

# Organizational Capital

## A CEO's Guide to Measuring and Managing Enterprise Intangibles

Baruch Lev  
Suresh Radhakrishnan  
Peter C. Evans



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# A CEO's Guide to Measuring and Managing Enterprise Intangibles

## Executive Summary

# ORGANIZATIONAL CAPITAL

Organizational capital is an important resource (asset) at both the micro (firm) and macro (economy-wide) levels. It is arguably, the most important, value-contributing asset companies have — an asset that cannot be easily imitated by competitors, and therefore conferring sustained competitive advantage on its owners. Organizational capital enables tangible and intangible resources, such as machines, patents, brands and human capital, to be productive. As such, organizational capital is the prime intangible asset of businesses.

As the following report shows, there are multiple approaches to the definition of organizational capital, to claims of where it resides (in employees, values and norms, enterprise knowledge, process and structure, etc.), and to the quantification (measurement) of organizational capital (input, output, survey). There does not seem to be a convergence in the literature about these issues. But on one question there is broad agreement among economists and management theorists: Organizational capital is very consequential. Its contribution to measured benefits, at both the macro and micro (firm) levels, is very substantial.

The takeaway for CEOs and corporate managers from all of this is that organizational capital can be measured at a holistic level. It is of great importance to manage this capital in order for companies to enhance their productivity and long-term competitive advantage, as well as avoid pitfalls, i.e., downside risks associated with disruptive technologies and compliance. A comprehensive measure of organizational capital will also enable companies to inform investors and outside stakeholders to understand the value-drivers of the enterprise. Executives and board members need to make investments in organizational capital to ensure productive operations as well as adapt to new ways of doing business.

But how can this be done? Regrettably, there are no useful guidelines for managers of how exactly organizational capital is created, preserved and used to enhance the enterprise profitability, growth and achievement of sustained competitive advantage. The organizational capital literature is in a stage akin to telling managers that R&D is important, but stopping short of how to conduct successful R&D. Since what is not measured cannot be managed, it follows that a measure of organizational capital is needed for executives and board members, which will help them plan and monitor the progress of this important intangible asset.

This survey of the research on organizational capital, detailed below, leads us to the conclusion that greater attention should be directed towards unlocking the secret of how to successfully manage this important resource. We recommend to start with an output-based approach to measuring company-specific organizational capital and proceed with identifying the drivers of systematic differences in firms' organizational capital. Identifying such organizational capital-drivers will provide the foundation for the development of ways to manage organizational capital. Organizational capital is dynamic, and investments to create, monitor and foster it need to evolve and change to maintain competitiveness in a rapidly changing business landscape.

Organizational capital enables tangible and intangible resources, such as machines, patents, brands and human capital to be productive. As such, organizational capital is the prime intangible asset of businesses.	Enterprise resources, such as equipment, labor, patents, etc. are inert by themselves.	Organizational capital is the means through which the CEO and his or her management team makes them productive. It is comprised of	four elements: <ol style="list-style-type: none"><li>1. Human capital</li><li>2. Values &amp; norms</li><li>3. Knowledge &amp; expertise</li><li>4. Business processes &amp; practices</li></ol>
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# 1. TAKING STOCK

Why do some companies systematically outperform their competitors and maintain their leadership positions for long periods of time — some over multiple decades — despite persistent competition and changing business landscape? The answer is organizational capital — a critical part of an enterprise, which every executive should understand how to effectively measure and manage. Organizational capital enables tangible and intangible resources, such as machines, patents, brands and human capital to be productive. Organizational capital provides the basis for inert resources such as plant and equipment to be combined with intangible assets such as patents, brands and information technology (IT) systems and make them collectively productive.

In common parlance, organizational capital is the business processes and practices that result from the following drivers: human capital, values and norms, and tacit knowledge. Examples of business processes and practices that enable firms to excel include IBM's extensive system of selling or licensing knowhow; Zara's process of transmitting real time customers' choices to its suppliers worldwide; Amazon's customer

recommendation system — “item-to-item collaborative filtering” algorithm — that customizes the experience of customer; Netflix's algorithms that help the experience of the user choose their movies and TV shows; and Macy's algorithmic technology that integrates online and in-store intelligence. A common thread among these business processes and practices is that they are not easily mimicked by competitors — such processes and systems form part of organization capital.

Despite its essential role, organizational capital, like other intangibles, is not captured in traditional accounting metrics. As a consequence, executives are often in a quandary about what aspects of organizational capital are important, how much to invest in the various elements that make-up organizational capital, and how to communicate initiatives aimed at strengthening organizational capital to internal and external stakeholders. Since what is not measured cannot be managed, it follows that a measure of organizational capital is needed for executives and board members, which will help them plan and monitor the progress of this important intangible asset.

## TAKING STOCK (continued)

Inadequate attention to measuring and managing organizational capital can have serious ramifications in the ever-changing, dynamic business landscape. Executives and board members need to make investments in organizational capital to ensure productive operations as well as adapt to new ways of doing business. Large, complex organizations that operate in multiple jurisdictions around the world require constant attention to optimize their business processes and practices, i.e., organizational capital.

The ubiquitously available information technology and an increasingly connected society has disrupted traditional business models and opened up opportunities for new ways of doing business. As such, there is an increasing need to consider business processes and practices in the context of disruptive technologies. How does organizational capital enable existing companies to protect their business models from these disruptive technologies? Additionally, new companies that base their business models on such disruptive technologies have emerged in recent years. For example, platform companies such as Uber and Airbnb facilitate value creation by scaling global digital platforms that connect and match demand with supply. These digitally enabled, asset-light companies pose interesting management challenges. How should Uber and Airbnb build their organizational capital — processes and practices — so as to enable assets that are not owned by them (drivers, cars) to be productive? Should it be the same way that traditional businesses are organized or should it be different? Clearly such companies are entirely based on organizational capital. The bottom line is that organizational capital is dynamic, and investments to create, monitor and foster it, need to evolve and change with the changing ways of doing business.



Analysis of publicly listed companies in the U.S.A. indicate that intangible investments are gaining in importance. Figures 1A, 1B and 1C decompose the stock market value of assets, computed as the market value of equity plus the book value of debt, for all publicly listed companies, the Standard and Poors (S&P) 500 companies and the Dow Jones Industrial companies, respectively, based on the data drawn from Compustat. The top, light grey shaded area represents the value of assets that is not captured or adequately explained by the traditional investments in both tangible and intangible assets — much of it representing organizational capital. This unexplained portion of total value was roughly 20%, 35% and 40%, respectively, until the mid-1980s and increased to 55%, 65% and 70%, respectively, up to 2013. Thus, the unexplained portion of corporate value is increasing and is much larger than the tangible and the intangible investments reported on corporate balance sheets put together in recent years.

### COMPOSITION OF MARKET VALUE OF ASSETS ALL PUBLIC COMPANIES

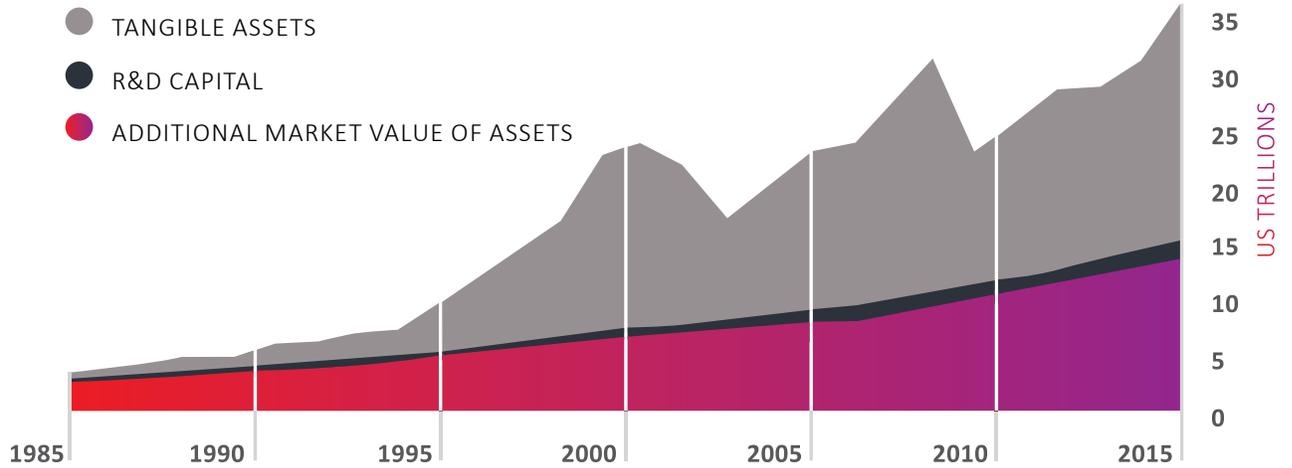


FIGURE 1A

### COMPOSITION OF MARKET VALUE OF ASSETS S&P 500

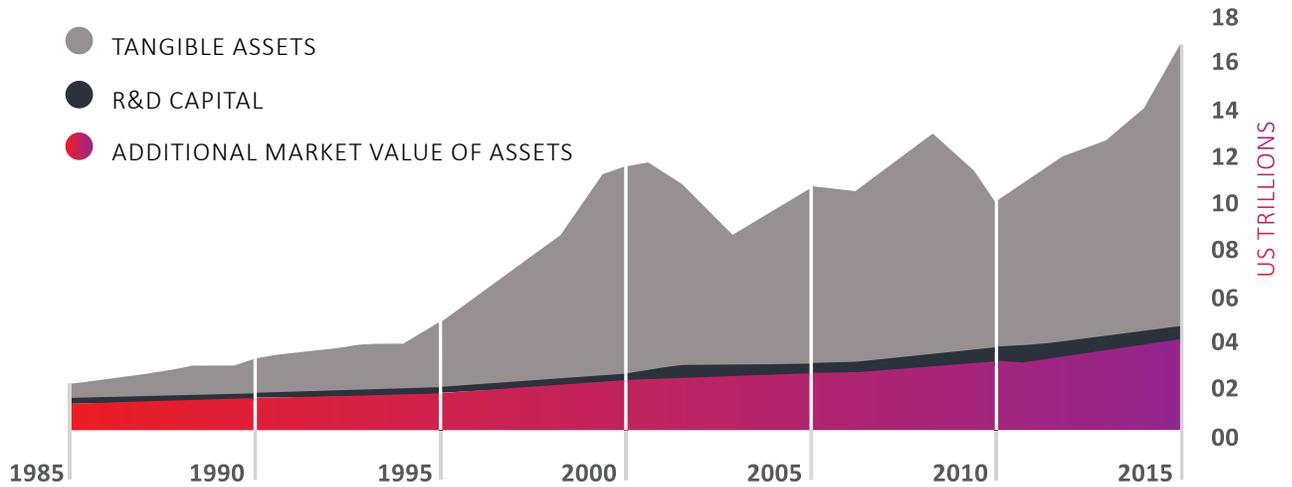


FIGURE 1B

### COMPOSITION OF MARKET VALUE OF ASSETS DOW JONES INDUSTRIALS

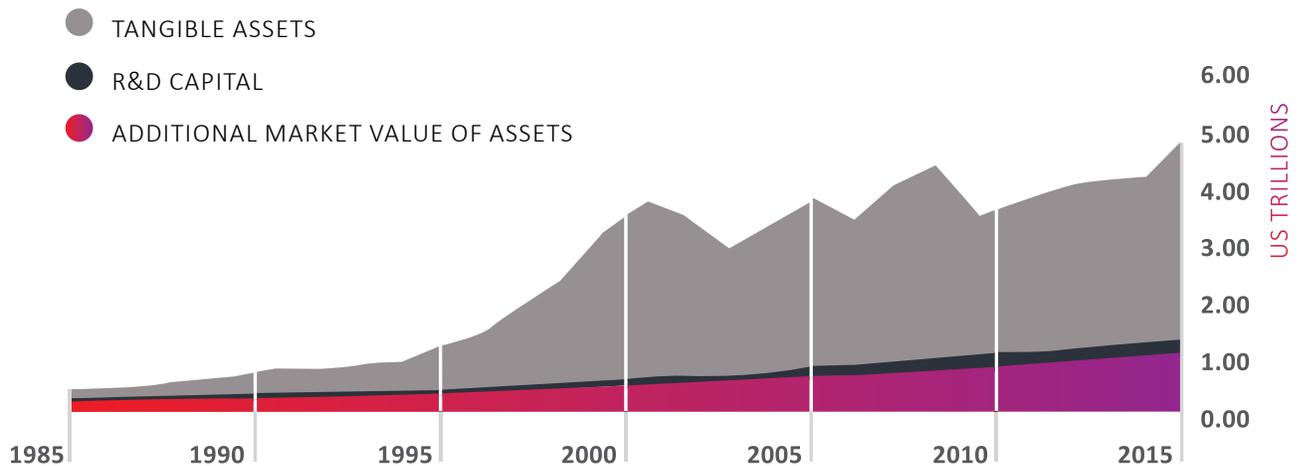
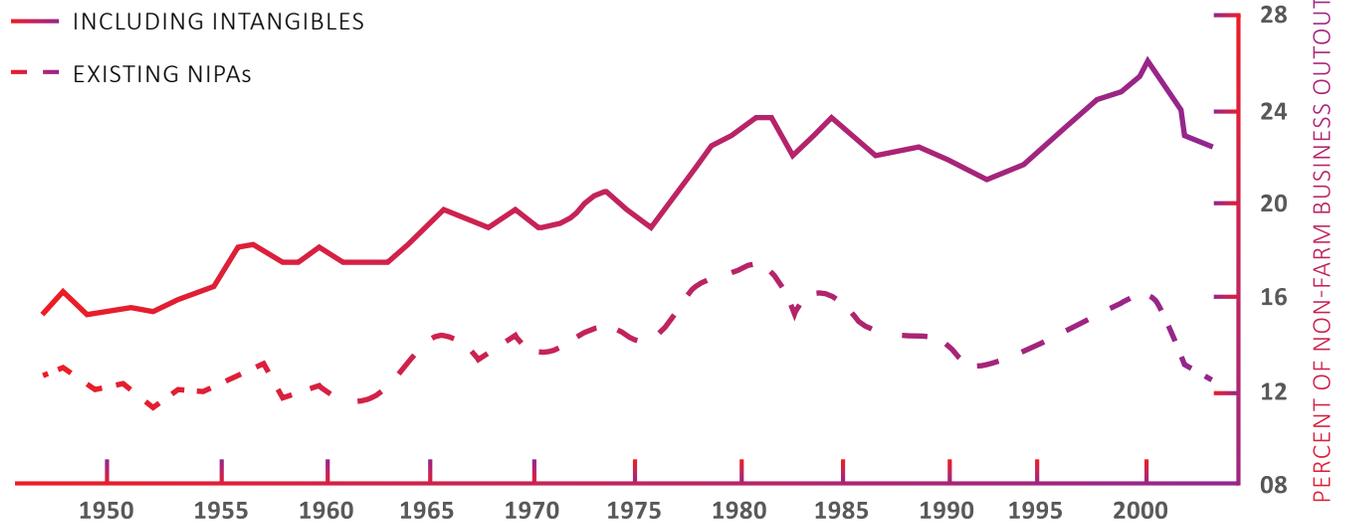


FIGURE 1C

## INVESTMENT SHARES IN THE U.S.A.

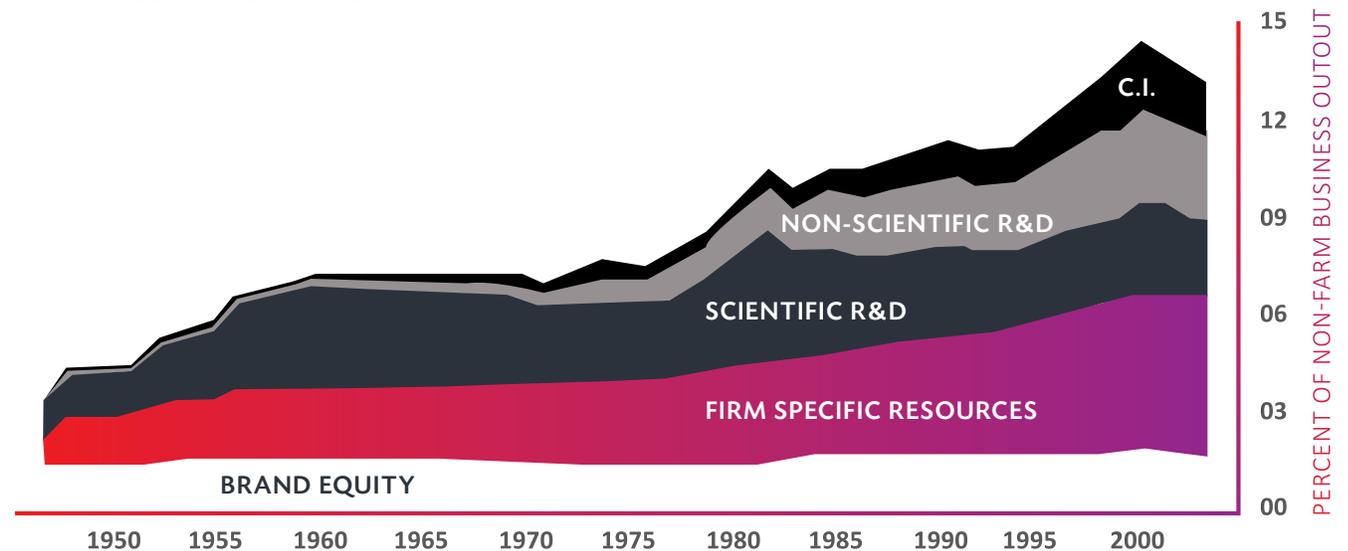


SOURCE: Corrado, Hulten and Sichel (2009); NIPA is the U.S. National Income Product Accounts

**FIGURE 2A**

**INVESTMENT SHARES** Macro-economic level analysis also indicate that intangibles have been growing at a rate of roughly 10% per year since 1980. Figures 2A provides the total investment in the U.S. as a share of non-farm business output, and shows that intangibles have accounted for all the increase in output.

## INTANGIBLE SHARES IN THE U.S.A.



SOURCE: Corrado, Hulten and Sichel (2009); C.I. denotes Computers and Information Technology

**FIGURE 2B**

**INTANGIBLE SHARES** decomposes the intangible investments into various components and shows that the increase in intangible investments is attributable to company-specific resources (mostly organizational capital), non-scientific R&D and computer software.

Collectively, the analyses of publicly listed companies and U.S. macro-economic data show that investments in intangible assets have become more influential over the years. More importantly, Figure 1 shows that the

## The analysis of publicly listed companies and U.S. macro-economic data show that investments in intangible assets have become more influential over the years.

unexplained portion of asset values, largely organizational capital, is fast increasing over time. In summary, organizational capital is becoming more important in the global and dynamic business landscape. It therefore is in the interest of executives to learn more about how this important asset can be better measured and managed.

### Why Measure Organizational Capital?

Measuring organizational capital is important to CEOs for a wide range of strategic decisions relating to internal operations, investor engagement, and M&A and alliances.

#### Operations:

- Managers need to track the size and growth of organizational capital—the major source for competitive advantage—and benchmark it against the past (is our organizational capital deteriorating?) and against rivals.

- Managers will have a dashboard to guide them to enhance enterprise outcomes such as profitability, productivity and long-term competitive advantage.
- Managers can monitor organizational capital to avoid pitfalls such as inadequate attention to safety (British Petroleum), financial misstatements (Enron, Worldcom) and lax compliance.

#### Investors

- Valuing organizational capital will enable managers to assess the return on investments in creating and enhancing this resource, such as information technology (IT) and brand enhancement. Specifically, relating IT expenditures or brand enhancement outlays to changes in organizational capital will indicate the returns on these important investments and guide overall resource allocation (invest less or more in IT?).
- Investors will similarly be eager to incorporate the value of organizational capital in their corporate valuation models.

#### M&A and Alliances

- In merger and acquisition cases, the value of organizational capital should play a prominent role since such capital is predominately tacit and difficult to transfer across firms, and hence should be of major concern to acquiring firms.
- In developing alliances and joint ventures, organizational capital will help choose appropriate partners, as well as assist in the transfer of the tacit knowledge embedded with the partners.

# How Can Organizational Capital Be Measured?

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**“Not everything that can be counted counts, and not everything that counts can be counted.”**

– Albert Einstein

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Even though organizational capital is essential to the operation and competitive positioning of an enterprise it is challenging to measure. Accountants generally adopt the approach of measuring the outlays or inputs as investments. For example, for tangible assets such as property, plant and equipment the measurement is based on the inputs, i.e., the amounts expended that leads to the formation of the asset. Accounting theory and frameworks are oblivious to the existence of organizational capital, possibly because identifying the inputs to the formation of organizational capital is challenging, lending credibility to Einstein’s quote. Despite the challenge, attempts have been made to develop measures of organizational capital at the macroeconomic level and the company-specific level using the input-based and extra-output based methods. These measures have been validated in different global contexts and settings. The road ahead is to make the measure more meaningful to enable managers unleash the potential of organizational capital.

## The Road Ahead for Measuring Organizational Capital

While developing a comprehensive measure of organizational capital is important it is a first step. It is equally important to understand the elements that make up organizational capital, which build the links between business processes and systems (business models) to the creation and continuous cultivation of organizational capital. Once we have a comprehensive measure of organizational capital, we need to look inside and across enterprises to understand what drives the measure — not only in terms of outlays and expenditures, but also the qualitative aspects, such as adaptability to changing environments and disruptive technologies. This will help guide managers to make optimal decisions with respect to building and sustaining organizational capital. Preliminary to all this, is collecting the disparate knowledge and research on organizational capital. Hence, the current survey.

## Layout of This Survey

This survey of the state of knowledge regarding organizational capital proceeds as follows:

- » Tracing scholarly research — evolution of thoughts — on organizational capital;
- » Outlining measures of organizational capital that have been developed;
- » Summarizing the evidence on the relationship of organizational capital to performance and risk; and
- » Providing a framework and a roadmap for future research on organizational capital.

## 2. BUILDING BLOCKS AND SCHOLARSHIP

Organizational capital consists of the business processes and practices that comprises four elements — human capital, values & norms, knowledge & expertise and processes & practices as depicted in Figure 3. With varying degrees of emphasis scholars focus on these three non-mutually exclusive elements of organizational capital that result in the set of business processes and practices.

### Human Capital

Prescott and Visscher (1980) were the first to use the term organizational capital in the economics literature. They view the enterprise as an agglomeration of employees and consider the information that resides in the company about their employees as organizational capital. In particular, they consider enterprises having information on employees' abilities which helps them to match employees to jobs, match employees to work teams and enhance human capital through on-the-job training — all of this information collectively is considered organizational capital. It is part and parcel of enabling what the business historian Alfred Chandler called the “visible hand” of management.

Many subsequent studies consider organizational capital as a resource that emanates and resides in the employees, as this human capital helps to increase the productivity of the company. Eisfeldt and Papanikolau (2013) consider organizational capital as a production



KEY ELEMENTS OF ORGANIZATIONAL CAPITAL  
FIGURE 3

factor that is embodied in the company's key talent. They do not elaborate on the ways in which the key talent is identified or formed. Van Rens's (2004) notion of organizational capital stems from employees performing activities that enhance the enterprise's future production. Carlin, Chowdhry and Garmaise (2012) see organizational capital as tacit knowledge that employees at lower levels of hierarchy who later occupy higher-level positions develop and learn. Black and Lynch (2005) elaborate on Prescott and Visscher's (1980) definition and consider organizational capital as arising from three sources: workforce training,

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employee voice and work design.

## Values and Norms

Tomer (1998) considers organizational capital as the fit between the enterprises' values and norms with that of the employees, and the commitment to continue with and adhere to the values and norms. Ludewig and Sadowski (2009) define organizational capital as "If an enterprise succeeds in giving itself an order, including an amount of rules to share information, settle conflicts, secure the willingness to cooperate, then we can call this order with good reason organizational capital." Jovanovic and Rousseau (2001) perceive organizational capital as including the founder's vision, values, commitment to values and intangible (i.e., intellectual assets such as patents or trade secret) and physical assets. These imprints are likely to be persistent because the founder picks his/her successors. Hsu (2007) extends Jovanovic and Rousseau's (2001) perception with the notion that some founders and especially serial entrepreneurs demonstrate their ability to successfully take a product concept and create an organization by developing business processes and systems.

## Knowledge and Expertise

Atkeson and Kehoe (2005) define organizational capital as the accumulation of organization specific knowledge. A new organization will have the state-of-the-art technology but no organizational capital; and as organizations age they may become laggards in technology but have built up organizational capital. Carmona-Lavado, Cuevas-Rodriguez and Cabello-Medina (2010) consider organizational capital as a component of intellectual

capital and distinct from human and social capital. Organizational capital is the codified knowledge, i.e., knowledge generated within the company through formal processes of knowledge integration, which then can be used by any other employee in the organization — examples are, marketing measurement systems that transform the salesperson's experience into useful managerial information. Similarly, Wright, Dunford and Snell (2001) and Youndt, Subramaniam and Snell (2004) define organizational capital as knowledge institutionalized within organization processes and databases, documents, patents and manuals that organizations use to store and retain knowledge. Organizational capital is organizational memory and represents a way of sharing interpretations within the company, which goes beyond the individual level and preserves the knowledge of the company's history, even when key individuals leave it.

## Business Processes and Practices

Evenson and Westphal (1995) define organizational capital as "... the knowledge used to combine human skills and physical capital into systems for producing and delivering want-satisfying products." This definition is broad in that it encompasses codified and tacit knowledge that is required to convert resources into value-enhancing products or services.

Teece, Pisano and Shuen (1997) introduce the resource-based view to organizational capital by emphasizing the company's capabilities in terms of the organizational structure and managerial processes that underpin productive activity. Furthermore, in a dynamic context of creative

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destruction, the importance of organizational structure and managerial knowledge goes beyond ensuring an efficient combination of inputs into successful products to determining a company's ability to react and adapt to changing business environments. A company's dynamic capabilities and its ability to reconfigure its production to enter new markets and to upgrade its activity in global value-chains is key to long-term survival and rests on superior management qualities and flexible organizational structures. Martin-de-Castro, Navas-Lopez, Lopez-Saez and Alama-Salazar (2006) provide a framework that integrates the resource-based view with organization structures and asset management. Lev (2001) considers organizational capital as the unique structural and organizational designs and business processes that help generate competitive advantage. He considers organizational capital as a distinct intangible asset — other intangible assets are discovery/learning intangibles, customer-related intangibles and human-resource intangibles.

CIC (2003) defines organizational capital as “the combination of explicit and implicit, formal and informal knowledge which in an effective and efficient way to structure and develop the organizational activity of the company, that includes culture — implicit and informal knowledge; structure — explicit and formal knowledge; and organizational learning — implicit and explicit, formal and informal renewal knowledge processes.”

Lounsbury and Ventresca (2002) and Agterberg, Van den Hoof, Huysman and Soekijad (2010) emphasize the social network of employees as organizational capital. Gulati (1998, 1999) extend the notion of organizational capital to social network with external stakeholders such as suppliers and customers, joint ventures and inter-company alliances. In particular, the operational challenges faced by global companies make it important to incorporate the interaction of a company's internal and external networks and combine local networks with transnational culture and practices.

Lev and Radhakrishnan (2005) extend Evenson and Westphal's (1995) definition by considering organizational capital as the agglomeration of technologies and managerial practices that enable some companies to efficiently extract from a given level of physical and human resources a higher output than other companies. Both Lev and Radhakrishnan (2005) and Evenson and Westphal (1995) consider organizational capital as an enabler that helps convert tangible resources — physical and human — into output. In this view the tangible resources are inert, and unless interacted with organizational capital they do not provide value by themselves. While Evenson and Westphal (1995) couch their enabling feature in terms of knowledge, Lev and Radhakrishnan suggest a myriad of processes and practices that are considered to be cutting-edge management practices. CIC (2003) alludes to this enabling notion by incorporating knowledge, structure, culture and learning.

## Key Takeaways

To summarize, organizational capital is a multi-faceted concept and encompasses the following traits:

- a. Organizational capital is the information/knowledge embodied in employees. As such, business practices that facilitate/enhance the knowledge embodied in employees, such as employee training, empowerment and job design will enable companies to utilize resources more efficiently, and garner a competitive advantage.
- b. Organizational capital is the companies' values and norms that enable companies to utilize the physical resources more efficiently and help create and sustain competitive advantage.
- c. Organizational capital is the company-specific codified and tacit knowledge that enables companies to combine resources to generate output.

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d. Organizational capital is embodied in the set of unique business processes and practices that enable some companies to combine resources more efficiently than others to generate output. In a dynamic business environment — with constant changes due to disruptive technologies in terms of ways of doing business — organizational capital provides the underpinning for companies to adapt and respond.

Even though humans are at the center of all aspects of organizations — it is the employees who breathe life into the organization, make decisions on commitment to values and norms, create and use business practices and systems and build the network of relationships — considering only the human resource without considering the various mechanisms and ways in which organizations commit to norms and values, develop and adapt business processes and systems will not yield a sufficient understanding of organizational capital that can help guide managers. Similarly, company-specific knowledge and commitment to values and norms are important aspects that contribute to organizational capital, but capture only one dimension.

Importantly, most of the definitions of and approaches to organizational capital don't lend themselves to ready implementation or measurement. The broad definition of **agglomeration**

**of business processes and practices** embodies all the aspects of the narrow definitions, and is in that sense more holistic and useful for CEOs and enterprise managers.

One thing is clear, this holistic nature of organizational capital makes it a very challenging intangible asset to measure and manage. Given the multi-dimensional and all-encompassing nature of organizational capital, the measure needs to be holistic, and the black box needs to be pried open to link the measure to specific business processes and practices so as to effectively guide executives/leaders in their quest to create and manage organizational capital. A more holistic approach is also required in light of emerging platform business models.

In addition, as noted above, the emergence of digitally enabled platform business models present important management challenges. The emergence of platform companies demonstrate that significant value is created and captured across a growing number of industries by facilitating ecosystems external to the firm. The existing literature largely conceives of organizational capital within the traditional boundaries of the firm. The growing size and scale of enterprises executing platform business models suggests that new frameworks are required. Approaches to measuring and managing organizational capital need to evolve and change with the changing ways of doing business.

# 3. MEASURING ORGANIZATIONAL CAPITAL

In general, accountants adopt the approach of measuring the outlays or inputs for tangible assets, i.e., the costs incurred to acquire assets such as property, plant and equipment. However, U.S. Generally Accepted Accounting Principles (GAAP) require that intangible assets resulting from internally-generated innovation activities be expensed, while purchased innovation is capitalized; a notable exception is innovation pertaining

to software and web development where the development costs can be capitalized. On the other hand, the International Financial Reporting Standards (IFRS) allow the development portion of innovation activities (R&D) to be capitalized. In general, in-house marketing expenses that create brand value are not treated as intangible assets under both US GAAP and IFRS. In summary,

## OVERVIEW OF MEASUREMENT APPROACHES TO ORGANIZATIONAL CAPITAL

MEASURES	APPROACH	DATA & COMPUTATION CHALLENGES	STRATEGIC INSIGHTS
INPUT-BASED	Amount expended on IT, R&D, Marketing, Admin	<ul style="list-style-type: none"> <li>Identify inputs that contribute to organizational capital</li> <li>Obtain granular data for a large set of enterprises</li> </ul>	<ul style="list-style-type: none"> <li>Enable and guide resource allocation decisions</li> <li>Could lead to overinvestment</li> <li>May not provide advance warning due to disruptive technologies</li> <li>Link to organization capital may be nebulous</li> </ul>
SURVEY-BASED	Employee training, employee voice and work design	<ul style="list-style-type: none"> <li>Scale across many and varied functions</li> <li>Aggregate and obtain an enterprise-wide measure</li> <li>Obtain granular data for a large set of companies</li> </ul>	<ul style="list-style-type: none"> <li>Enable and guide human capital and work design</li> <li>Could lead to emphasis on fashionable work practices</li> <li>May not provide advance warning due to disruptive technologies</li> <li>Link to organization capital may be nebulous</li> </ul>
OUTPUT-BASED	Additional output/revenue compared to average productivity of tangible assets and human capital	<ul style="list-style-type: none"> <li>Account for differences in accounting mandates across jurisdictions</li> <li>Scale to private enterprises</li> </ul>	<ul style="list-style-type: none"> <li>Enable and guide benchmarking</li> <li>Does not provide specific guidance for resource allocation decisions</li> </ul>

FIGURE 4

most of the outlays that help create intangible capital are not treated as assets by accounting standards.

Even though scholars have noted the importance of organizational capital to the operation and competitive positioning of an enterprise, organization capital is notably absent in accounting textbooks or discussions by accounting policymakers. One possible explanation for accounting texts and standard setters feigning ignorance of the primary intangible asset, organization capital, could be because it is challenging to identify the inputs creating organizational capital. Despite this challenge attempts have been made to develop measures of organizational capital at the macroeconomic level and the company-specific level using the input-based and extra-output based approaches. In particular, there have been three approaches to measuring organizational capital: the input-based method, the survey-based method and the output method — superior or extra productivity that a company generates from its physical and human capital. Before proceeding to lay out the details of each of these approaches we provide an overview of these approaches in Figure 4.

The Figure 4 overview shows that each of these approaches have certain data and computational challenges. The input-based and the survey-based approach can enable and guide managers in their strategic resource deployment decisions. However, in light of the difficulty in identifying the inputs that contribute to organization capital, what is measured may not be appropriate for the enterprise's business model. Surely Airbnb's and Hilton's resources that enable creating and sustaining competitive advantage are very different – the former relies on outsourced assets while the latter relies on its own assets. Even with

the survey-based measure, what is measured may not be appropriate for the business model. While the output-based measure is easy to compute across many enterprises using publicly available data, because of its holistic approach, it does not provide granular information for resource-allocation decisions. Future research needs to develop a framework for business models and key business practices and practices that link to the holistic output based measure.

A common challenge to both the input-based and the output-based methods are that they rely primarily on reported selling, general and administrative (SG&A) expenses. SG&A is also likely to reflect what could be considered as deadweight overhead, i.e., extra unneeded costs. While the input-based approach is likely to inflate the organizational capital measures due to this reason, the output-based approach tackles this issue by benchmarking the company's SG&A productivity to that of the sector's average SG&A productivity.

With this overview of the approaches we discuss the details of the measurement approaches to organizational capital.

## Input-Based Macroeconomic Measures

At an economy-wide, macro-level, how does the agglomeration of intangible (as opposed to brick-and-mortar) assets affect economic growth? Corrado, Hulten and Sichel (2005) argue that at an economy-wide level, ignoring outlays on intangible assets which include organizational capital will provide a distorted picture of economic growth. They show that the measurement of macroeconomic growth can be distorted considerably, if the expenditures on intangible

assets are not capitalized (considered as investments rather than expenses) in a similar way to brick-and-mortar assets. Corrado, Hulten and Sichel (2005) consider the following broad groups of business activities as creating intangibles:

- a. Computerized information: value of knowledge embedded in computer programs and computerized databases.
- b. Innovative property: value of knowledge acquired through scientific R&D and nonscientific inventive and creative activities.
- c. Economic competencies: value of brand names and other knowledge found in human and structural resources specific to the firm.

**For each of these group, they measure the expenditures/outlays in the following manner:**

- a. Computerized information:
  - i. Expenditures on software developed for a company's own use — developed internally, purchased or custom software expenditures.
  - ii. Expenditures on development of computerized databases, however due to data limitations the purchased component is small.
- b. Innovative property:
  - i. Costs of developing new products and processes leading to a patent or license.
  - ii. Spending on acquisition of new mineral reserves.
  - iii. Spending for the development of entertainment and artistic originals, usually leading to a copyright or license.

- iv. Spending on new product/service development in the financial services industry, new architectural and engineering designs and social sciences. These expenditures are not likely to result in patents or copyrights.

c. Economic competencies:

- i. Advertising and market research expenditures for the development of brands and trademarks.
- ii. Costs of on-the-job training and tuition payments for job-related education.
- iii. Costs of organizational change and development measured by the revenues of the management consulting industry and wages of executives.

Squicciarini and Mouel (2012) develop a task or occupational-based approach to measure organizational capital at the sector and country levels. They use the Occupational Informational Network — O\*NET data from the US Department of Labor — and identify 22 managerial job categories using cluster analysis. Their premise is that these 22 managerial occupations create organizational capital. They then combine these 22 managerial occupations with the compensation data at the sector level obtained from the US Current Population Surveys. Following Corrado, Hulten and Sichel (2005), they use an estimate of 20% of compensation paid to these 22 managerial positions as organizational capital investments. They capitalize and amortize these investments using sector-specific depreciation rates, and find that their organizational capital estimates are roughly 90% higher than the more conservative estimates developed by Corrado, Hulten and Sichel (2005).

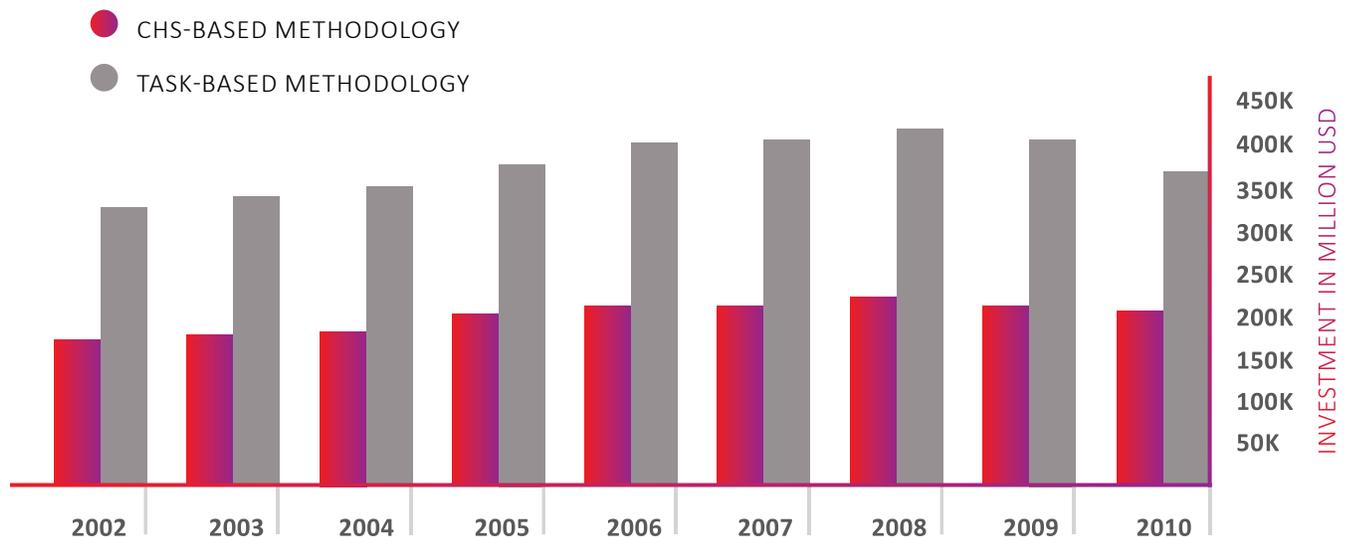


Interestingly, despite the different magnitudes, both methods exhibit similar trends, i.e., there is an increase in the investment in organizational capital from 2002 up until it peaks in 2008, and then a slight decline in 2009.

## Input Based Company-specific Measures

A number of studies develop measures based on various inputs to quantify portions of what can be construed as organization capital. Brynjolfsson and Hitt (1995, 1998, 2000) measure information technology capital as the replacement cost of all information technology assets owned by the enterprise using proprietary data from Computer Intelligence Corporation. The premise behind the measure is that information technology assets impact business practices and processes and as such constitute an important part of organizational capital, though the authors do not particularly relate information technology capital to organizational capital.

### INVESTMENT IN ORGANIZATIONAL CAPITAL AT THE NATIONAL LEVEL U.S.



SOURCE: Squicciarini and Le Mouel (2012) and OECD calculations based on the earnings data by occupation and industry from the Annual Social and Economic (ASEC) Supplement of the Current Population Survey (CPS), US Bureau of Labor Statistics, 2003-2011.

**FIGURE 5** provides a comparison of using the task-based and the input-based approaches to measure organizational capital at the national level.

Lev and Sougiannis (1996) measure research and development capital by capitalizing research and development expenditures and amortizing them over roughly five years. While the authors' intention was not to consider research and development capital as capturing all aspects of organizational capital, to the extent that research and development outlays help to maintain company-specific knowledge it is a component of organizational capital.

Eisfeldt and Papanikolaou (2013) measure organizational capital by capitalizing and amortizing the Selling, General and Administrative expenses (SG&A) of companies. The use of SG&A is motivated by Lev and Radhakrishnan (2005) who use SG&A as an instrument to measure organizational capital (to be discussed later). SG&A expenses include research and development, advertising, marketing, managerial compensation, training, consulting and information technology expenses — all of which are outlays that create organizational capital (see Lev, 2001). They capitalize SG&A expense and amortize it at a rate of 15%; the depreciation rate corresponds to a useful life of outlays of roughly seven years.

De and Dutta (2007) examine the Indian software industry and find that capitalized values of advertising and marketing expenses, i.e., brand capital and administrative expenses, are positively associated with companies' output.

## Survey-based Company-specific Measures

Black and Lynch (2005) consider organizational capital as embedded in employees and provide a measurement framework for the three components — workforce training, employee voice and work design — using surveys.

**The training-related questions in their survey encompass the following aspects:**

- a. Types of training offered (basic, workplace-related job skills) along with reason for training.
- b. Incidence of formal and informal training programs.
- c. Types of training offered, including computer skills training, teamwork training, sales training, new methods training, off-the-job training.
- d. Proportion of workers trained by five occupational categories.
- e. Costs of training as a share of total labor costs.
- f. Reasons for training (technology, skill specificity, seniority, retention); and if training occurs off the job.

**The employee-voice related questions encompass the following aspects:**

- a. Existence and proportion of employees in formal information sharing programs.
- b. Existence and proportion of employees covered by attitude surveys.
- c. Existence of formal grievance procedures or complaint systems.
- d. Proportion of employees that participate in quality of work life, quality circles, labor-management participation programs, total quality management programs, worker teams.

**The work-design related questions encompass the following aspects:**

- a. Existence of formal job design programs.
- b. Practices of benchmarking, reengineering, number of managerial levels, use of job rotation and job sharing

While they examine the employee dimensions for which data can be collected in a survey, they do not relate this to organizational capital.

## Excess Output-based Company-specific Measure

Lev and Radhakrishnan (2005) consider a production function wherein the company's output is a function of its physical capital, human capital and innovation capital. The physical, human and innovation capital are inputs, i.e., resources that all companies in the same industry/sector use, but there are obviously significant differences across companies in the efficiency of use or contribution of the resources to revenues. For example, while companies A and B use employees, company A's employees may generate more revenues per employee than B's because they are better trained and/or supported by superior information technology, and/or have better management and business practice. Similarly, while both A and B have physical capital (brick-and-mortar assets), company A may generate more revenue per unit of physical capital because it uses more efficient technology. In short, there are many reasons why companies differ in the efficiency of resource usage, but most of these reasons (better IT, higher-quality employees, improved management practices, better incentive and compensation systems) are related to the organizational capital. Accordingly, Lev and Radhakrishnan derive the value of organizational capital by comparing across companies in a given sector the efficiency of using the resources in generating revenues.

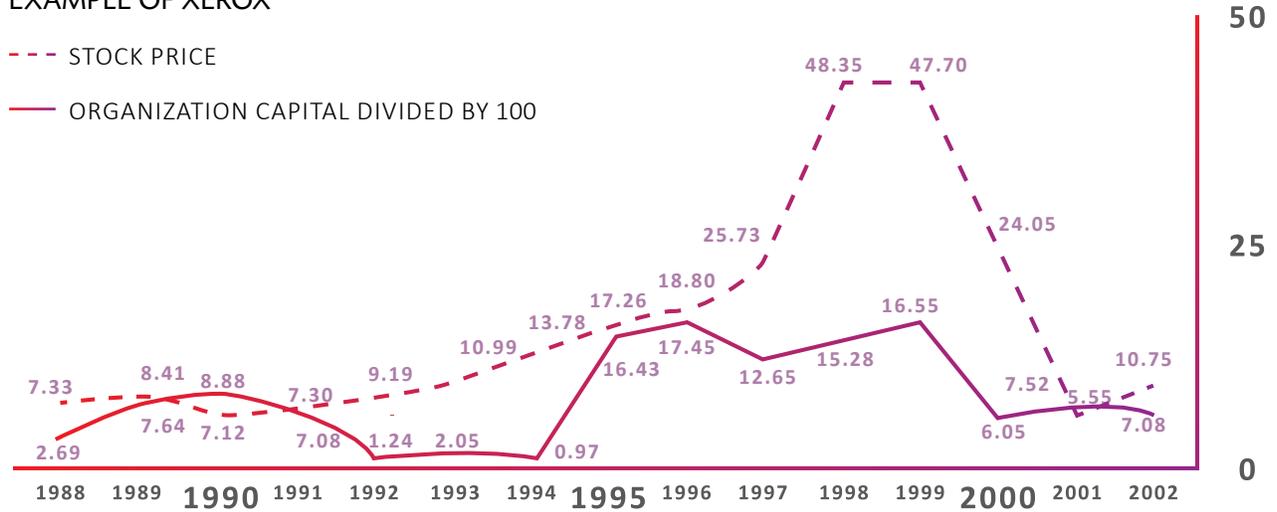
Lev and Radhakrishnan (2005) compute the excess output that the company

generates over competitors using their tangible assets, human and intangible capital. They use the average productivity of these assets in the sector that the company operates in, and compute what the company's output would have been with and without organizational capital embedded in the input Selling, General and Administrative expenses (SG&A). In econometric terms, SG&A is used as the instrument for organizational capital. The difference in the estimated output with and without organizational capital is the excess output that is attributable to organization capital. This annual excess revenue is capitalized and amortized over five years to obtain an estimate of organizational capital. Lev, Radhakrishnan and Zhang (2009) extend the Lev and Radhakrishnan's (2005) computation procedure to measure the savings in cost of goods sold (COGS) attributable to organizational capital. The additional output minus the savings cost is the net contribution of organizational capital, which is capitalized and amortized.

## Output-based Measurement: Applications

Applications of the output-based approach to measuring organizational capital provide insight into firm performance that is attributable to organizational capital. An early example is the change in the performance of Xerox (see Figure 6). Xerox's sales and net income increased during 1988-2000; but then crash in 2001-2002. Investors were clearly surprised by the company's

### EXAMPLE OF XEROX

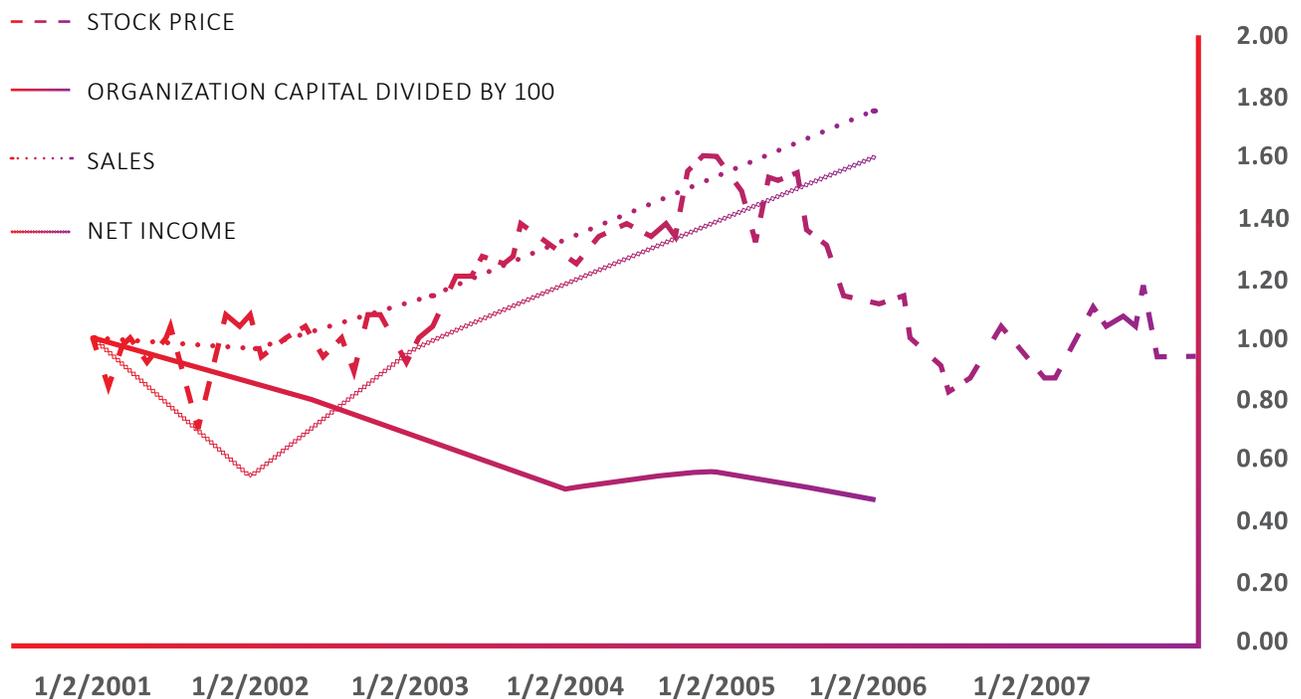


SOURCE: Lev and Radhakrishnan (2005)

**FIGURE 6**

problems, as evidenced by Xerox’s stock-price collapse (see Figure 6). Xerox’s organizational capital, however, exhibits a different pattern. Based on the Lev-Radhakrishnan approach, Figure 6 presents the estimated organizational capital, divided by 100. The top, dotted line and numbers represent Xerox’s stock price adjusted for stock splits, while the bottom line presents the annual contribution of organizational capital to output — roughly \$700-1200 million throughout 1988-1997. From 1998, however — two years before the downturn in sales and the stock price — Xerox annual organizational capital contributions decreased sharply. Thus, the organizational capital measure provided a two-year advance warning of Xerox travails.

### EXAMPLE OF DELL



SOURCE: Lev and Radhakrishnan (2005)

**FIGURE 7**

Dell provides another example of the value of examining organizational capital. Figure 7 presents the sales, net income, organizational capital and stock-price data for Dell from 2001 to 2007. The variables are indexed to one in 2001. Sales, net income and stock price exhibit similar increasing trends from 2002 to 2005. Starting 2005, the stock price starts to decline precipitously up until the beginning of 2006, due to concerns over lack of innovation, governance practices and accounting irregularities. The organizational capital measure shows a different trend. Starting from 2001, Dell's organizational capital measure drops up until 2004 and flattens out for 2005. This is starkly different from the backward-looking sales and net income measures, which exhibit an increasing trend during the same period. Thus, here too, the organizational capital measure provided an advance warning of Dell's operational difficulties.

## Key Takeaways

The approaches to measuring organizational capital at the macroeconomic level are geared towards helping regulators and formulating policies at the governmental level [see OECD, 2013]. These input-based measures are appropriate at the macroeconomic level, because the government does not directly decide on the resource outlays of companies.

The advantage of the input-based method is that accounting systems are geared to capture the inputs at a granular level. This method could therefore be helpful to guide managers' resource allocation decisions internally. However, this method of measuring organizational capital has many pitfalls. First, most companies do not provide granular data at the level required to measure

organizational capital in a meaningful manner. As such, it is difficult to obtain the organizational capital measure for a large set of companies. Second, it is challenging to attribute a portion of some types of outlays to the formation of organizational capital. That is, it is difficult to precisely identify what portion of the outlays is for organizational capital and what portion of it is for deliver other functionality that it is intended for. Third, like any other management metric that is based on input measures, this measure of organizational capital can be misused. The input-based, company-specific measure could create perverse incentives for resource allocation. If managers/companies are "rewarded" for making outlays in inputs that are loosely identified as contributing to organizational capital, then they may have a tendency to make such outlays even if it is not appropriate for their business model.

The advantage of the survey-based method is that all measured dimensions are clearly attributable to organizational capital. However, it is worthwhile to note the pitfalls. First, different business models will require different weights to aggregate the components of the survey; these weights are challenging to compute. Second, even though the lists of survey questions are detailed, they do not capture all of the attributes of organizational capital, such as the business processes and practices – because adopting a cookie-cutter approach to measure business processes and practices is challenging. Hence, benchmarking across companies and sectors is likely to be impossible. Third, similar to the input-based approach, this methodology is also likely to create perverse incentives for resource allocation – managers may tend to institute

programs that are fashionable even though they may not be appropriate for the business model. Fourth, similar to the input-based approach the survey approach is not conducive to measure organizational capital for a large set of enterprises due to lack of readily available data.

An advantage of the output based, company-specific measure is that it cannot be misused and thus is not likely to induce managerial dysfunctional behavior. From a computational standpoint, this approach uses data reported by publicly listed companies and thus can be readily applied to large set of companies, across countries. Thus, the approach can help benchmark companies across countries. Conceptually, this method accounts for the inputs and thus encompasses the input-based approach – specifically, the output-based approach considers the human capital and tangible asset input. Thus, this approach is superior in that it does not consider organization as a simple agglomeration of inputs or human resource practices – it considers the important inputs and adopts a holistic picture of organizational capital. Alas this superiority of this approach is also a bane –it does not provide managers with specific prescriptive advice on managing organizational capital.

Overall, the quest should be to use the output based approach to first identify the top global companies and then supplement the measure by deep-dive analysis of the select enterprises to gain insights into the organizational drivers of this measure. This will help guide specific actions that senior executives can take to smartly invest in efficiency-enhancing power of their organization's intangible assets.

# 4. VALIDATING ORGANIZATIONAL CAPITAL MEASURES

## Macroeconomic Measures

Corrado, Hulten and Sichel (2005, 2006) estimate the components described in the measurement section above and find that spending on intangible assets was roughly 8-9% of GDP in the early 1990s and increased to 10-12% of GDP in the late 1990s. They then capitalize these expenditures and amortize them over different periods, based on the category of intangible asset, and show that the GDP growth, without intangibles, is understated by roughly 4% in the early 1990s and 7% in the late 1990s. Serious understatements indeed.

Corrado, Hulten and Sichel (2009) use Corrado, Hulten and Sichel (2005, 2006) approach and find that roughly \$3 trillion of intangible assets, including organizational capital, is excluded from the U.S. published data in 2003. Incorporating this intangible asset, they find that the rate of change of output per worker exhibits a much faster growth than when intangible assets are not included — also see Corrado and Hulten (2010). More recently Roth and Thum (2010) document similar evidence by accounting for company intangible outlays in Europe. Corrado, Haskel, Jona-Lasinio and

Iommi (2012) extend the Corrado, Hulten and Sichel (2005) measurement to countries in the European Union. In doing so, they harmonize the definitions and measures across the countries. As with the U.S., they find that the GDP growth is understated in the European countries without accounting for intangibles. The results are consistent with estimates undertaken in other parts of the world. For example, Hulten and Hao (2012) apply the Corrado, Hulten and Sichel (2005, 2006) measure to the Chinese economy, and find that intangible assets that include organizational capital likely played an important role in China's transformation to a market-oriented economy.

Squicciarini and Mouel (2012) adopt the definition of organizational capital as company-specific knowledge embedded in employees. They extend the Corrado, Hulten and Sichel (2005, 2009) framework of developing organizational capital measure at the aggregate level. Specifically, they use the Occupational Information Network data from the US Department of Labor and identify 84 occupational categories, of which they classify 22 managerial occupations as those that generate organizational capital. They recalibrate the organizational capital and the depreciation rate estimates,

and find that the organizational capital appears to be understated and depreciation rates overstated by Corrado, Hulten and Sichel (2005, 2006) — see Figure 3. Overall, these findings show the increasing importance of organizational capital, and intangibles in general in the globally connected world.

Similar to Corrado, Hulten and Sichel's findings, Lev, Sarath and Sougiannis (2005) show in a company-level study that when the R&D growth is greater than the growth in earnings, the reported earnings are understated, and vice-versa when R&D is expensed; and these understatements have real consequences in terms of share mispricing. As such, when the growth rate in a country's investments in intangibles is more than the growth in GDP, the GDP will be understated as it is with companies. Noting this, there are many studies in the accounting literature that show the value-relevance of earnings adjusted for intangible expensing — for example, see Lev and Sougiannis (1996).

Jovanovic and Rousseau (2001) find a strong upward trend in the stock-market share of the largest firms. They argue that this evidence is consistent with their notion that organizational capital is likely to be persistent because the founder is likely to pick his/her successors, and thus the organization's imprints will persist. In effect, organizational capital depends on the state of the technology when the company is founded and the technologies that follow. Furthermore, the data appears to indicate that successful implementers of technology enter the

(stock) market roughly 15-20 years after the technological revolution.

## Input-based, Company-specific Level

Hulten and Hao (2008) use the Corrado, Hulten and Sichel (2005, 2006) procedure to evaluate 617 R&D intensive companies and find that intangible assets increase shareholders' equity by an impressive 141% and total assets by 57%. Together the improvements equate to an increase in earnings per share from an average of \$2.48 to \$3.54. They also find that including the estimate of intangible assets increases the shareholders' equity to 75% of stock-market value, as opposed to conventional shareholders' equity without intangible assets accounting for only 31% of the stock market value. Hulten (2010) uses this measure for one company, Microsoft, and relates the company's growth to the growth of intangible assets.

A number of papers capitalize and amortize SG&A expenses — the instrument in Lev and Radhakrishnan, (2005) — and show that organizational capital is positively associated with stock returns. Eisfeldt and Papanikolaou (2013) measure organizational capital by capitalizing and amortizing SG&A expenses and find that compared to firms with low organizational capital, firms with higher organizational capital have 4.6% higher average stock returns — thus, investors get a higher rate of return from companies with

higher organizational capital. Che (2009) also measures organizational capital by capitalizing and amortizing SG&A expenses and finds it to be positively associated with sales volatility. This suggests that companies that face higher levels of product market uncertainty are also likely to have more organizational capital investments to manage the uncertainty. Li, Qiu and Shen (2014) measure organizational capital by capitalizing and amortizing SG&A expenses and find that corporate acquirers with higher organizational capital exhibit higher acquisition announcement period returns, and better post-merger operating and stock performance. Miyagawa and Kim (2008) capitalize and amortize R&D and marketing expenditures and report that they are positively associated with stock-market value for Japanese manufacturing firms. Gourio and Rudanko (2014) find that selling expenses, one of the inputs into organizational capital, is positively correlated with market-to-book value, future profits, future sales, future gross margins and the future level and volatility of company investments.

Brynjolfsson, Hitt and Yang (2002) and Bresnahan, Brynjolfsson and Hitt (2002) find that each dollar of information technology capital is associated with roughly 10 dollars of stock market value. Furthermore, Bresnahan, Brynjolfsson and Hitt (2002) find evidence of strong complementarity between several indicators of IT use, workplace organization and the demand for skilled labor. Cummins (2005) finds that the information technology expenditures are associated with the imputed equity value of the company, where the imputed value of the company is computed using analysts' earnings forecasts.

Lustig, Syerson and Nieuwerburgh (2011) find evidence consistent with the notion that the increased importance of organizational capital results in an increase in managerial income inequality and pay-for-performance sensitivity. Their evidence suggests that successful firms retain their high-ability managers and the organizational capital they create by providing higher compensation.

Martin-Oliver and Salas-Fumas (2012) measure organizational capital using employee training expenses and a positive association between such expenditures and the market value of equity for Spanish banks.

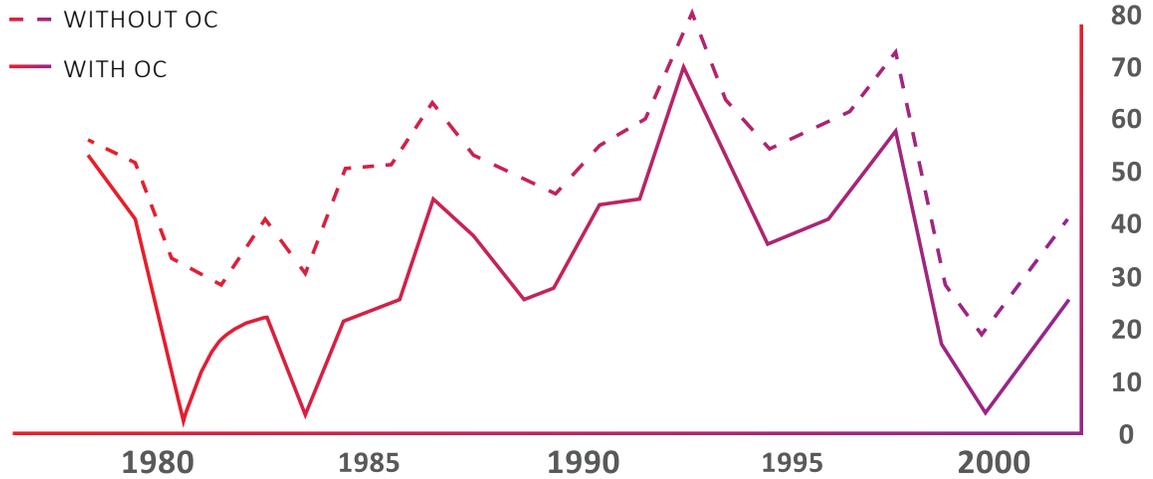
## A growing body of literature points to a significant payoff from investment in organizational capital.

In sum, a growing body of literature points to a significant payoff from investment in organizational capital. Collectively, various inputs to intangible assets — marketing expenditures, administrative expenditures, research and development expenditures, information technology expenditures and training expenditures — mostly contained in SG&A expenses are part of a company's organizational capital, and are found to be related to higher future corporate performance and stock prices, as well as increased risk.

## Excess-revenue Measure, Company-specific Level

Lev and Radhakrishnan (2005) use the excess revenue measure of organizational capital and show that organizational capital is positively associated with information technology expenditures for U.S. publicly listed companies, as reported by Information Week 500 companies. They further show that the organizational capital measure contributes significantly to the explanation of stock-market values of companies, beyond assets in place and expected abnormal earnings. They use a sample of 44,073 observations pertaining to publicly listed companies in the U.S. with sales and assets of US \$ 10 million, spanning from 1978-2002. This is demonstrated in Figure 8.

### EXPLANATORY POWER OF ORGANIZATIONAL CAPITAL

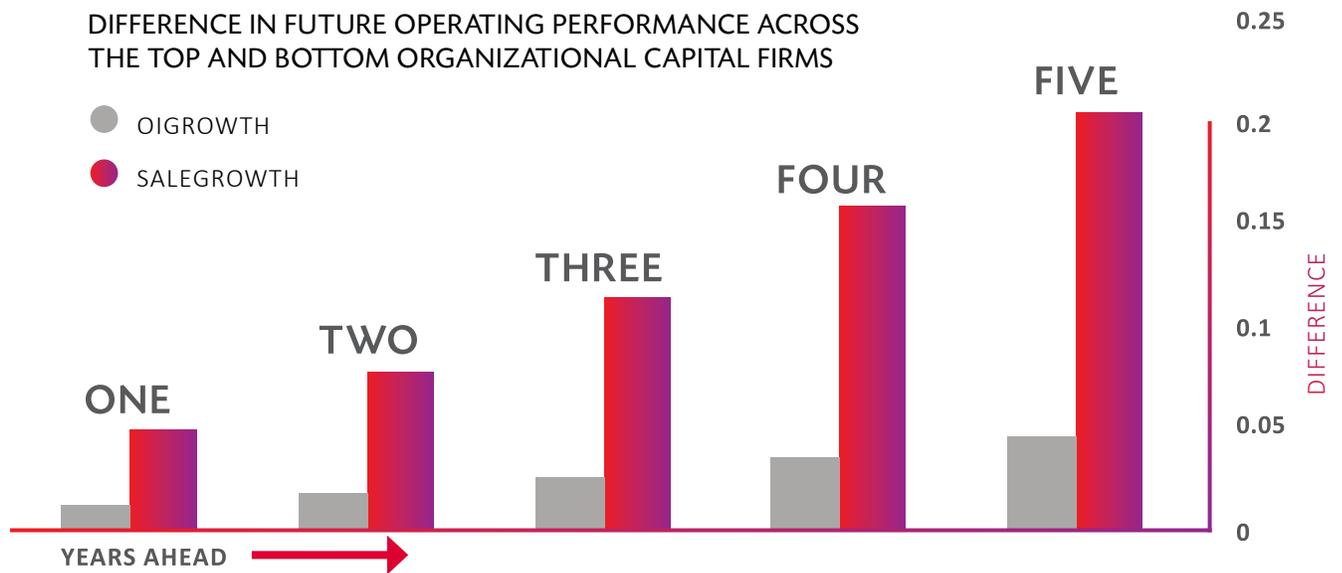


SOURCE: Lev and Radhakrishnan (2005)

FIGURE 8

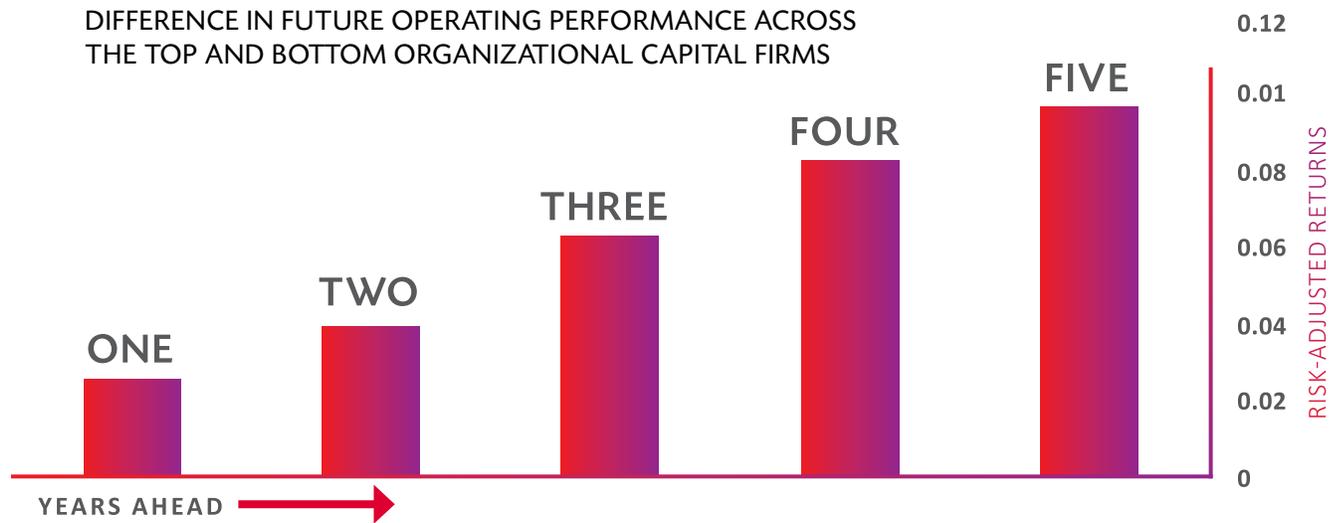
The top line is the explanatory power of a model of corporate value that includes organizational capital, and the bottom line is the explanatory power of a model without organizational capital. The figure indicates that the incremental explanatory power of organizational capital over the conventional accounting information-based valuation is positive and significant throughout the period.

Lev, Radhakrishnan and Zhang (2007) use the excess revenue and cost-containment measures and show that these indicators are positively associated with various future corporate performance measures: sales growth, operating income growth and abnormal stock returns, for up to five years. Figures 9A and 9B present this evidence.



SOURCE: Lev, Radhakrishnan and Zhang (2009)

FIGURE 9A



SOURCE: Lev, Radhakrishnan and Zhang (2009)

FIGURE 9B

Thus, Figure 9A shows the difference in operating income growth and sales growth in future (one to five) years between the top 30% and bottom 30% of companies ranked on organizational capital. It is evident that firms in the top organizational capital group, consistently exhibit substantially higher operating performance and sales growth for up to five future years than companies with lower organizational capital. Figure 9B shows that the risk-adjusted returns in the subsequent years are substantially higher for the top organizational capital companies than the bottom organizational capital companies. The researchers also show that executive compensation is positively associated with organizational capital, indicating that their measure of organizational capital indeed captures managerial ability. Imrohorglu and Tuzel (2014) show that the excess output measure is positively associated with the market-to-book ratio (growth potential), size, investment and hiring rate. Tronconi and Marzetti (2011) also show that organizational capital is positively associated with company performance. The above-mentioned strong associations between the Lev and Radhakrishnan estimate of organizational capital and companies' subsequent earnings,

sales and share prices validate the reliability of this organizational capital measure.

Piekkola (2010) uses the Lev and Radhakrishnan (2003) methodology and validates the measure for a smaller subset of Finnish firms. Her analysis concludes that organizational capital is positively associated with company size, extent of foreign operations, information technology assets and managers' compensation. Interestingly, Finnish firms with global operations have twice as much organizational capital as domestic firms. Ramirez and Hachiya (2006) adopt the Lev and Radhakrishnan's (2003) definition and measure of organizational capital for Japanese companies. They find that the value of company-specific organizational capital is substantially higher than that of tangible assets, and firms with large organizational capital are associated with higher stock returns and productivity.

## Unpacking Organizational Capital

In addition to firm level estimates, there has been interesting analysis that examines

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more specific organizational capital building blocks. Scholars have examined specific components of organizational capital, such as operational practices, personnel practices, incentives and trust. We summarize the findings of these studies thusly. Carmona-Lavado, Cuevas-Rodriguez and Cabello-Medina (2010) use a survey of R&D departments of 90 companies and relate innovativeness to organization/social capital. Organizational capital is measured using responses to whether the company has formal systems for identifying project failures and success, and formal discussions of learning about new products. Social capital is measured using responses on whether there is frequent communication among managers with other departments, and employees across departments. They find that social capital is associated with higher product innovation and radicalness of innovation and that organizational capital influences the innovation outcomes through its influence on social capital.

Ichniowski and Shaw (2003) review intra-industry studies that use survey-based measures for work practices. These studies find that the adoption of a coherent system of human resource management practices — such as job definitions, cross-training, and work teams — along with extensive incentive pay results in higher levels of productivity. Black and Lynch (2001, 2004), Bartel (1989), Bresnahan, Brynjolfsson and Hitt (2002), Caroli and Van Reenen (2001), Ichniowski (1990), Huselid (1995), Huselid and Becker (1996) and Delaney and Huselid (1996) examine work place practices of productivity and profitability. Edmans (2011) examines the relationship between employee satisfaction and company value and finds that the “100 Best Companies to Work For” generate an additional stock return

of roughly 3.5% after accounting for systematic risk. Bloom and Van Reenen (2012a) examine why US multinationals have higher information technology productivity than their European counterparts. They find that US multinationals have better people-management practices, which in turn help improve information technology productivity. All of these studies document a positive association between human resource systems and business performance as measured by labor productivity, Tobin’s, present value of future cash flows and firm market value.

Another question studied is the extent to which organizational capital improves labor productivity. Bloom and Ven Reenen (2007) examine this question by scoring management practices and processes that help improve operations, monitoring, setting targets and incentives. The operations aspect focuses on the introduction of lean manufacturing practices, the documentation of process improvements and the rationale for such improvements. The monitoring aspect focuses on tracking and reviewing employee performance and processes for rewards and sanctions. The target questions focus on whether performance targets are financial or non-financial, attainable or not-attainable, simple or complex and the extent of usage of targets. The incentives area focuses on promotion criteria, pay and bonuses and firing procedures. They find the following: (a) Higher level of competition is associated with higher management score; (b) Management score is positively associated with labor productivity; (c) Family-owned firms in which the CEO is the eldest male child tend to be badly managed.

Bloom, Eifert, Mahajan, McKenzie and Roberts (2013) examine whether

differences in management practices across firms can explain differences in productivity in India. The authors provided free consulting to a randomly chosen group of plants and compared their performance to a set of control plants in the textile sector in India. The consulting services focused on factory operations, quality control, inventory management, human resource management and sales and order management. The researchers found that these management practices raised productivity by 17% in the first year, mainly through improved quality and efficiency, and reduced inventory. In addition, within three years, these successful plants expanded their operations more effectively than others.

Bloom and Van Reenen (2012b) examine how trust affects the organization of a company. The idea is that top management will delegate important decisions to mid-level managers only if they trust that mid-level managers are able to solve the problems. They measure trust using the World Values Survey, and decentralization through an interview with plant managers by asking questions such as how much capital investment they could undertake without prior approval. They find that trust is positively associated with more decentralization; and a multinational company headquartered in a high-trust country is positively associated with decentralization in foreign operations as well.

Atkeson and Kehoe (2005) argue that a new organization will have the state-of-the-art technology but no organizational capital; and as organizations age they lag in technology but have built up organizational capital. The owners of old organizations command rents because of the built-up organizational capital. They then calibrate the organization rents to US manufacturing plants, and find that the rents are substantially high. Hsu (2007) examines organizational capital as the capability of the founders of an organization in terms of raising capital and

obtaining high valuations from venture capitalists. The notion here is that some founders, and especially serial entrepreneurs, have demonstrated ability to successfully take a product concept and create an organization, i.e., develop business processes and systems. They find support for the thesis that the founders' education (MBA or PhD), success of prior start-ups and social capital (measured as recruiting the management team through their existing networks) are related to success. This supports the recent report that Andreessen Horowitz the leading venture capital firm helps the new start-up firms with building organization capital (see the New York Times, May 3, 2015).

Oshima, Ravikumar and Riezman (2009) posit that the entrepreneur transforms inert assets (i.e., non-tradable capital) into value that can be derived by various stakeholders (i.e., tradable capital); thus, the founders/entrepreneurs create organizational capital and then sell the company, thereby monetizing organizational capital. Following this path, Faria (2008) develops a model of mergers and provides insights into the market for organizational capital. The premise is that acquisition targets that create new technologies merge with acquirers to gain access to the acquirer's organizational capital. Thus, mergers and acquisitions provide a means for companies to acquire organizational capital.

Collectively, the evidence reported in this section shows that organizational capital, measured at the country level or firm-specific level, is associated with higher firm value and enhanced productivity and growth. Furthermore, qualitative components that make up organizational capital, such as workplace practices, incentive practices, trust and commitment, are also associated with improved productivity and growth. Collectively, the evidence validates the importance of macro (country) and micro (firm) level measures of organizational capital.

# 5. CONCLUSION

This research survey highlights that organizational capital is a major value-contributing asset of the enterprise. This is true for large and small enterprises, as well as for those operating domestically or internationally. Research to date demonstrates that organizational

starting point to proactively manage organizational capital.

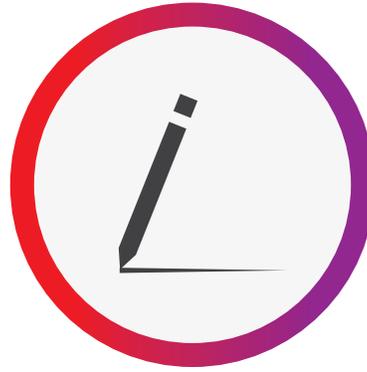
At present, accounting standard-setting bodies are nowhere close to acknowledging the power and potential of organizational capital. While it is impossible at this

**The research agenda of the Center for Global Enterprise seeks to support the need for CEOs to better understand how organizational capital can support competitive advantage, especially in light of platform business models that challenge the traditional boundaries of the firm.**

capital generates substantial benefits at both the macro (country) and micro (firm) levels. Despite these benefits, much of the investment in organizational capital is not tracked by firms and separated from other investments, mainly due to limitations of the accounting system. Consequently, CEOs and other executives lack reliable measures of organizational capital to manage and drive performance. Likewise investors lack information to discern companies that have built rich endowments of organizational capital from those that have thin or declining organizational capital. The firm-level holistic measure, based on excess revenue, has been validated in various contexts and countries and as such provides an attractive

stage to lay down a common set of measures or parameters that apply for all companies, based on the links that are established between specific business processes and practices and organizational capital, companies can choose to disclose to the public their efforts towards creating and sustaining organizational capital to enhance the operation of capital markets. CEOs should consider making voluntary organizational capital disclosures.

The research agenda of the Center of Global Enterprises seeks to support the need for CEOs to better understand the following aspects of organizational capital and relate it to measures of organizational capital: Why do organizational changes —



business process, practice and systems — occur? Is it in response to disruptive technologies, such as information technology, enabled platforms and/or other business and economic changes? Is there a difference in the way disruptive technologies emanating from outside versus inside the enterprise affect the response to organizational change? What are the characteristics of business processes, practices and systems that need to be adapted to effectively change?

As a next phase of research, we propose that using the holistic measure of organizational capital, based on excess revenues computed at the firm level to answer these questions will facilitate investment and monitoring decisions pertaining to organizational capital. While conceptually organizational capital can be measured for the geographic profit centers of multinational enterprises, availability of data impedes such an effort. Using the holistic measure at the consolidated enterprise level and its parts, and linking it to company-wide business processes and practices and country-specific processes and practices will facilitate the management of organizational capital for multinational enterprises. We also propose more detailed interview with selected companies to better understand and develop management recommendations regarding the causes and consequences of organizational capital for firm performance.

Finally, we propose evaluating the measurement and management of organizational capital in the context of platform business models. Since platform businesses create and capture value by facilitating ecosystems external to the firm, approaches to evaluating organizational capital need to evolve to incorporate measures that extend beyond the traditional boundaries of the firm. This is true not only for platform startups but also for incumbent companies that are seeking to build platform ecosystems and require advice and guidance on how investments in organizational capital can best support these strategic imperatives.

In a digital age in which intangible assets are becoming more salient to firm performance this work can support CEOs and their management teams to more effectively measure and manage their organizational capital assets.

# References

- Agterberg, M., Van den Hooff, B., Huysman, M., & Soekijad, M. (2010). Keeping the wheels turning: the dynamics of managing networks of practice. *Journal of Management Studies*.
- Atkeson, A., & Kehoe, P. J. (2005). Modeling and measuring organizational capital. *Journal of Political Economy*, 1026-1053.
- Bartel, A. P. (1989). Where do the new U.S. immigrants live? *Journal of Labor Economics*, 371-391.
- Black, S. E., & Lynch, L. (2001). How to compete: the impact of workplace practices and information technology on productivity. *Review of Economics and Statistics*, 434-445.
- Black, S. E., & Lynch, L. (2004). What's driving the new economy: understanding the role of workplace practices. *Economic Journal*, 97-116.
- Black, S. E., & Lynch, L. (2005). Measuring organizational capital in the new economy. IZA discussion paper.
- Bloom, N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *Quarterly Journal of Economics*, 1351-1408.
- Bloom, N., & Van Reenen, J. (2010). Why do management practices differ across firms and countries? *Journal of Economic Perspectives*, 203-24.
- Bloom, N., & Van Reenen, J. (2012a). Americans do IT better: US multinationals and the productivity miracle. *American Economic Review*, 167-201.
- Bloom, N., & Van Reenen, J. (2012b). The organization of firms across countries. *Quarterly Journal of Economics*, 1663-1705.
- Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., & Roberts, J. (2013). Does management matter? Evidence from India. *Quarterly Journal of Economics*, 1-51.
- Bresnahan, T., Brynjolfsson, E., & Hitt, L. (2002). Information technology, workplace organization and the demand for skilled labor: firm-level evidence. *Quarterly Journal of Economics*, 339-376.
- Brynjolfsson, E., & Hitt, L. (1995). Information technology as a factor of production: the role of differences among firms. *Economics of Innovation and New Technology*, 183-199.
- Brynjolfsson, E., & Hitt, L. (1998). Beyond the productivity paradox. *Communications of the ACM*.
- Brynjolfsson, E., & Hitt, L. (2000). Beyond computation: information technology, organisational transformation and business performance. *Journal of Economic Perspectives*, 23-48.
- Brynjolfsson, E., Hitt, L. M., & Yang, S. (2002). Intangible assets: computers and organizational capital. *Brookings Papers on Economic Activity*.

## References

- Carlin, B. I., Chowdhry, B., & J., G. M. (2012). Investment in organizational capital. *Journal of Financial Intermediation*, 268-286.
- Carmona-Lavado, A., Gloria, C.-R., & Carmen, C.-M. (2010). Social and organizational capital: building the context for innovation. *Industrial Marketing Management*, 681-690.
- Caroli, E., & Van Reenen, J. (2001). Skill biased organizational change. *Quarterly Journal of Economics*, 1449-1492.
- Che, N. X. (2009). The great dissolution: organizational capital and diverging volatility puzzle. Working paper.
- CIC. (2003). *Modelo Intellectus: medición y gestión del capital intelectual*. Madrid: Centro de Investigación Sobre la Sociedad del Conocimiento.
- Corrado, C. A., & Hulton, C. R. (2010). How do you measure a “Technological Revolution”? *American Economic Review*, 99-104.
- Corrado, C. A., Haskel, J., Jona-Lasinio, C., & Lommi, M. (2012). Intangible capital and growth in advanced economies: measurement methods and comparative results. IZA discussion paper.
- Corrado, C. A., Hulton, C. R., & Sichel, D. (2005). Measuring capital and technology: an expanded framework. In *Measuring Capital in the New Economy*.
- Corrado, C., Hulten, C., & Sichel, D. (2006). Intangible capital and economic growth. NBER working paper.
- Corrado, C., Hulten, C., & Sichel, D. (2009). Intangible capital and US economic growth. *Review of income and wealth*, 661-685.
- Cummins, J. G. (2005). A New Approach to the Valuation of Intangible Capital. In *Measuring Capital in the New Economy*.
- De, S., & Dutta, D. (2007). Impact of intangible capital on productivity and growth: Lessons from the Indian information technology software industry. *Economic Record*, 73-86.
- Delaney, J. T., & Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 949-969.
- Edmans, A. (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics*, 621-640.
- Eisfeldt, A. L., & Papanikolaou, D. (2013). Organizational capital and the cross-section of expected returns. *Journal of Finance*, 1365-1406.
- Evenson, R. E., & Westphal, L. (1995). Technological change and technology strategy. *Handbook of Development Economics*, 2209-2299.
- Faria, A. (2008). Mergers and the market for organizational capital. *Journal of Economic Theory*, 71-100.

## References

- Friedman, T. L. (2014, July 19). The New York Times. And now for a bit of good news...
- Gourio, F., & Rudanko, L. (2014). Customer capital. *Review of Economic Studies*.
- Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, 293-317.
- Gulati, R. (1999). Network location and learning: the influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal*, 397-420.
- Hsu, D. H. (2007). Experienced entrepreneurial founders, organizational capital, and venture capital funding. *Research Policy*, 722-741.
- Hulten, C. R. (2010). Decoding Microsoft: intangible capital as a source of company growth. NBER Working Paper.
- Hulten, C., & Hao, X. (2008). What is a company really worth? Intangible capital and the market to book value puzzle. NBER working paper.
- Hulten, C. R., & Hao, J. X. (2012). The role of intangible capital in the transformation and growth of the Chinese economy. NBER Working Paper.
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 635-872.
- Huselid, M. A., & Becker, B. E. (1996). Methodological issues in cross-sectional and panel estimates of the human resource - firm performance link. *Industrial Relations*, 400-422.
- Ichniowski, C. (1990). Human resource management systems and the performance of U.S. manufacturing businesses. NBER working paper.
- Ichniowski, C., & Shaw, K. (2003). Beyond incentive pay: Insiders' estimates of the value of complementary human resource management practices. *Journal of Economic Perspectives*, 155-180.
- Imrohoroglu, A., & Tuzel, S. (2014). Firm-level productivity, risk and return. *Management Science*, 2073-2090.
- Jovanovic, B., & Rousseau, P. L. (2001). Vintage organizational capital. NBER Working Paper.
- Lev, B. (2001). *Intangibles: Management, Measurement and Reporting*. The Brookings Institution Press.
- Lev, B., & Radhakrishnan, S. (2005). The valuation of organizational capital. In *Measuring Capital in the New Economy*.
- Lev, B., Radhakrishnan, S., & Zhang, W. (2009). Organizational capital. *Abacus*, 275-298.
- Lev, B., & Sougiannis, T. (1996). The capitalization, amortization and value. *Journal of Accounting and Economics*.

## References

- Lev, B., Sarath, B., & Sougiannis, T. (2005). R&D reporting biases and their consequences. *Contemporary Accounting Research*, 977-1026.
- Li, K., Qiu, B., & Shen, R. (2014). Organizational capital and mergers and acquisitions. Working paper.
- Lounsbury, M., & Ventresca, M. J. (2002). Social structure and organizations revisited. *Research in the Sociology of Organizations*.
- Ludewig, O., & Sadowski, D. (2009). Measuring organizational capital. *Schmalenbach Business Review*.
- Lustig, H., Syverson, C., & Van Nieuwerburgh, S. (2011). Technological change and the growing inequality in managerial compensation. *Journal of Financial Economics*, 601-627.
- Mangalindan, J. (2012, July 30). *Fortune*. Amazon's recommendation secret.
- Martin-de-Castro, G., Navas-Lopez, J. E., Pedro, L.-S., & Elsa, A.-S. (2006). Organizational capital as competitive advantage of the firm. *Journal of Intellectual Capital*, 324-337.
- Martin-Oliver, A., & Salas-Fumas, V (2012). IT assets, organizational capital and market power: contributions to business value. *Decision supporting systems*, 612-623.
- Miyagawa, T., & Kim, Y. G. (2008). Measuring organizational capital in Japan: an empirical assessment using firm-level data. *Seoul Journal of Business*.
- OECD. (2013). Supporting investment in knowledge capital, growth and innovation. In OECD library.
- Oshima, A., Ravikumar, B., & Riezman, R. (2009). Entrepreneurship, organizational capital and the evolution of the firm. *International Trade and Economic Dynamics*, 499-511.
- Piekkola, H. (2010). *Making the Difference: The Organizational Capital*.
- Prescott, E. C., & Visscher, M. (1980). Organizational capital. *Journal of Political Economy*, 446-461.
- Ramirez, P. G., & Hachiya, T. (2006). Measuring firm-specific organizational capital and its impact on value and productivity: evidence from Japan. *Review of Pacific Basin Financial Markets and Policies*, 549-574.
- Roth, F., & Thum, A. (2010). Does intangible capital affect economic growth? CEPS working document.
- Squicciarini, M., & Le Mouel, M. (2012). Defining and measuring investment in organizational capital: using US microdata to develop a task-based approach. OECD economics department working papers.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and strategic management. *Strategic Management Journal*, 509-533.

## References

Tomer, J. F. (1998). Organizational capital and joining-up: linking the individual to the organization and to society. *Human Relations*, 825-846.

Tronconi, C., & Marzetti, G. V. (2011). Organizational capital and firm performance: empirical evidence for European firms. *Economics Letters*, 141-143.

Van Rens, T. (2004). Organizational capital and employment fluctuations. Working paper.

Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource-based view of the firm. *Journal of Management*.

Youndt, M., Subramaniam, M., & Snell, S. (2004). Intellectual capital profiles: An examination of investments and returns. *Journal of Management Studies*, 335-361.

# authors bios



## Baruch Lev

Baruch Lev is the Philip Bardes Professor of Accounting and Finance at New York University Stern School of Business. In his current positions, Professor Lev teaches courses in accounting, financial analysis and investor relations. His primary research areas of interest include corporate governance; earnings management; financial accounting; financial statement analysis; intangible assets/intellectual capital; capital markets; and mergers and acquisitions. Professor Lev is the author of five books including *Intangibles: Management, Measurement, and Reporting*, and *Financial Statement Analysis: A New Approach*. His recent book is *Winning Investors Over* (2012). Lev has published more than 100 research studies in the leading accounting, finance and economic journals. Professor Lev has received numerous awards and honorary doctorates. Lev's practical experience includes auditing, and investment banking. He was also a partner in a consulting firm. Professor Lev received his Bachelor of Accounting degree from Hebrew University, Jerusalem, and his Master of Business Administration and doctorate degrees from the University of Chicago.



## Suresh Radhakrishnan

Suresh Radhakrishnan is the Constantine Konstans Distinguished Professor of Accounting and Corporate Governance and Research Director of the Institute of Excellence in Corporate Governance at the University of Texas at Dallas, Jindal School of Management. His research focuses on performance management and spans a variety of areas such as organization capital, corporate social responsibility, valuation of intangible assets, executive compensation, audit liability and supply chain quality issues. His research has been covered by the media including *The New York Times*, *Wall Street Journal* and *Barrons*. He was invited as a knowledge expert to the Microsoft CEO summit and the

# authors bios

SAP Global Congress. He is featured in the Who's Who in Business Professionals in North America and the Who's Who in Business Higher Education. He received his PhD (Accounting) and M. S. (Statistics and Operations Research) from New York University, Bachelor of Commerce from the University of Madras, India and is a Chartered Accountant and a Cost and Management Accountant.



## Peter C. Evans

Peter C. Evans is the Vice President at the Center for Global Enterprise where he is responsible for the Center's research agenda and global partnerships. Previously, Dr. Evans held key strategy and market intelligence roles at General Electric. He was Director of GE Corporate's Global Strategy and Analytics team. He also led GE Energy's Global Strategy and Planning team for five years. Prior to joining GE, he was Director at Cambridge Energy Research Associates (CERA). He also worked as an independent consultant for a variety of corporate and government clients, including the US Trade Promotion Coordinating Committee, US Department of Energy, the Organization for Economic Cooperation and Development, and the World Bank. Dr. Evans has extensive international energy experience, including two years as a Visiting Scholar at the Central Research Institute for the Electric Power Industry in Tokyo, Japan. He received his master degree and PhD degree from the Massachusetts Institute of Technology. He is a lifetime member of the Council on Foreign Relations and is a Board Member of the National Association for Business Economics.

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### **The Center for Global Enterprise**

200 Park Ave., Suite 1700

New York, NY 10166

USA

<http://thecge.net/>

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