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## Intangible Assets and Their Impact on Economic Performance

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# Intangible Assets and Their Impact on Economic Performance

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## Abstract

The paper introduces the topic of intangible assets. It describes the evolution of the concept of intangible assets and the role of these assets in today's economy. The importance of intangible assets is highlighted through many quantitative estimates of the impact that intangible assets have on economic performance. After reviewing research carried out mainly in the Western economies, the paper concentrates on the research covering the size and impact of intangible investment in the Central and Eastern European (CEE) and Balkan countries. Moreover, the focus shifts to the firm level where the management of intangible assets faces several challenges that range from identification and valuation of intangible assets to leadership of knowledge-intensive firms. Progress at all levels is to some extent hampered by the lack of adequate data, which should be addressed by establishing a standard definition and ensuring more data on intangibles within financial reporting. Bold steps should therefore be made towards better measurement of intangible investment and better use of this source of productivity growth.

**Keywords:** Intangibles, Productivity, Growth, CEE, Balkan

**JEL classification:** E22

## Introduction

A century ago, back in 1922, John Stuart, the then president of Quaker Oats Company, an American food conglomerate based in Chicago (owned since 2001 by PepsiCo), made the following statement (Diefenbach, 2004, p. 554): “If this business were to be split up, I would be glad to take the brands, trademarks, and goodwill, and you could have all the bricks and mortar and I would be better than you”. In this regard, he had expressed his interest in things that were familiar from an investment and accounting perspective, i.e. the difference between book and market value, and were capitalized as “intangible assets and goodwill”.

“Intangible Assets” is today a very broad and complex evolving concept, reflecting the changes in the real economy as well as in management practice and economic theory. Yet, there is no unified definition.

Generally speaking, as also happens with other similar kinds of multidimensional concepts (i.e. systems of innovation), we can identify a continuum starting from a narrow to wider or broader definitions of Intangible Assets. Moreover, there are different meanings for Intangible Assets and various forms of knowledge with important implications for management, economic performance, and innovation.

Almost one century later, in 2006, an influential study by Federal Reserve Board staff economists Carol Corrado and Daniel Sichel, and University of Maryland economist Charles Hulten (CSH) estimated the nation's investment in all intangibles (not limited just to scientific R&D) to exceed the total investment in tangible assets (plant and equipment) and to account for a large share of economic growth. The CSH analysis included other categories such as expenditures on software, brand identification, employee training, and “non-scientific” R&D.

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Nevertheless, despite the fact that intangible assets have long been an important component of the worldwide economic systems in the 19th and 20th centuries, the assets that economists recognized as sources of value were the traditional factors of production—land, labor, and capital—which were scarce and/or stayed within national boundaries (Teece, 2015).

This paper reviews some of the major challenges of the study of intangible assets. It first discusses their importance at the level of the economy and the firm and subsequently investigates the importance of intangible assets in the Balkan region. Then, it provides an overview of their management challenges at the firm level. Given that the empirical investigation of intangibles has long been hampered by the lack of empirical evidence, it reviews in continuing the measurement challenges, finishing the discussion with some concluding remarks.

## 1 The importance of intangible assets for firm and economy performance

### 1.1 Intangible assets' impact on economic performance

The importance of intangible assets began to be part of the conversation as far back as the 1960s and 1970s. Fritz Machlup (1962), in his seminal book on “The Production and Distribution of Knowledge in the US”, adopted a very wide definition in order to measure information and knowledge as a broad concept, while other earlier measurements were concerned with the production of scientific knowledge, namely R&D (e.g. Bernal (1939) for R&D expenditures in Britain), not its distribution. More specifically, Machlup estimated that over 30% of the US labor force were already engaged in occupations essentially concerned with producing and handling information rather than goods. He also estimated that, in 1958, the knowledge economy accounted for \$ 136.4 million or nearly one third of the economy (29% of GNP). Machlup's calculations gave rise to a whole literature on the knowledge economy, the information economy and the information society, its policies, and its measurement (e.g. Porat, 1977). The role of intangibles came to even greater prominence in the 1990s with the advent of Information and Communication Technologies (Freeman & Soete, 1997) and the rise of the digital economy (Coyle, 1999). The idea of a new economy prompted economists (theorists) to examine the role of knowledge more generally and work out economic models where knowledge had a pivotal contribution to promoting growth (e.g. Aghion & Howitt, 1992;

Romer, 1990). By the early 2000s, there was a growing belief among business economists that firms were spending significantly on things with no physical presence but nevertheless valuable and durable. They also pointed out that these intangibles were more than R&D and software, including, for instance, new organizational arrangements, and that this new class of investment was not recorded in the firm balance sheets (Lev, 2001).

After the dot-com bubble in the 2000s, the 2008 financial crisis, and a decade of relative economic stagnation, intangible assets are increasingly acknowledged as essential resources for growth and productivity gains. For example, Corrado et al. (2018) suggest that from 2000 to 2013, compounded annual average growth rates of investments in intangibles were greater than that of tangible investments in the key 18 countries belonging to the European Union and the US. This is particularly true considering the transition to mainly service-based economies and the rise of digital forms of production. Moreover, as Haskel and Westlake point out in their influential 2018 book, the idea of “capitalism without capital” is now at center stage. However, this new era is not adequately depicted in national accounts or company balance sheets, and their role in accelerating the development and spread of the knowledge economy is significantly underestimated.

These indications of a relationship between intangibles and growth strongly suggest focusing more on them. However, current definitions and accounting treatments of intangibles are not well suited to the realities of a growing knowledge economy. Therefore, we should first define them properly in order to measure them in a useful way for both managers and policymakers. For example, most firms have traditionally considered intangibles as goodwill, intellectual property, and software, though this is a narrow understanding of intangible assets.

Haskel and Westlake (2018) adopt a more expansive definition suggesting that intangible assets embrace human capital and digital, organizational, and managerial know-how. Furthermore, following Corrado et al.'s (2005) attempt to measure intangible investments, Haskel and Westlake highlight three broad categories of intangible assets, i.e. “innovative property”, which entails R&D, design, mineral licenses, and entertainment and artistic originals, “computerized information” including software and databases, and “economic competencies”, which involves marketing and branding, organizational capital, and training. This broader definition of intangibles (and the respective categories of intangible investments) is more relevant than the traditional,

narrower categorization of their increasingly significant role in firms, sectors, and economies alike. In particular, the Information Society was considered as a long process of growth of Intangible Investment in information-based activities (Freeman & Soete, 1997). Haskel and Westlake's (2018, p. 7) central argument in their book "Capitalism without Capital: The Rise of the Intangible Economy" is that there is "something fundamentally different about intangible investment and that understanding the steady move to intangible investment helps us understand some of the key issues facing us today: innovation and growth, inequality, the role of management, and financial and policy reform."

According to a 2006 Federal Reserve Board analysis, investment in intangible assets in the United States exceeds all investment in tangible property and, if properly accounted for, would raise measured productivity growth significantly (Corrado et al., 2006). Even through economic disruptions, investments in intangible assets have increased. Thus, over the past 25 years, the investment mix has shifted towards intangibles. Specifically, the investment share of intangibles increased by 29%, while the relevant share of investment in tangibles decreased by 13% in the US and 10 European Economies over the period 1995–2019 (McKinsey Global Institute, 2021). Moreover, intangible assets reveal an important source of a strong competitive advantage for business and productivity gains. They contribute to creating customer value, and shareholder/stakeholder value. Recent Corrado et al. (2009) estimates show that intangible investment contributed even up to a third to overall productivity growth. The importance of intangible investments is confirmed also by the registry-based estimates of the Globalint project (Piekkola et al., 2021) as well as at industry level (Roth, 2022). Given the widely-acknowledged contribution of intangible investment to firm performance, the question is why some firms acknowledge their importance (too) slowly.

### 1.2 Intangible investment in the emerging markets of the CEE and the Balkan economies

The past three decades have witnessed fast growth of emerging markets in the Central and Eastern Europe (CEE) region and in the Balkans.<sup>1</sup> Although the performance of these economies in the

past has been widely dependent on successful restructuring, as they develop, their performance increasingly depends also on intangible capital.

The first and main challenge for the CEE and Balkan countries is the relatively low level of intangibles. In Slovenia, Slovakia, Hungary and the Czech Republic, for example, total intangibles averaged 6.4% of GDP in 2000–2013, compared to 7.2% for the EU-14 over the same period. The ratio of intangible/tangible assets in industry is 0.34 for these four EU countries in CEE and 0.79 for the EU-14 in the same period (Corrado et al., 2018). It is to be expected that the addition of other CEE and Balkan countries would increase the disparities compared to the developed EU countries.

At the academic level, all countries took several different approaches to the study of intangibles. Slovenia was one of the pioneer countries in implementing the new micro-based approach to quantifying intangibles. Slovenia conducted a wide-ranging study back in 2011 as part of the INNO-DRIVE (Intangible Capital and Innovations: Drivers of Growth) FP7-SSH (Seventh Framework Program - Socio-economic Sciences and the Humanities) project funded by the European Commission, which provided micro-data on intangibles for Slovenia for the period 1994–2005 and examined the organizational, ICT and R&D components of intangibles. The capitalization of intangibles represented an average increase in GDP of 4.5% for the then new Member States. In scientific R&D, Slovenia ranked 11th, and in organizational competence (excluding education), Slovenia ranked 15th among the 28 countries with 0.84% and 2.45% of GDP respectively (Verbič & Polanec, 2014). One of the concluding remarks was the need to include intangibles in the measurement of GDP (Verbič & Polanec, 2014).

On the other hand, Albania, as one of the least developed countries before the transition, had to replace exports as an engine of growth with intangible-oriented resources as soon as possible. Research results show that in 2011, only 88% of companies invested at least one percent of their revenues in IT. Moreover, 35% invested at least three percent of their revenues in IT, which is very low compared to more developed countries such as Slovenia (Koman & Lalović, 2012). In the area of branding, as an important part of intangibles, companies in Albania at that time did not have adequate legal protection of their brand or did not

<sup>1</sup> According to OECD, the CEE countries include Albania, Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia, and the three Baltic States: Estonia, Lithuania and Latvia. If we add the Balkan countries that are not EU members, such as Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia, we have a corpus of almost twenty countries that belong to the former Eastern Block or to the former Yugoslavia.

finance activities to increase brand value and did not measure brand value as such (Žabkar & Memaj, 2012). A general problem in appropriately and efficiently transforming investments in intangibles into economic and social benefits in less developed countries is the coordinated activities both within firms and in the business environment (Redek, 2012).

The orientation towards monetary measurement methods reveals the close link between intangibles and enterprise value. Analyzing listed companies in the Baltic States, researchers found that intangible assets as a proxy for innovation have a significant impact on the market value of the company, emphasizing that the critical value of intangible assets is 1% of total assets. When intangible assets exceed this value, the value of the firm also increases significantly. Moreover, companies with higher investments in intangible assets achieve higher profitability (Bistrova et al., 2017). However, there is some contrary evidence on the impact of intangibles on firm performance. A 2006 study by the consulting firm Booz Allen found that research and development spending had no impact on total returns, market capitalization growth, or earnings growth. Also, the impact of patents on the profitability of the company was not found (Bistrova et al., 2017).

Since the growing gap between the market value and book value of companies is mainly attributed to intangibles (i.e. intellectual capital), the interest in explaining this has been the focus of much research at the national level. As in developed countries, the ratio of market to book value has been steadily increasing for about thirty years. This means that accounting information is not reliable enough for both management and investors, which is the subject of harmonization and improvement of accounting standards. This gap is studied using intellectual capital components, mostly using different variants of the VAIC model (Value Added Intellectual Coefficient), MCM methods (Market Capitalization), ROA methods (Return on Assets), DIC methods (Direct Intellectual Capital), SC (Scorecard), mostly using publicly available financial data (i.e. accounting data).

Almost every country in the CEE and the Balkans has used one or more of the above methods for research in the last two decades. Relying only on financial data to assess intellectual capital and its impact can lead to incomplete information, which is considered one of the main shortcomings of monetary methods. Moreover, the exclusive focus on the organizational level makes it impossible to use them for management purposes. The weaknesses of

monetary methods are also related to problems associated with market fluctuations in stock prices, cost of capital, selected accounting principles, etc. Considering the shortcomings of monetary methods, it can nevertheless be concluded that their focus on the organizational level and their reliance on publicly available and reliable (audited) data, when applied to a sufficiently large sample, provides a good basis for assessing the role and impact of intellectual capital on the business performance of modern companies.

## 2 Challenges in managing intangible assets at the firm level

The changing nature of the global economy featuring increasing globalization, deregulation, innovation, and technological change requires dynamic management at the firm level (Teece, 2009; Teece, 2016). Although these forces are not new, they have far greater importance in the new environment as they determine to a large extent sustainable productivity gains (Hand & Lev, 2003; Teece, 2009). In this context, a large part of the value generated by a company comes from intangible assets and, therefore, these resources need to be monitored like the tangible ones are. There seems to be a rising consensus that the basis of competitive advantage is shifting from managing tangible resources to managing intangible ones (Lev, 2008; Haskel & Westlake, 2018). Although the value of intangible assets does not necessarily create benefit for the innovator (Haskel & Westlake, 2018), the management of these assets can be easily neglected. In addition, intangible assets almost never create value by themselves, as they need to be effectively and efficiently managed.

To make informed decisions about the future strategic direction of an organization, to challenge strategic assumptions and to continuously learn and improve, it is critical to understand the drivers of performance and competitive advantage. Intangible assets may be key drivers of future performance and sustainable competitive advantage. Therefore, organizations require mechanisms that allow them to assess their intangible value drivers (Marr, 2008).

Three main problems can be identified regarding the management of intangible assets: identification of intangible assets, their valuation, and the conditions of presentation in the financial statements. The first step in managing intangible assets is identifying and prioritizing them: what assets does a firm have and which of them are most important? This particularly applies to small and micro firms (Steenkamp & Kashyap, 2010). However, company

accounting standards are unsatisfactory in representing intangible investment. The challenge for managers is that huge significance is placed on financial accounting results. Yet many international organizations and initiatives have recognized flaws in current reporting systems that can derail strategies (Lev & Gu, 2016). It is vital that managers understand how limiting and less relevant external financial accounting and reporting are for informing managerial decisions to create economic value for a company's shareholders and owners and improve performance that is sustainable. Top management should take the initiative and advocate adopting accounting valuation practices that more fairly represent the fundamental economics that underlie the operation of their business. The information should reflect the resources and processes they manage, and, most important, they should use the information to make better decisions to be more competitive.

The growth of intangible investment has significant implications for managers. In an intangible-rich economy, a premium on good organization and management is placed. The intangible, knowledge-based assets that intangible investment builds have different properties compared to tangible ones. They are more likely to be scalable and their benefits to spillover, where these two characteristics stem from the fundamental properties of knowledge as a good, i.e. it can be used repeatedly, and it might be difficult to prevent others from using it. Moreover, intangible assets are more likely to have sunk costs (it is not possible to get the specific intangible investment back once it is spent) and they exhibit synergies with other intangibles. These specific characteristics of intangible assets call for increased coordination and as a result good organization and management will be in high demand.

For example, managing an intangible business as employment becomes increasingly knowledge-intensive can be a difficult task. The significance of key knowledge employees rises when their knowledge is tacit and keeping these assets in place can be much harder than keeping tangible assets. In addition, with synergies among intangibles, information sharing is going to be very valuable. But is authority the right way to organize information building in these combinations? Therefore, in intangible-rich firms the management team should be able to disseminate and share information both up and down the organization and keep loyal workers with the firm. That means using authority in a way that builds a good organization.

But how can managers build a good organization in intangible-intensive firms? Haskel and Westlake

(2018) advocate that they should choose the right organizational design depending on whether their companies mainly use or produce intangibles. If a firm is mostly a producer of intangible assets (writes software, engages in design activities, produces research), then the management team may want to allow information to flow, facilitate serendipitous interactions, and keep their key talent. This suggests an organizational design allowing more autonomy, fewer targets, easier access to management and increasing importance of systemic innovation. Therefore, in such firms the role of management is critical in coordinating the synergies that will successfully channel innovation to market. Likewise, the skills for managing the innovation process will be different than before, as the innovation process itself becomes more important and requires easier exchange of ideas, experimentation, and more rapid implementation of ideas. On the contrary, if the firm is a user of intangible assets (e.g. Starbucks or the Amazon warehouse), the organization and management differ aiming at more hierarchy and short-term targets, since managers are more concerned with low performance and less worried about information flow from below.

Finally, leadership is important in an intangible-intensive firm, because it complements authority relations and organizational structures. To exploit synergies from knowledge employees and scale up operations is perhaps difficult to manage by simply exercising authority and control. Leadership in the sense of motivating loyalty and effort would be required as well (Haskel & Westlake, 2018).

### 3 The challenges of measuring the size and contribution of intangible assets

Every measurement starts with data needs. However, in case of intangibles definition of data needs is a moving target, as the interest in intangibles is developing at different levels and in different fields. This also means that the conceptual framework is developing as well. As mentioned in Section 1.1, a broad definition of investment that covers also intangibles may be taken from Corrado et al. (2006, p. 11) who state that *»any use of resources that reduces current consumption in order to increase it in the future qualifies as an investment«* and call for *»symmetric treatment of all types of capital«*. This very abstract conceptual definition allows us to cover various types of tangible and intangible assets. Measuring investment in tangible assets has long tradition, is well established in business accounting and is harmonized in official statistics as part of national accounting framework. On the contrary, there is no standard typology of intangible assets.

Corrado et al. (2005, 2006) classify intangible assets into three types:

- *innovative property* that encompasses both » scientific R&D « embedded in patents and licenses and »nonscientific R&D«, including non-patented know-how, mining R&D, innovative and artistic content in commercial copyrights, licenses, and designs;
- *computerized information* that reflects knowledge embedded in computer programs and computerized databases; and
- *economic competencies* that represent the value of brand names and other knowledge embedded in firm-specific human and structural resources.

This conceptualization is prevalent in economic literature, although other types of intangible capital can be identified (e.g. for relational capital, social capital of the firm and eco-capital, see Prašnikar, 2010; Prašnikar & Knežević Cvelbar, 2012; Prašnikar et al., 2012). There are also streams of research that focus only on a single type of intangible assets (e.g. research on human capital, research on brand value, etc.), but for the purpose of this paper, we limit ourselves to approaches that treat intangibles holistically, that is all types of intangibles at the same time.

To assess the value and contribution of investment in intangible assets to productivity and growth, past research mainly relied on macro and industry-level data, as well as other scattered data sources. Although far from perfect, these mainly secondary data sources are much richer compared to primary data collections on intangibles. Although the French National Statistical Institute led a pilot survey in 2005 on selected activities related to intangibles, namely marketing, R&D, innovation and intellectual property (Kremp & Tessier, 2006), and the Israeli National Statistical Institute explored the service lives of R&D (Awano et al., 2010), it was the UK *Investment in Intangible Assets Survey* conducted in 2008/2009 and 2011 that set the first model for operationalization of investment in six types of intangible assets that correspond to the classification by Corrado et al. (2005, 2006): (1) Software (corresponding to computerized information), (2) R&D, and Design (two types corresponding to innovative property), and (3) Reputation and branding, Employer funded training, and Organization or business process improvement (three types corresponding to economic competencies).

Several surveys followed the UK model by using approximately the same six types of intangible assets: (1) two surveys conducted in Italy in 2003 and 2021 by the Italian National Institute for the Analysis

of the Public Policies (INAPP), in cooperation with the Italian National Statistical Institute (ISTAT); (2) the Eurobarometer survey conducted in 27 EU countries, Croatia, Iceland, Japan, Norway, Serbia, Switzerland, Turkey, FYRM, and the United States in 2013; (3) the international survey conducted in Denmark, Finland, France, Germany, Greece, Slovenia, and the UK in 2020/21 as part of the EU Horizon 2020 Globalinto project.

Despite this fundamental similarity as well as the fact that they all covered manufacturing (with some covering also services), these surveys in addition differed in many aspects (for an in-depth comparison, see Bavdaž et al., 2022). Most importantly, they differed in what kind of data they collected about investment in intangible assets. This fact alone suggests that the operationalization of the concept of intangibles is demanding. The key variable, the amount of investment for each type of investment broken down into purchased assets and assets developed in-house, was operationalized in three ways: (1) straightforward in monetary terms, rounded to a thousand British pounds/euros in the UK and Italian surveys, respectively; (2) as percentages of the business turnover in the French and GLOBALINTO surveys; (3) as percentages of the business turnover grouped in seven intervals (0%, Less than 1%, 1–5%, 5–15%, 15–25%, 25–50%, More than 50%) in Eurobarometer.

Some surveys also asked for a typical asset life as an approximation for depreciation rates, specific types of intangible investment (e.g. types of design) and business aspects like strategy, motivations, competition, barriers, risks, innovation, expected benefits and impact, impact of policy, and impact of crises. As a result, all surveys investigated the size of investment, however, how this size was expressed and what other information was available contributed to a different analytical potential.

Comparison of UK survey data on intangibles with innovation data, collected in a separate survey, revealed a relatively high proportion of inconsistency, despite very similar questions (see Martin & Baybutt, 2021). This confirms that measurement of intangibles is demanding. Part of the problem is inherently linked to the characteristics of intangibles (Bavdaž et al., 2022; Corrado et al., 2005; Goodridge et al., 2014; Haskel & Westlake, 2018). Intangible assets are intangible, mobile, often produced in-house over longer periods of time and difficult to price (as in-house may also mean within business groups and multinational companies where pricing might be discretionary). In addition, data about intangible assets may be spread across the business. For instance,

purchases are available in the accounting system, time spent in training might be recorded in the human resources department, work on databases is likely best understood in IT department, strategic questions are best answered by the top management, etc. Each type of question and/or type of intangibles might have a different best respondent, which calls for a complicated internal response process to provide the required survey data or leads to compromises regarding data quality. Further complications refer to relevant units of observations that go beyond legal units, and good sampling frames that are often not available outside official statistics. As elaborated in Section 2, some data might even not exist or be very difficult to estimate if an activity is not monitored (e.g. some types of training), which causes problems for surveys on intangible assets and internal management of these assets.

To be able to measure intangible investment in a systematic and internationally comparable way, two things need to be addressed immediately: harmonization of concepts to reach a unified definition of intangibles and encouragement of businesses to monitor investment in intangibles to ensure better data availability at the business level (Bavdaž et al., 2022). In the meantime, relatively minor adjustments to current survey data collections in the European Statistical System would go a long way in overcoming currently scattered data sources (Bavdaž et al., 2021).

#### 4 Conclusion

Intangibles are listed in many strategic and analytical national, supranational and international documents, reports and studies in various nominal versions, depending on whether they concern the private sector, the public sector or society as a whole (e.g. World Bank Group, 2019). Estimates from various renowned researchers confirm the importance and contribution of intangible assets both for developed and emerging markets (Corrado et al., 2009; Fukao et al., 2009; Piekkola, 2018; Roth, 2020; Roth & Thum, 2013; Tsakanikas et al., 2020; van Ark et al., 2009). It is also important to note in view of turbulent political and economic developments that intangibles have been shown to be more robust during the crisis (Roth, 2020) and the pandemic (Redek, 2021). More specifically, companies that have invested in multiple investment categories of intangibles were less affected in the Covid-19 crisis in terms of profit margin and employment (Caloghirou et al., 2022).

However, although intangible assets are gradually recognized as significant sources of business growth

and productivity gains, there are several challenges ahead. First is the challenge of measurement and identification of comparable unified results. Namely, although the role of intangibles is now recognized, the measurement of their value and contribution are still in their infancy. Despite the need for regular and systematic measurement of intangibles, their treatment is frequently inconsistent and uncoordinated, resulting in severe limitations in measurement and comparisons over time and between countries. Therefore, one of the major future challenges is the adoption of a standardized methodology at international (e.g. United Nations) level.

Second, both the policymakers at the national and supranational level as well as managers should acknowledge the importance of intangible capital. This is particularly important also in view of the new growth paradigm in the EU, which is expected to rely on the new, Industry 4.0 technologies, as well as introducing new, green growth models. Both rely heavily on knowledge resources, thus simultaneous investment in intangibles and transformation towards technologically more advanced and sustainable business models will be the most efficient combination. Furthermore, in an economy nurturing intangible-intensive firms, good organization and management will be in higher demand. Considering the particular characteristics of intangible assets, including more sunk costs, spillovers, and the opportunity for scale-up and synergies, additional management coordination and choosing the appropriate organizational design are essential. In addition, management in the simple sense of exerting authority will likely not be enough. Leadership, in the sense of inspiring and motivating loyalty and effort will be required to exploit synergies from knowledge-intensive employees and scale up operations in intangible-rich firms.

In the future, strategically, knowledge-led economies will flourish and competitiveness will increasingly rely on soft growth factors. Thus, it is eminent that both policymakers and managers acknowledge the importance of intangibles and bold steps are made towards increasing this source of productivity growth.

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