ways to create value. In turn, value creation involves tangible assets, such as financial, physical, and technological ones, and less tangible ones, such as human, organizational, and social assets (Brush, Greene, Hart, & Haller, 2001).

This paper explores project management maturity models (MMs) as a project management construct and assesses them as sources of competitive advantage.

With the widely publicized project failure rates and related cost overruns (Standish Group, 2001), more companies are turning to approaches that may help them improve their project management practices. Firms are turning to project management as part of their competitive advantage strategies. This is evident in the exponential increase of membership in project management associations such as the Project Management Institute (PMI). In addition, the billions of dollars invested in projects, along with the increasing attention on MMs, quantifying the value of project management, and developing classification systems for the discipline exemplify support for project management (Bounds, 1998; Ibbs & Kwak, 1997; PMI Standards Committee, 2000; Schlichter, 2000).

Because investments are time, cost, and resource intensive, firms are willing to take only a critical interest in those practices that will improve their competitive positions. Projects are an essential building block of business value. However, we have yet to understand the complex ties between project management and its value as a strategic asset.

Over the past decade, MMs emerged in the literature as concrete, tangible ways of assessing aspects of a firm's project management maturity. They help firms compare explicit competences at the project and program level relative to a standard. The models are gaining interest as companies and academics strive to make sense of why some projects succeed and others do not. Companies and academics are questioning project success rates as well as the returns from an investment in project management. Proponents claim that the MMs enable firms to achieve a competitive advantage. However, no thorough exploration of this claim has been made.

The purpose of this paper is to rigorously explore the foundations of these claims. The authors posit that the essence of a firm's competitive advantage rests in its resources (strategic assets) that are valuable, rare, inimitable, and involve organizational focus (Barney, 2002). The authors begin with an overview of competitive advantage and competitive convergence and then introduce MMs. This is

followed with a brief introduction to the resource-based view (RBV)—a strategy perspective—and its concepts. Then, the authors assess MMs using several RBV frameworks. The paper concludes with a brief discussion on contributions and areas for further research.

Strategy, Competitive Convergence, and Competitive Advantage

Planning and deploying strategy is a complex undertaking for firms. In practical terms, strategic management is about "the direction of organizations" and deals with firm success, failure, and competition (Rumelt, Schendel, & Teece, 1994, p. 9). Implementing strategy involves setting direction for the firm to achieve performance targets, making long-range plans, and managerial decisions (Barney & Zajac, 1994). This is increasingly important in the global economy as compressions of distance and time intensify competition and focus managerial attention on multiple internal and external factors (Thomas, Pollock, & Gorman, 1999).

Both formally and informally, companies conduct strategic planning exercises using variations and combinations of internal assessments (strengths and weaknesses) coupled with environmental assessments (opportunities and threats) to plan their market positions and strategies (Porter, 1996). Companies generally under-appreciate middle managers, but firms that involve them in strategy development achieve better performance (Floyd & Lane, 2000; Floyd & Woolridge, 1992a; Floyd & Woolridge, 1992b; Floyd & Woolridge, 1994; Floyd & Woolridge, 1997). Executives are keenly aware that it is an ongoing, iterative process to understand the rapidly changing micro and macro environment and adapt through organizational strategies for improving the firm's financial picture.

For the most part, companies focus on the cost, quality, customer service, and time-to-market advantages. But few stop to study why some firms develop a competitive advantage and others do not. "Understanding the what of competitiveness is a prerequisite for catching up ... Understanding the why of competitiveness is a prerequisite for getting out in front" (Hamel, 1995, p. 24).

Competitive Convergence and Competitive Advantage

Companies strive to avoid situations of competitive convergence or parity, where no one firm has a distinct advantage. Competitive convergence means competing to do similar activities better than rivals. This is insufficient in achieving a competitive advantage because after some time, firms begin to look alike and do the same things. This ultimately leads to diminishing returns (Porter, 1996). Common strategies such as quality improvement, empowerment, and outsourcing help firms keep up with each other but do not enable them to excel (Ala, 1997; Jonker, 2000; Tippett & Waits, 1994).

Such practices are a necessary intensive part of management but are not strategy. Because rival firms undertake similar practices, the standard of performance continues to rise across the industry. Firms unable to maintain operational effectiveness have short life spans.

In contrast, a competitive advantage allows for market dominance or strategic advantage. It involves doing different activities from rivals or similar activities differently (Porter, 1996). Competitive advantage involves a focus on the firm's internal assets and connotes innovation and creativity in terms of market positioning. Strategic assets offer long-term competitive advantages, and they generate long-term rents (profit) (Amit & Schoemaker, 1993). Strategic assets are the crux of a management perspective called RBV.

As firms focus on competitive advantage strategies, they use a number of performance indicators to determine whether they are meeting their goals. Generally, these indicators are of the efficiency type (financial, accounting, or economic measures) that emphasize tangible asset measures. Efficiency measures are useful but they do not encompass the breadth of a firm's assets. They downplay the intangible assets that focus on the customer, supplier, staff, and partners, such as those addressed by the balanced scorecard (Sveiby, 1997).

Intangible assets reside within the company's knowledge base and are represented by its intellectual, organizational, and social capital. Project management is one such knowledge-based asset. However, project management has evolved as a tactical construct with value at the operational level, and this approach makes it more difficult to think of it as a strategic construct.

Operational Value of Project Management

Only recently has the project management literature expanded its focus to cover areas beyond the applied sciences, such as strategic planning (Ulri & Ulri, 2000). The success body of literature in project management typically focuses on the operational level, whereby project-related success and failure characteristics are emphasized in terms of time, cost, and scope.

Over the past 30 years however, we have moved beyond simple critical success factor lists to more comprehensive, holistic frameworks (Belassi & Tukel, 1996). We have yet to identify a framework that allows us to measure a project's success in terms of its strategic value. Furthermore, the literature on project success (performance) is not empirically linked to the literature on MMs (Jugdev & Thomas, 2002b).

Recent research on selling project management to executives confirms that most project managers and consultants understand it to be a tactical but not strategic asset (Thomas, Delisle, & Jugdev, 2002). According to Dinsmore (1998), as building blocks in the formulation and execution of corporate strategy, projects also contribute to organizational success in terms of competitive positioning in the global marketplace. However, the strategic impact of project outcomes has been ignored largely in the literature.

Models

MMs are based on the Software Engineering Institute's Capability Maturity Models (CMMs), and they assess practices against standard criteria (Carnegie Mellon Software Engineering Institute, 2002; Dymond, 1995). According

to Dinsmore (1998), variations of CMMs and MMs generally involve five linear stages:

- Level 1: Initial (ad hoc);
- Level 2: Repeatable (abbreviated, planned);
- Level 3: Refined (organized, managed);
- Level 4: Managed (integrated);
- Level 5: Optimized (adaptive, sustained).

The MM levels portray a firm's evolution from immature project management practices to solid practices and the related infrastructure necessary to support projects at an organizational level (Dinsmore, 1998; Kerzner, 2001). Most models provide structured objective criteria to be met at each level of maturity.

MMs typically are aligned with national project management bodies of knowledge. They can be administered in a paper or electronic survey format using Likert scales or with consultants conducting the assessments. The questions generally focus on knowledge areas as per the national project management bodies of knowledge, such as *A Guide to the Project Management Body of Knowledge* (*PMBOK® Guide*) (PMI Standards Committee, 2000).

"Companies demonstrate behaviors that reflect their maturity levels," according to Dinsmore (1998, p. 24). MMs identify project or organizational strengths and weaknesses and benchmarking information. In addition, most focus on incremental improvements based on quality improvement practices. The five levels enable repeatability in terms of assessments and permit a measurement of progress over time. Most companies are at a MM1 or MM2 level (Dinsmore, 1998; Ibbs & Kwak, 2000; Kerzner, 2001; Pennypacker, 2001).

However, some have criticized the MMs from a practical perspective (Cabanis, 1998; Compass Fact Based Consulting, 2001; Dinsmore, 1998; Kujala & Artto, 2000; LSM-International, 2001):

- Models are inflexible when a flexible model is required for managing change and in keeping with quality improvement principles;
- MMs are typically geared toward identifying problem and raising awareness but not solving problems. The firm must develop a plan, implement, control, and adjust it;
- The models do not account for the rapid pace of change with which firms adopt new technology and change processes, practices, management systems, or policies;
- The five maturity levels do not offer enough granularity to measure progress over time;
- Models are overly disciplinary, impractical, and overwhelming as methodologies;
- Models focus on the work processes and some ignore the human resource or organizational aspects;

The MMs also have some limitations from a theoretical perspective. They are based on software maturity models that lack a theoretical basis. The field of MMs is relatively young and lacks empirical support for determining which competencies contribute most to project success (Skulmoski, 2001). In addition, no one model has achieved acceptance at a worldwide level. Some of the MM literature is misleading because it purports to offer a competitive advantage but does not define what a competitive advantage means or ground it theoretically (Association of Project Management, 2000; Australian Institute of Project Management, 2000; Hartman & Skulmoski, 1998; International Project Management Association, 2000; Lambertson, 2001; LSM-International, 2001; Pennypacker, 2001; Schlichter, 1999). Although MMs emphasize explicit knowledge that can be codified and transferred readily, they do not assess implicit knowledge or the intangible asset mix within a firm.

Despite these shortcomings, MMs have made a significant contribution to the field. They have heightened awareness on competences and offer an initial paradigm with which to assess organizations and their project management maturity. The growing emphasis on MMs also reflects an increasing desire to link project management competency to corporate achievements (Birnberg, 2001; Cabanis, 1998; Compass Fact Based Consulting, 2001; Cooke-Davies, 2002; Dorling, 1993).

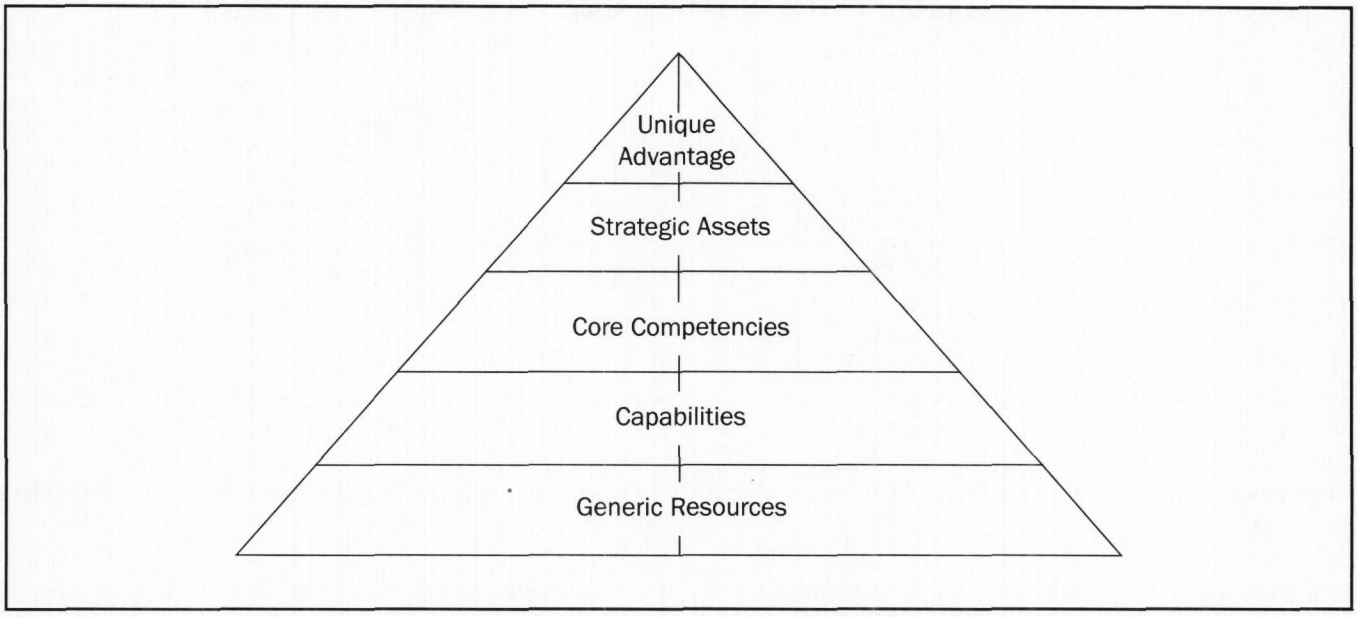
Introduction to the RBV

The RBV is an evolving perspective. It blends the external view of strategy (industry and environment assessment) as popularized by Porter with the internal assessment of the firm (Barney, 2002; Porter, 1996). The RBV assesses a firm's capabilities in relation to competitors and goes beyond a "feel good" assessment of strengths and weaknesses. It involves an assessment of the breadth of a firm's capital (human, physical, organizational, and social) including tangible and intangible capital to identify strategic assets. In particular, the RBV examines intellectual capital (knowledge, skills, and know-how) that stems from complex human interactions and involves tacit knowledge that is rooted in action. It is hard to codify and resides within the relationships between people and within a firm's routines (Nonaka, 1994).

Two empirical generalizations of the RBV are that systematic differences exist across firms and that these differences are relatively stable (Schulze, 1994). An implication is that firms can achieve stronger performance by building upon or acquiring certain resources. The RBV emphasizes the creation, maintenance, and renewal of a competitive advantage through resources, their characteristics, and how they change over time (Barney, 1986; Chandler, 1962; Foss, 1997; Penrose, 1959; Peteraf, 1993; Prahalad & Hamel, 1990; Rumelt, 1984; Selznick, 1957; Teece, 1980; Wernerfelt, 1984).

Strategic assets (or core competencies) differ from basic or generic competencies and assets. Only strategic assets are considered vital to develop a long-term strategic advantage, as they involve specific resource characteristics and organizational practices. Because the RBV is in the process of theory building, it involves a breadth of frameworks and streams of thought (and debate) that, over time, converge into conceptual models and theories. This is evident in the range of terms used by different authors.

A strategic asset includes features such as: valuable; rare (unique); inimitable (difficult to copy due to firm history,



Source. Brush, C.G., Green, P.G., Hart, M.M., & Haller, H.S. (2001). From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base. *The Academy of Management Executive, 15* (1), 64–78.

Figure 1. Resource Pyramid of Value Creation

social complexity, and ambiguity); immobile (firm specific); nonsubstitutable; durable (long lasting); low tradability; and organizational focus (corporate attention) (Amit & Schoemaker, 1993; Barney, 2002; Collis & Montgomery, 1995; Grant, 1991; Jugdev & Thomas, 2002a; Peteraf, 1993; Priem & Butler, 2001a).

In economic terms, value is measured through decreasing product/service costs or differentiating it to charge a premium price (Barney, 1998; Duncan, Ginter, & Swayne, 1998). Valuable resources are more worthy. A resource has value when it exploits opportunities and neutralizes threats in the environment (Barney, 1991). Common or generic resources are not sources of competitive advantage; at best, they are a source of competitive convergence.

However, rare resources can offer temporary competitive advantages and are sources of strength (Mata, Fuerst, & Barney, 1995). Rare resources are heterogeneously distributed between firms. If a resource is rare and a firm does not have it, the lack is perceived to be a weakness (Duncan, Ginter, & Swayne, 1998). Imperfectly mobile resources are "sticky" to the firm, meaning that they are not tradable as commodities and do not leave a company when people leave (Priem & Butler, 2001a). These resources are characterized as:

- **Nonsubstitutable**—Those resources for which other resources cannot fulfill the same function (Priem & Butler, 2001b);
- **Nontransferable**—Firm-specific resources that fall in value when they are transferred (Grant, 1991). This is a synonym for imperfectly mobile resources;
- **Embedded**—Engrained resources within the company's routines and processes in contrast to assets that are specific to individuals (Grant, 1991).

Isolating mechanisms are a blend of resource characteristics and managerial practices (Barney, 1989; Grant, 1991). They make some resources more firm specific and less mobile. Some examples include copyrights, patents, trademark laws, invisible assets (the features or organizational practices that one takes for granted and are the unspoken or tacit attributes), and small decisions such as the micro steps involved in quality improvement practices (Collis, 1994; Grant, 1991; Itami & Roehl, 1987). Strategic assets incorporate isolating mechanisms as:

- **Inimitable**—Resources are difficult to copy, and firms may undertake practices to keep competitors from mimicking them. If resources can be copied, a firm stands to only achieve competitive parity through resource value and rarity (Collis & Montgomery, 1995);
- **Path Dependency**—History matters. A firm may develop or acquire resources in low-cost ways by being, for example, in the right place at the right time. It becomes expensive for rival firms to recreate the conditions as they developed over time (Mata, Fuerst, & Barney, 1995). Because the paths companies take are unique, firms have idiosyncratic assets (Barney, 1991).
- **Socially Complex**—Resources are the result of the interrelationships between skills and assets. Social complexity can refer to a firm's culture, relationships, and reputation. These attributes are related to a firm's history and cannot be acquired quickly or changed rapidly. They can provide firms with temporary advantages from low-cost imitators. "In complex, highly interdependent human and technological situations, the causes of success and failure are often difficult to assign" (Reed & DeFillippi, 1990, p. 12).
- **Causally Ambiguous**—Resources that competitors may not fully understand to be able to copy them. It is costly and time

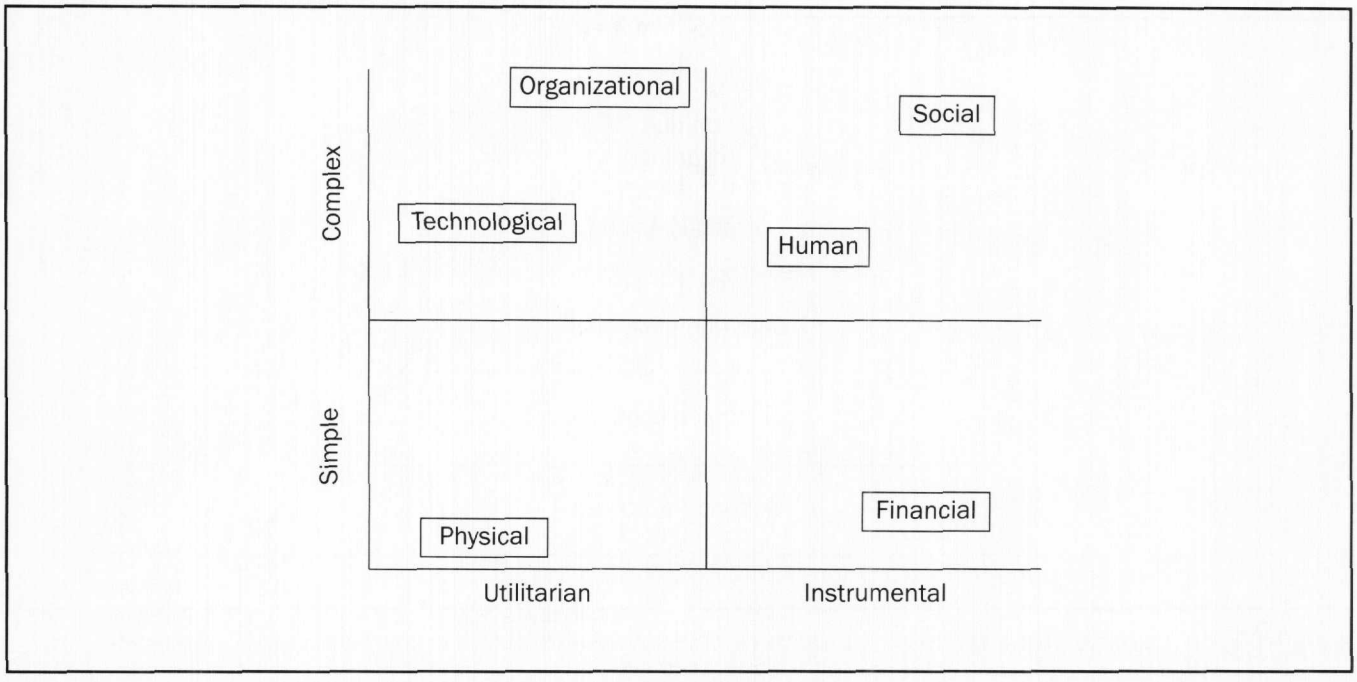


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Figure 2. Resource Development Pathway

consuming for rival firms to figure out the sources of the advantage or what makes some resources strategic.

Last, the *organizational focus* aspect of strategic assets is least developed in the RBV literature. It refers to the breadth of managerial commitment and support.

These terms reflect the complexity within the perspective. Several RBV frameworks draw on the concepts and reflect the features of strategic assets.

RBV Frameworks

Because the RBV is an evolving perspective, a unified model on the concepts and processes of strategic assets is not in place. However, a number of frameworks have been proposed in the literature, and they have merit for project management. Of the four frameworks discussed, the first two are classified as frameworks on type, complexity, and use of organizational assets, and the latter two reflect competitive advantage pathways.

Brush developed two RBV frameworks: the Resource Pyramid of Value Creation and the Resource Development Pathway (Brush, Greene, Hart, & Haller, 2001).

Resource Pyramid of Value Creation. In the pyramid (Figure 1), generic resources (supplies and materials) are at the base and often are easy to identify and access. Once combined with other resources, generic ones become capabilities that enhance a firm's ability to deploy resources. Capabilities are combinations of proprietary resources, knowledge, and skills that become institutionalized into operating routines and tacit knowledge.

Beyond this, collections of specialized core competencies that allow a firm to outperform rivals combine into strategic assets. The unique advantages for the firm occur when these assets are valuable, rare, inimitable, and nonsubstitutable (Brush, Greene, Hart, & Haller, 2001). Not all RBV sources distinguish between core competences and strategic assets as Brush does. Many sources treat these terms as synonyms.

The pyramid indicates that companies have many resources but few strategic assets. It is a simple, two-dimensional portrayal of resources that helps us begin to think of MMs in the RBV context as well as where they may fit in the hierarchy.

MMs focus on the know-what within the firm. They capture project management competences in the form of documents and procedures. MM competences consist of generic resources, capabilities, and possibly some core competences. The generic resources include technology, supplies, and materials necessary to plan and execute on the methodology. These resources could be the hardware, software, communication technology, manuals, templates, and so forth. The capabilities refer to the individual, team, and organizational abilities supporting project management. Some examples include individual knowledge and experience, effective teamwork, good communication routines, and organizational support for project management methods.

Most MMs typically capture explicit knowledge as documented in the five levels. They do not capture the intangible assets. MMs do not appear to fit at the apex of the pyramid where unique advantages or strategic assets are found.

Resource Development Pathway. Another framework by Brush addresses resource complexity and use (Figure 2). It groups resources into six categories based on function (Brush, Greene, Hart, & Haller, 2001). The two axes map a company's

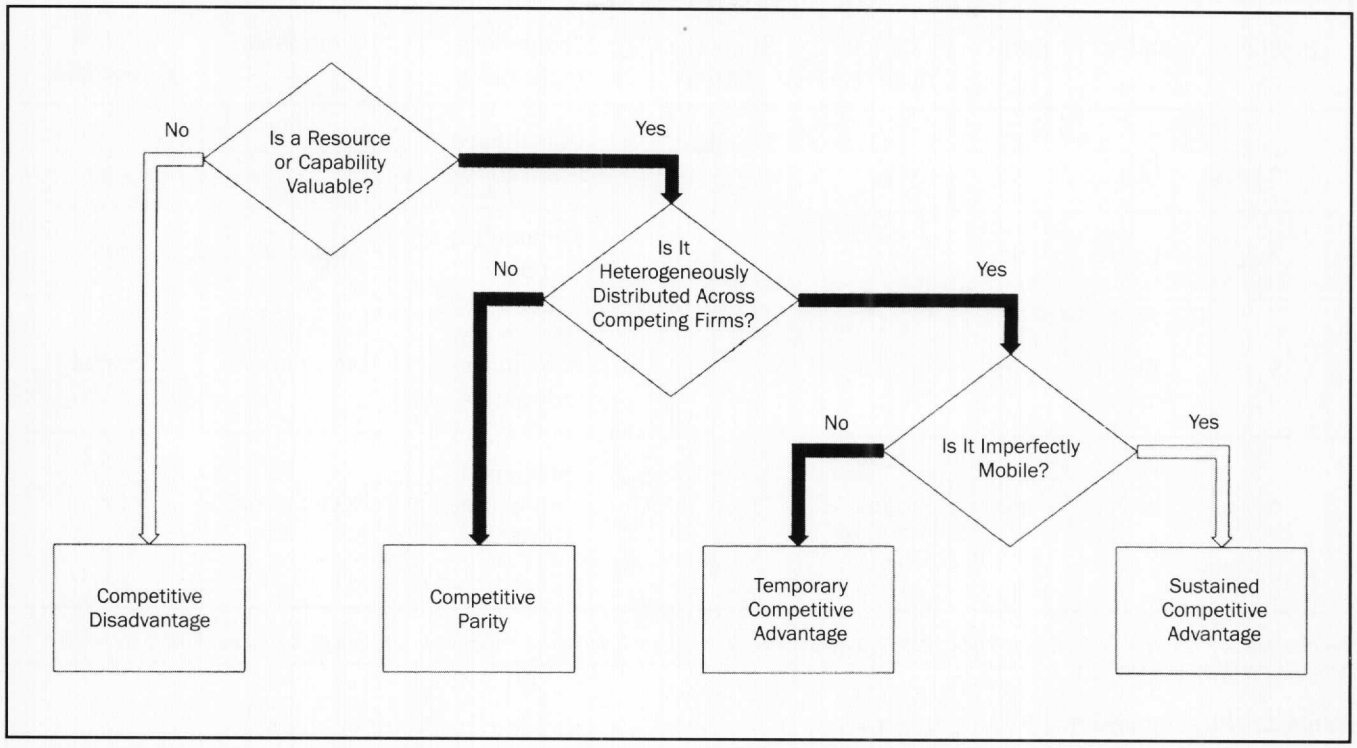

Figure 3. Mata's Resource-Based Model of Competitive Advantage

resource development pathway. Simple resources are tangible, discrete, and property based. Complex ones are intangible, systemic, and knowledge based.

Within the framework, resources are characterized by their application to the productive process (utilitarian to instrumental). A firm applies utilitarian resources directly to the productive process or combines them to develop other resources. For example, machinery is a physical, utilitarian resource because it produces services or products. However, financial resources are instrumental as they provide access to other resources. They also are flexible resources because they are needed to purchase other resources. Proprietary technology is either instrumental or utilitarian depending on if it resides within a person (intangible), in which case it is instrumental, or it is a patented process applied directly to a production process, in which case it is utilitarian (Brush, Greene, Hart, & Haller, 2001).

The matrix portrays complex-instrumental resources as most intricate. These resources include the human, social, and organizational resources. Human resources are complex and intangible because they are harder to identify and measure (Brush, Greene, Hart, & Haller, 2001). Complex resources and knowledge assets are not like normal tradable commodities that firms exchange on the market (Priem & Butler, 2001a; Wernerfelt, 1984). In general, the characteristics are engrained within the firm's learning routines making them harder for competitors to duplicate. Such resources are embedded within the firm.

The resource development pathway is a more complex representation than the pyramid of value creation. It also can be used to map a firm's resources over time and compare firms in terms of their pathways as well. With respect to MMs, a firm's project management resources may fit the simple-utilitarian or complex-utilitarian quadrants. MMs involve explicit codified documents that describe competences. MMs are as utilitarian because, unlike financial resources, they do not provide access to other resources. Instead, their use is straightforward and geared toward improved project management processes and practices.

MM assets are tangible because they are in the form of documents, surveys, guidelines, templates, or manuals. Although MMs may assess a department's or firm's skills (competence) within certain project management knowledge areas, the assessments are based on documented practices. Moving to the next level within a MM often depends on having more extensive documentation, project management procedures, or codified processes in place. Moving to the next level does not take organizational know-how into account.

In contrast, strategic assets typically fit the complex-instrumental quadrant. Complex-instrumental resources are those that often are more intricate and connote dynamism and regeneration. These involve human, social, and organizational resources. An excerpt from a MM instrument describes the competences at MM5:

> "Level 5: Optimizing Process. Processes are in place and actively used to improve project management activities. Lessons learned are regularly examined and used to improve project management processes, standards, and documentation.

Question	Valuable?	Rare?	Difficult to imitate?	Supported by firm	Competitive implications	Performance	MM assessment
1	No	—	—		Competitive disadvantage	Below normal	—
2	Yes	No	—		Competitive parity	Normal	Yes
3	Yes	Yes	No		Temporary competitive advantage	Above normal	Yes/No
4	Yes	Yes	Yes		Sustained competitive advantage	Above normal	No

Source. Mata, F.J., Fuerst, W.L., & Barney, J.B. (1995). Information technology and sustained competitive advantage: A resource-based analysis. *MIS Quarterly, 19* (4), 487–507.

Table 1. VRIO Framework

> Management and the organization are not only focused on effectively managing projects but also on continuous improvement. The metrics collected during project execution are used to understand the performance of not only a project but also for making organizational management decisions for the future" (Pennypacker, 2001, p. 3).

The excerpt reflects consistent practices, incremental improvements, and some managerial support but lacks a clear explanation of how practices are dynamic or regenerational. In particular, it does not address project management know-how. The Brush matrix underscores a key limitation of MMs in that they cover the know-what of project management but not the know-how. If the MMs covered both kinds of knowledge, they could fit the complex-instrumental quadrant.

Unlike the two Brush frameworks, the next two frameworks move beyond classifying resources by type, complexity, and use. They assess the extent to which resources lead to a competitive advantage. Both are variations of Barney's framework for a strategic asset that is called the VRIO model—valuable, rare, inimitable, and organizationally focused (Barney, 2002).

Resource-Based Model of Competitive Advantage. Mata's framework evaluates assets using three key RBV features: value, heterogeneity, and immobility (Mata, Fuerst, & Barney, 1995). It is a decision flow chart (Figure 3).

In assessing MMs according to Mata's model, the first question asks if the resources are valuable. MMs are valuable and have worth. In part, their worth is evident when companies purchase and conduct maturity assessments, pay the consultant fees, software licensing fees, and provide staff training. The contribution of MMs is evident through some efficiency and financial metrics indicating that firms with higher MM scores perform better and achieve more savings that those with lower MM scores (Ibbs & Kwak, 1998; Ibbs & Kwak, 2000).

The second question of the framework asks if the resource is heterogeneously distributed among competing firms. Heterogeneous resources connote rarity as not all firms have the same assets. Although MMs can be considered heterogeneously distributed because not all firms use them, they are widely available to all firms, and it could be argued that they lead to competitive parity.

The third and final question queries if the resource is imperfectly mobile. Recall that imperfectly mobile resources are characterized as being nonsubstitutable, nontransferable, and embedded. Going on the assumption that MMs are heterogeneously distributed between firms, an assessment of them at this step of the flow chart leads to the decision that they are mobile and lead to a temporary competitive advantage but not a sustained competitive advantage.

MMs are designed to be implemented in a variety of organizations. They involve codified knowledge that makes them transferable between firms. The knowledge staff gains from using the models is readily transferable to other firms. MMs are substitutable as there are a number of such products on the market that all serve very similar functions. MMs also are not embedded within firms as they can leave a company with staff turnover.

Although MMs have merit, according to the Mata framework, they appear to result in a temporary competitive advantage for some firms and competitive parity for most. According to this flowchart, MMs do not lead to sustained competitive advantages as purported in the literature (Association of Project Management, 2000; Australian Institute

of Project Management, 2000; Hartman & Skulmoski, 1998; International Project Management Association, 2000; Lambertson, 2001; LSM-International, 2001; Pennypacker, 2001; Schlichter, 1999).

This leads to the fourth and final assessment of MMs according to the RBV criteria of being valuable, rare, inimitable, and organizationally focused (Barney, 1998).

VRIO Framework of Competitive Advantage. Table 1 portrays Barney's criteria and indicates that meeting them leads to various competitive implications. The last column reflects an assessment of MMs according to the questions identified by number in the first column.

Thus far, this paper described MMs as being valuable, so MMs, at a minimum, lead to competitive parity (question 2). But, are MMs rare (question 3)? Yes and no. Recall that MMs are widely available. They consistently mirror the software capability maturity model and follow a linear five-stage approach. Many consulting firms and professional associations offer MMs or are in the process of developing them. However, it could be argued that MMs are somewhat rare as not all companies use them. It doesn't take long for rivals to mimic documented practices or institute project management procedures for staff to follow. Assessing MMs according to this framework classifies them as offering a competitive advantage.

Are MMs difficult to imitate? MMs are relatively straightforward, are not in short supply, and are products that can be purchased (Association of Project Management, 2000; Australian Institute of Project Management, 2000; Hartman & Skulmoski, 1998; International Project Management Association, 2000; Lambertson, 2001; LSM-International, 2001; Pennypacker, 2001; Schlichter, 1999).

The lack of protective mechanisms underscores that MMs do not offer an enigmatic ambiguity protecting them from competing firms. In fact, the ability to imitate is a feature that MM vendors highlight when they state that their models were created from best practice databases. Because MMs have been in existence for about 10 years, they have not been used long enough to offer the causal ambiguity and social complexity advantages that path dependency (history) offers. MMs are known for their concrete nature and codifiable knowledge. The degree of tact is not a feature expounded on in the literature. MMs also face a substitution threat as customers have choices and can selectively pick the one they want. According to the Barney framework, MMs are not difficult to imitate and do not lead to a sustained competitive advantage.

To summarize, similar to the Mata framework, Barney's VRIO framework places MMs as leading to a temporary competitive advantage for some firms and competitive parity for most. Further support for this statement comes from other characteristics of strategic assets with respect to isolating or protective mechanisms and the characteristics of inimitability, history, social complexity, and causal ambiguity.

MMs are not firm specific and can be duplicated. They are not idiosyncratic assets. Because MMs involve little path dependency, they are not causally ambiguous. Competitors do understand the resource characteristics that contribute to the advantage and are able to replicate them. Because MMs are tradable, they lack some of the durability characteristics. As the rents from MMs are not long lasting, the advantage is not sustained or durable.

Concluding Comments

Strategic assets offer long-term competitive advantages and underpin a firm's cost advantage (Markides & Williamson, 1994). Based on the aforementioned overview of MMs and assessment with the four RBV frameworks, MMs meet some strategic asset features, but do not fit the profile in all areas. MMs are a component of project management but not a holistic representation of the discipline.

This paper indicates that if firms focus mainly on explicit project management knowledge elements such as those measured by MMs, they may achieve competitive parity but miss out on capitalizing on their intangible assets. Project management is a complex asset. However, we currently lack instruments with which to assess the tangible and intangible assets that comprise project management.

Although there are no silver bullets, there are silver linings. Understanding, developing, and sustaining strategic assets is key to long-term survival and growth (Porter, 1991). The authors' intent in writing this paper was to promote dialog on project management as a strategic asset by assessing MMs and their merits toward a competitive advantage. The authors welcome further discussion on the topic, as it is fosters learning and theory building.

Contributions and Directions for Future Research

Practical areas for future research are well under way with studies quantifying the value of project management (Ibbs & Kwak, 1997; Ibbs & Kwak, 2000). This paper makes a practical contribution to the field as it discusses the strengths and some of the weaknesses of MMs.

A research area for further study could examine the connection between successful projects and corporate strategy. This year, PMI funded a research project entitled "Investigation of the achievement of corporate strategy through successful projects." The research project can be found at http://www.pmi.org.research/externalprojects.htm. An area for future research relates to the study of social complexity within organizations in terms of culture and its influence on project management.

To gain the interest and commitment of senior executives, we must show project management to contribute to shareholder value and a sustainable competitive advantage. A recent study sponsored by PMI on the challenges of promoting the value of project management to executives confirms that many executives view project management as having worth at the operational and tactical rather than strategic level (Thomas, Delisle, & Jugdev, 2002). Senior executives are unlikely to view project management as a strategic imperative as long as the primary criteria used to judge project success fall within the operational realm.

The authors currently are analyzing data from four international companies exploring their use of project management as

a strategic asset. The authors based the study on the RBV and used a MM instrument to corroborate findings. The results should be available in 2003 and include a model depicting the paths firms take in developing and sustaining project management as a strategic asset. The study also assesses firms using a RBV framework the authors developed based on strategic asset characteristics and management practices. It is called the VRIO-LDN framework, and it represents the following features: valuable, rare, inimitable, organizational focus, low-tradable, durable, and nonsubstitutable. Future research using the wealth of qualitative data on the know-how within these four companies will allow project managers to develop additional instruments with which to assess intangible assets in project management to complement MMs.

From a theoretical perspective, the authors' aim in this paper was to convey the complexities of the RBV and relate it to project management. An area for further theoretical work could focus on a RBV taxonomy. This also would have practical implications as it could enable firms to assess their assets within such a categorization scheme.

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