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The next gold medal: How Hungary can win the productivity race in the digital age

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About McKinsey & Company

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Preface

A new era of technological disruptions, an aging population, urbanization and a multiplying web of interconnectedness are irreversibly shaping the world's economy. Although these trends create an unprecedented amount of uncertainty for economies and companies alike, they also represent an exciting opportunity for the brave actors willing to harness them.

Twenty years ago, McKinsey opened its Budapest office. Since then, our office has become a trusted advisor to many of the most notable enterprises present in Hungary and in the region. Our consultants have served companies across industries, helping them to address, among others, the most significant questions of the digital age.

The megatrends of this new era present opportunities on a magnitude that has never been seen before, and Hungary is well positioned to reap the benefits. In an effort to assist the country in this endeavor, we have used our expertise in various industries and economic development to analyze four areas that are best placed to propel labor productivity to the front lines of growth and serve as catalysts for the entire economy. These are: life sciences, automotive, knowledge process outsourcing and small- and medium-sized enterprises.

The report's recommendations, which ultimately aim to narrow the wealth gap between Hungary and the OECD average, do not focus on upscaling volume, but rather on increasing labor productivity. This is especially relevant, as longing for a sense of purpose has never been as strong as it is today, in the age of not only digital, but also of Hungary's strive for gold medals. By increasing labor productivity in these four sectors, Hungary's next gold medal – among the aforementioned benefits, an annual incremental GDP increase of 0.5-0.7 percent over the next decade – is well within reach.

Acknowledgments

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Introduction

Global headwinds in the digital age

In less than 30 years, Hungary has developed a highly diversified economy that hosts both regionally relevant companies as well as globally renowned startups. Its automotive, life sciences and knowledge process outsourcing sectors are particularly strong. Even more remarkable is the fact that Hungary's economy has continued to grow despite being hit by various external shocks, including the Russian and Southeast Asian financial crises in 1997, the burst of the dotcom bubble in 2001, and the global financial crisis in 2008.

Today, Hungary is at a crossroads: how to craft the future path of an economy that enters the digital age. Multiple global trends are on the horizon that are shaping the future of Hungary's economy and its position globally.

The McKinsey Global Institute (MGI) has defined four global 'megatrends' that are impacting economies across the world: the industrialization and urbanization of emerging economies; the impact of disruptive technologies; aging of population; and accelerated global integration.¹ [exhibit 1]

These four trends define the digital age – a period that is characterized by major challenges as well as opportunities. Countries that successfully formulate their responses may become the winners of this era, and therefore lay their foundations of growth. In order for Hungary to thrive in the period to come, such trends need to be taken into consideration.

Exhibit 1

4 megatrends are changing the world and are expected to shape our future



SOURCE: McKinsey Global Institute



Hungary's productivity challenge

We consider some of the implications of these trends on Hungary, below.

Industrialization and urbanization of emerging economies

Consider the impact that industrialization is having on emerging economies: by 2025, and for the first time in history, over half of global population are likely to have the disposable incomes necessary to become members of the consuming class. Members of the consuming class are those that are earning at least USD 10 per day, and hence, have enough income to spend on discretionary items (beyond the basics of food, clothes and housing). A related and equally significant consequence of industrialization is that nearly half of the world's billion-dollar-plus companies will be headquartered in urbanized emerging markets by 2025,² marking a shift in the balance of global economic power to the south and east, and intensifying competition in some of Hungary's key sectors. Hungarian companies will need to be prepared to compete successfully in the emerging markets.

Disruptive technologies

Technological innovations are also accelerating, impacting consumers and producers at an unprecedented pace. On the one hand, adoption of new technologies has accelerated: it took 38 years for the radio to reach 50 million users, 13 years for the television – and only four years for Twitter. On the other hand, there are a number of new technologies that are disrupting how people use IT (e.g. automation of knowledge work, Internet of Things), build things (e.g. 3D printing and next-generation genomics), use machines (e.g. autonomous vehicles and Industry 4.0) or generate energy (e.g. energy storage and renewables). Such innovations are redefining the workplace.

The share of jobs involving routine tasks has declined substantially over the last decades (share of bookkeeping and secretary jobs in the US workforce between 1970-2010 decreased by 43 and 59 percent, respectively). According to McKinsey's research on potential of workforce automation, 45 percent of all current activities can be automated by adapting currently demonstrated technologies. For Hungary, that would mean that nearly two million current jobs may be subject to redefinition or transformation over the next ten years.³ At the same time, emerging technologies will create demand for talent adept at using them, which will require proper training.

Aging population

By 2025, the share of the population above 60 years old will reach 29 percent in the developed economies, versus just 12 percent in 1950. By 2050, the shift will be starker, with number of people at or above the age of 60 matching number of those below the age of 15 for the first time in history.⁴ In Hungary, the working age population (16 to 65 years old) is expected to shrink by two million by 2050,⁵ posing challenges to the social security system and creating a need to engage the above 65 years old population to the workforce.

Greater global interconnections

Parallel to these trends are surging global trade flows, which expanded from USD 4 trillion in 1990 to USD 19 trillion in 2014.⁶ Information and data flows scored an even more impressive 45-fold increase between 2005 and 2014. Hungary's nominal international trade is expected to grow by USD 38 billion by 2020.⁷ Continued growth in global trade, capital and labor mobility will amplify Hungary's exposure to opportunities and risks.

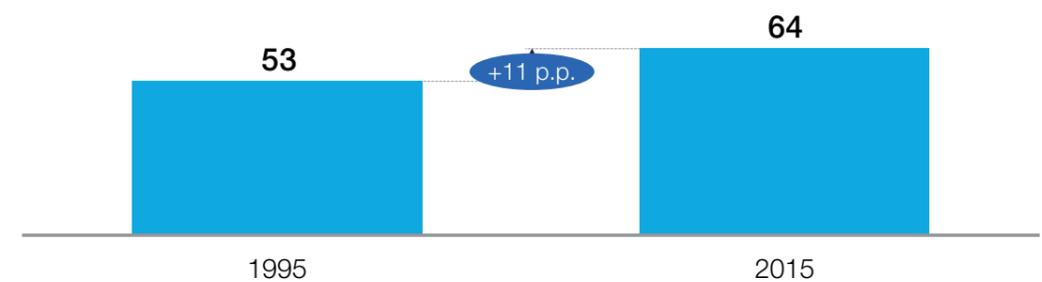
Over the last 20 years, Hungary has converged to the developed countries: its GDP per capita has risen from 53 percent of the OECD average in 1995 to 64 percent in 2015.⁸ [exhibit 2] Growth periods

are prone to slowing down if they are not fueled by a continuous exploration of new opportunities. To launch its next wave of economic growth, Hungary needs to identify these new opportunities.

Exhibit 2

Over the last 20 years, Hungary's GDP per capita was growing at a faster rate than the OECD average, closing the wealth gap by 11 percentage points

GDP per capita in Hungary
%, 100% = OECD average



SOURCE: OECD

In order to craft a future growth path, it is necessary to understand the underlying dynamics of Hungary's economy. Decomposing per capita GDP indicates that labor productivity is the key factor in explaining the gap between Hungary's per capita GDP and the OECD average. Labor productivity, measured by value added per hour worked, was 67 percent of the OECD average in 2015. Hungary scored better than Poland, yet below Austria, Czech Republic, Slovenia, and Slovakia. [exhibit 3] In addition to labor productivity, both employment rate in the population (inclusion) and total hours worked are important factors. However, since Hungary has the most improvement opportunity within labor productivity, we believe that this is the main key to growth.

A deeper analysis suggests that the dual structure of Hungary's economy is largely responsible for the productivity gap between Hungary's small- and medium-sized enterprises (SMEs, 50 to 250 employees) and larger companies (over 250 employees) is among the widest in Europe. Moreover, internationally owned companies operating in Hungary are three times more productive than locally owned companies, partly because of better capital intensity, but also due to stronger management.⁹

These large productivity gaps limit the competitiveness of all Hungarian companies, translate to wages that are below those in many developed countries, and therefore constitute a major challenge for Hungary's economy going forward. Hence, our report focuses on providing perspective on how Hungary can win the productivity race.



Exhibit 3

A gap in labor productivity presents the key improvement area to fuel Hungary's growth

Values indexed to OECD average

GDP decomposition – indexed to OECD average, 2015

	GDP per capita	= Hours worked per employee	x Employment in total population	x Labor productivity ¹
OECD - Total	100	100	100	100 ²
Austria	115	92	109	115
Czech Republic	78	101	108	72
Slovenia	76	95	100	80
Slovakia	74	99	92	81
Poland	65	111	97	60 ²
Hungary	64	99	97	67

¹ Derived metric, GDP produced per working hour
² Missing value in 2015, replaced by value from 2014
 SOURCE: EIU

Two pillars of growth

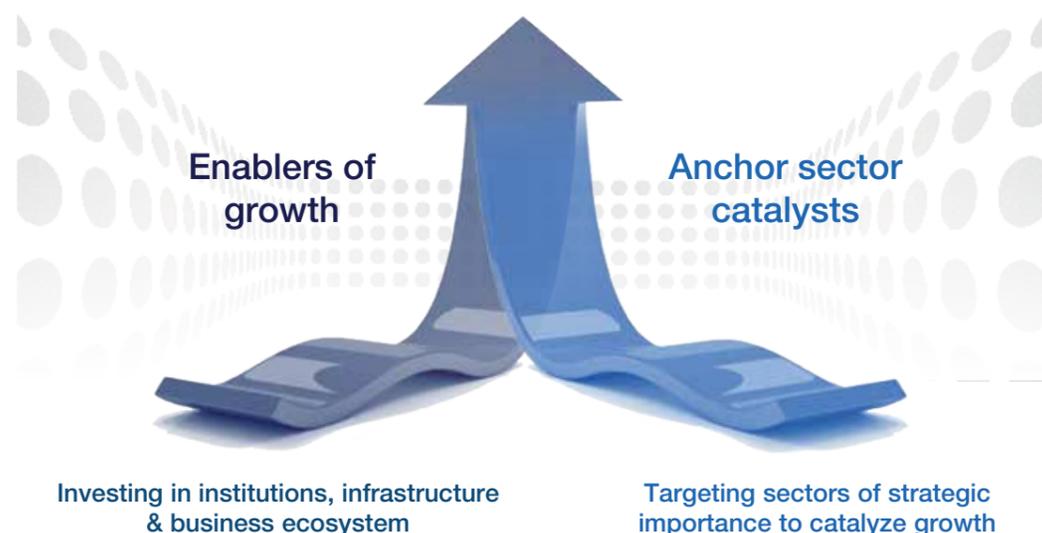
Based on international examples, setting an economy on a productivity-led growth trajectory requires a two-pronged approach. One prong acts as an enabler on the ecosystem, supporting the economy by enhancing the necessary infrastructure and institutions. The other prong targets a number of “anchor” sectors and aims to catalyze their growth. [exhibit 4] In such a dual initiative, these catalysts’ influence goes beyond their respective target sectors. If the right ecosystem enablers are also in place, this allows their effects to ripple through the economy. However, choosing the right anchor sectors is a daunting task.

There are multiple successful examples that prove how a country can achieve significant economic growth by supporting entrepreneurs and companies, usually by employing smart policies that focus on both prongs.

Consider the example of Ireland, which achieved annual GDP growth rates of up to 11 percent¹⁰ in the 1990s by attracting foreign investment to what were then key growth industries: software development, semiconductors, and pharmaceutical and medical device manufacturing. Ireland’s main attraction was a ready supply of skilled workers, including scientists, engineers and business-school graduates. In addition, measures creating favorable conditions for investors in the target industries were enacted.

Exhibit 4

Addressing both pillars of growth are essential to uplifting productivity



Another example is Singapore, where the government responded to the 1997 Asian financial crisis by accelerating support of the knowledge and innovation-driven sectors. This was supplemented by heavy investments in education and attraction of skilled foreign workers to uplift the talent base. One of the targeted sectors, biomedical sciences manufacturing, now contributes to over 20 percent of manufacturing gross value added and employs around 10,000 people.¹¹

Similar to Ireland and Singapore, as early as the 1980s Israel began promoting technology-based, export-driven industries building on the thriving scientific research and education. As a result, Israeli high-tech companies have attracted USD 3.4 billion investments in 2014, and the country now ranks second in the world in terms of gross domestic expenditures on research and development (R&D) (4.1 percent of GDP).¹²

These and other international success stories share a number of consistent insights:

- It is essential to create the appropriate real and human infrastructure to enable new investments, especially skilled labor
- The role of institutions is critical in enabling sustainable economic growth
- Countries strategically select the sectors to target with catalyst programs, very often choosing those with proven track records in the economy and solid performance
- Governments take a forward-looking perspective by understanding trends and developments to select sectors with a viable outlook; this is especially important in the midst of the digital age, which is characterized by rapid technological change and disruption of traditional industries
- Targeted anchor industries are increasingly innovation- and service-oriented, as services offer the highest value-add, hence contributing to increasing labor productivity,

- Collaboration between the public sector, the private sector and academia is vital to ensure that objectives are aligned and the appropriate measures are taken in order to train a skilled labor force, attract new investments, and promote an ecosystem of innovation

In the following sections, we briefly introduce the two pillars of growth: “ecosystem enablers” and “anchor sector catalysts.” Both are essential to uplifting productivity. Our report details out a few example targeted initiatives.

Pillar I: Ecosystem enablers

To smooth the path toward further economic progress, it is important to nurture both the physical and soft infrastructure, such as skilled labor, on which all industries depend. Enablers of the economy include the quality and size of the labor force, the underlying infrastructure, and institutions that help companies operate. Addressing such structural factors are critical to progress, even though they may only yield benefits in the longer term.

For instance, digitization of public services is critical to enhancing efficiency and therefore to reducing the administrative burden on companies. Estonia provides a noteworthy example: the country managed to enhance competitiveness and improve public service efficiency via a massive digitization program. Estonia’s 1.3 million residents can use electronic identification cards to vote, pay taxes, and access more than 160 services online, from unemployment benefits to property registration.¹³

Digitization should complement concomitant efforts to implement education and training programs that boost productivity of the current workforce and expand the availability of employable labor. One essential factor is skill building: adjusting the vocational education to better reflect market needs and establish an effective approach to retraining people to obtain skills with higher demand. All of the described

enablers contribute vitally to economic productivity and competitiveness.

Pillar II: Anchor sector catalysts

Countries at any point of economic development should be focusing on enhancing the factors that promote growth. In the case of a two-pillar development program such enablers help to amplify the effects of concurrent initiatives targeting specific sectors for growth. Strategic prioritization can help countries to gain a competitive edge in focus growth industries or to regain growth momentum.

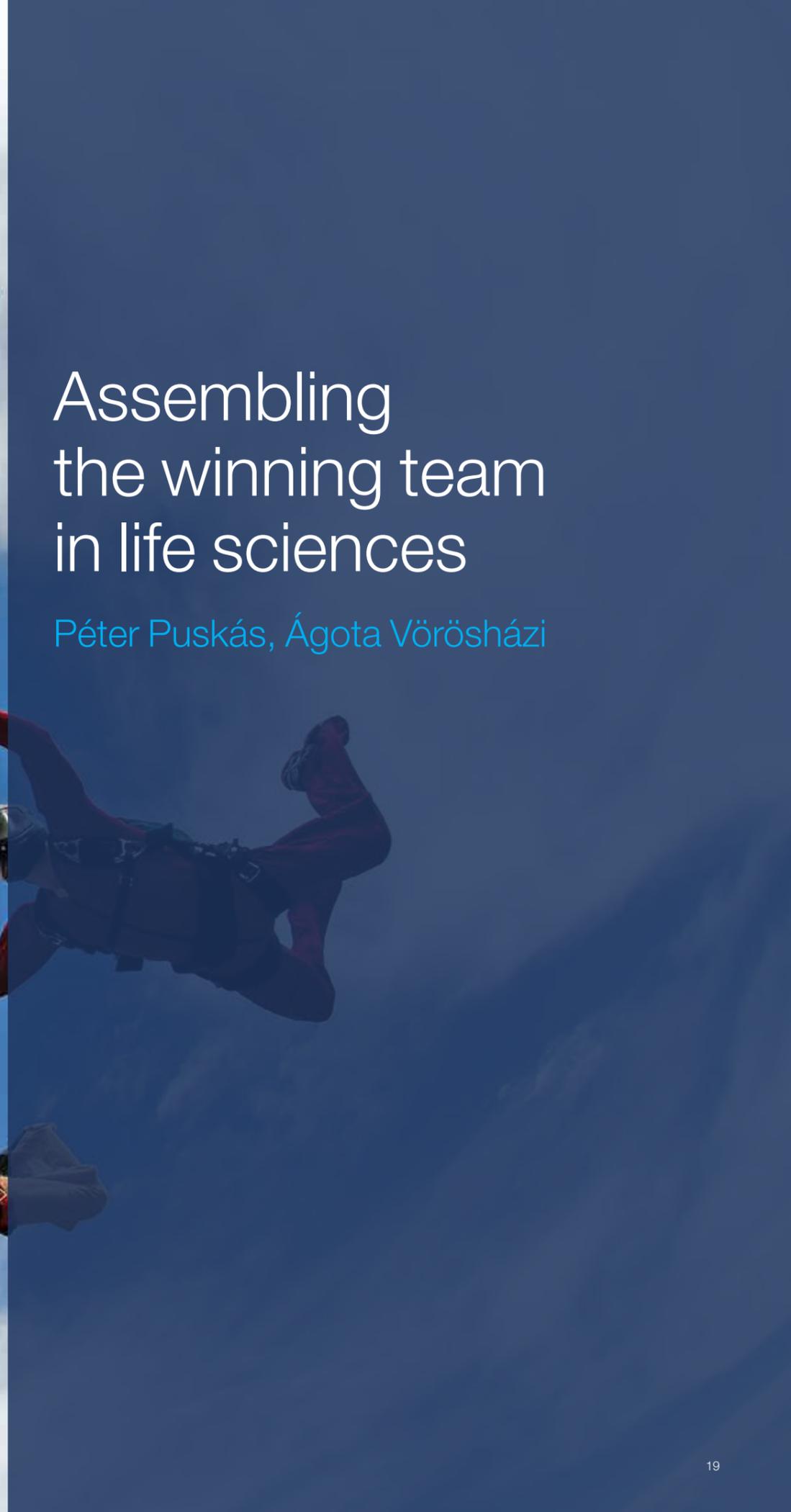
In our report, we chose to focus on four anchor sectors that could benefit from growth-catalyzing initiatives. We based our selection on a number of factors, with the ultimate aim of selecting sectors where such initiatives could have the most impact. The main considerations were current strategic importance within the Hungarian economy, for example high share of employment, export, value added; existing strengths and trajectory; and position to capture trends of the digital age. The four sectors are: small- and medium-sized enterprises; automotive; life sciences; and centers of competence for advanced knowledge services.

We conducted deep-dive analyses on each of these sectors to identify challenges and determine potential strategies for future growth. While details differ across sectors, all four share a need for enhanced productivity; industry participation in talent development; increased ties to international institutions to facilitate networking and access to financial networks; and infrastructure and policy support to amplify their value propositions. We present our four sector analyses in the subsequent chapters.



Assembling the winning team in life sciences

Péter Puskás, Ágota Vörösházi



Hungary has been cultivating fertile ground for pharmaceuticals and medical device manufacturers for over a century. It has given rise to global stalwarts such as Richter and EGIS, and more recent technology pioneers such as Cryo and iKnife by MediMass. Top multinationals bring their investments to Hungary. Combined revenues in the pharmaceutical and medical device manufacturing industries are growing at eight percent per year, driven by global demand for increasingly sophisticated medical sciences products and services.¹⁴

The most important trends shaping the life sciences industry are the aging of population, urbanization and technology-driven disruptive innovations. The former two offer reassurance for manufacturing-focused economies, as new entrants to the global consuming class and the elderly are expected to fuel demand for pharmaceuticals and medical devices. Disruptive innovations in life sciences are less apparent for the end consumer, since they typically take

a substantially longer time to market given the industry's complex needs and processes. Even though there is apparent disruptor in the life sciences space, there is a hunger and a long pipeline for innovations that could redefine the industry.

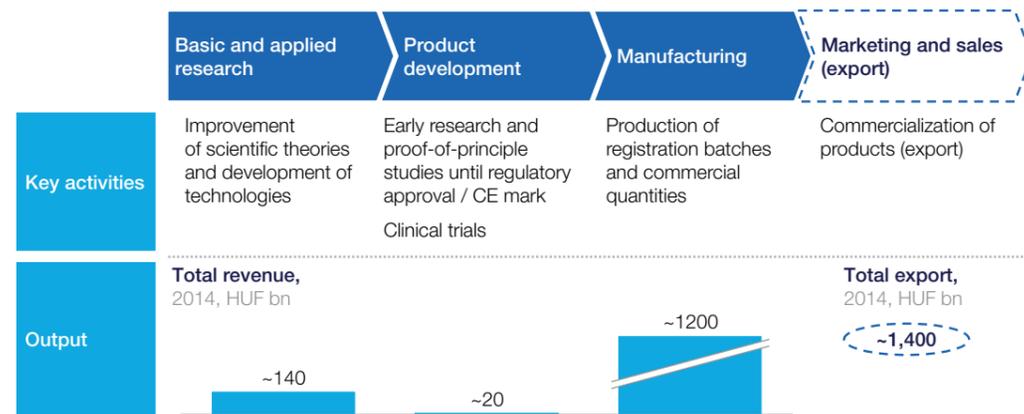
Hungary is unique in that it has all the building blocks necessary to serve demand in the life sciences and become a major medical science hub: a decent education system, well-established players, and access to international markets. The main concern, however, is that none of the blocks are connected in a way to reduce transaction costs and facilitate innovation and commercialization at scale.

To address these obstacles, Hungary would benefit by constructing an ecosystem that serves the industry at a scale that supports large international players, while also encouraging small- to medium-sized life sciences businesses to innovate and internationalize more prolifically.

Exhibit 5

Hungary's life sciences activity covers all aspects of the value chain with a very strong spike in manufacturing

Overview of pharmaceuticals and med tech economic activity in Hungary



SOURCE: Central Statistical Office (KSH), Eurostat



Setting the stage

A strong baseline

Hungary's pharmaceuticals and medical device industries already rank among the most sophisticated in Central and Eastern Europe (CEE). In addition to local champions, Hungary also hosts a number of major global pharmaceutical players. Today, the pharmaceutical and medical technology industries together account for about a third of total research and development (R&D) expenditure and 12 percent of all R&D staff in technology and medical sciences. Industry revenues are strong, particularly for manufacturing, which saw nearly HUF 1.2 billion in revenues in 2014. [exhibits 5, 6]

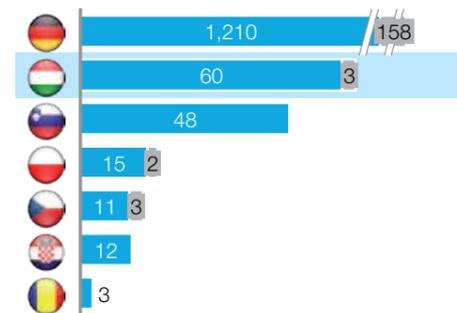
- Basic and applied research expenses: ~HUF 140 bn.
- Product development: ~HUF 20 bn.
- Manufacturing output: ~HUF 1,200 bn, primarily driven by multinational companies
- Marketing and sales (exports): ~HUF 1,400 bn. (~5% of total exports)

Exhibit 6

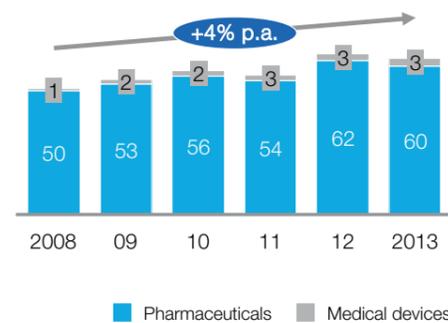
Life sciences R&D spend in Hungary has been increasing at an annual rate of 4%, positioning the country as one of the highest spenders

Business enterprise R&D spend

Across selected EU countries
2013, HUF bn



In Hungary
HUF bn

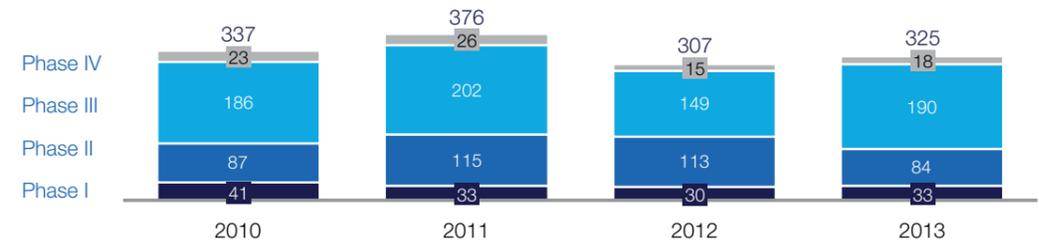


SOURCE: Eurostat, Central Statistical Office (KSH)

Exhibit 7

Clinical research organizations have been drawn to Hungary, resulting in ~300 new clinical trials per year

Number of new clinical trials per year



SOURCE: Association of Innovative Pharmaceutical Manufacturers (AIPM)

Clinical research organizations (CRO) have also been drawn to Hungary's qualified and relatively inexpensive labor force, treatment naïve (not having undergone treatment for a particular disease, and therefore eligible for a high share of related trials) patient base, and ability to produce high-quality data. CRO revenues in Hungary totaled approximately HUF ~30 billion in 2012, with 325 new trials launched and a total of 19,000 patients enrolled in 2013. [exhibit 7]

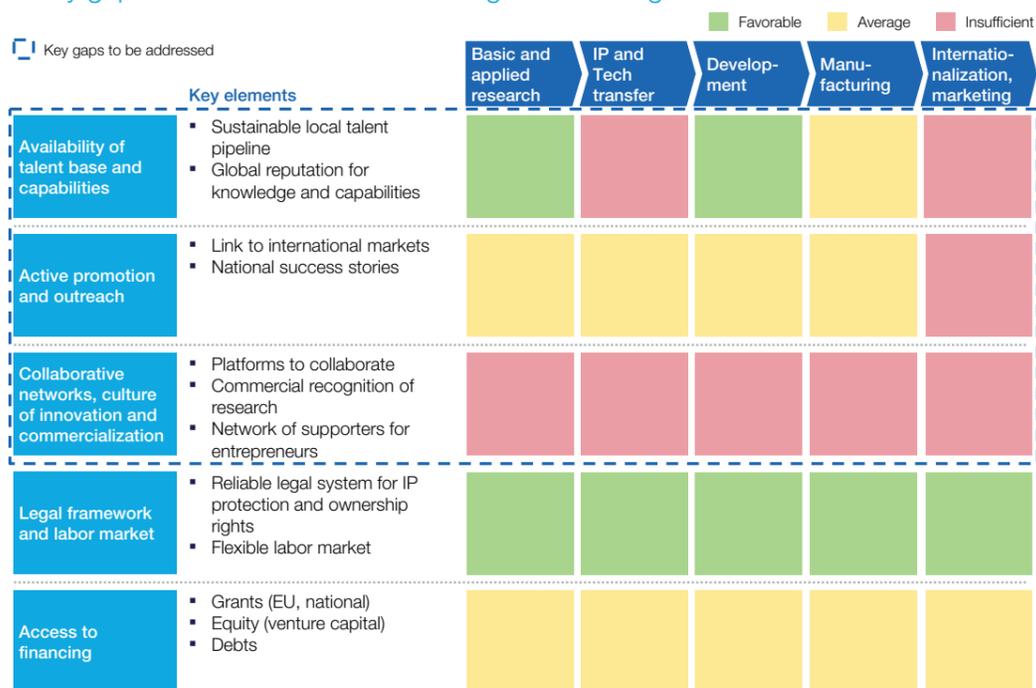
Roadblocks to progress

The above cases demonstrate what is achievable when innovation, institutional collaboration, and international markets collide. However, these examples represent the exception, not the rule: many Hungarian medical sciences projects and companies are failing to thrive, partly because they have not yet forged the kind of ties to local and international institutions that would promote innovation, instill managerial capabilities, build an employment-ready talent pool, and open channels to financing.¹⁵

Five factors are critical for creating synergies between the interests of companies, financial networks, research- and educational institutions: sustained availability of talent and capabilities; active promotion and outreach; collaborative networks, a culture of innovation and commercialization; supportive infrastructure; and access to financing. When all factors are in place, they enable the formation of an innovative industry cluster – exactly what Hungary's medical sciences sector needs to meet changing global demand. [exhibit 8]

Exhibit 8

3 key gaps should be addressed to forge the missing links in life science



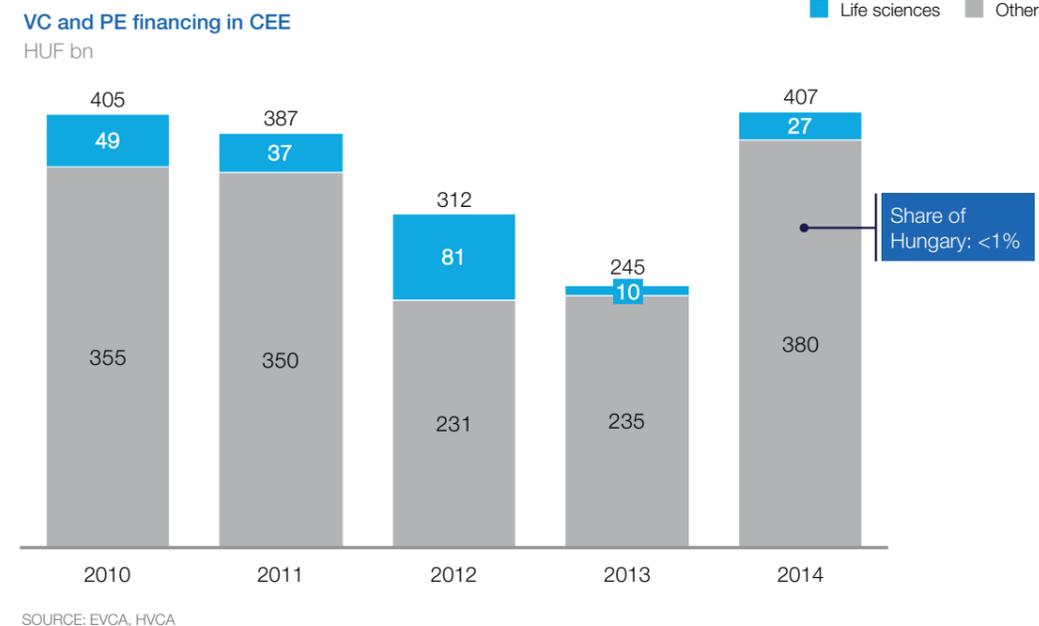
Hungary performs well on some of these factors and lags in others. It boasts a high number of graduates in medical sciences-related fields; for example, in 2014, ~16,000 high school graduates entered into scientific faculties of universities. The physical infrastructure supporting the medical sciences is mature, and – with the notable exception of intellectual property rights management capabilities – industry-related regulatory policies are stable and supportive. While more financing options are needed, venture capitalists and private equity players are actively seeking investments in the sector. [exhibit 9]

Where Hungary’s medical sciences industry falls short is in cultivating a broader and deeper international presence, denser collaborative networks among industry stakeholders, and training programs that instill managers with skills to successfully commercialize industry innovation. By filling these gaps, Hungary could create the kind of business operating environment that medical science companies need to flourish.

Our options for the sector to consider include focusing on supporting the operations of existing medical science multinationals; creating opportunities for research spin-offs; expanding local clinical development activities; attracting new manufacturing projects; and sustaining the expansion of medium- and large-sized exporters.

Exhibit 9

Although some investments from venture capitalists and private equities are available, there is still a distinct need for financing





Gameplan

Models of success

Hungary's most successful medical sciences endeavors share common features, including strong ties to international markets and collaborative networks. Consider the case of Richter, which boasts the largest R&D center in Eastern Europe, and has successfully collaborated with foreign and domestic institutions to expand. It recently co-developed Cariprazine with Allergan from the U.S. Cariprazine treats bipolar disorder and schizophrenia in adult, received FDA approval in 2015 and was officially launched in 2016.¹⁶

Richter also successfully leveraged local partnerships to expand its biotechnology plant in Debrecen. The plant was established in 2012 and is now expanding with support from the state and the University of Debrecen, which is training employees in the kind of specialized expertise Richter needs at the plant. The government is contributing close to HUF 5 billion towards the expansion, allowing Richter to nearly double its current biotechnology manufacturing capacity and establish analytical capabilities that can be used to rate plant products and address nationwide storage issues.¹⁷

Foreign firms are also expanding operations as they are attracted to Hungary's relatively productive workforce, proximity to European markets, and specialized expertise in the medical sciences. Hungary's largest medical technology exporter, GE Healthcare, has doubled its capacity in Hungary since 2013, with partial financial support from the government.¹⁸ GE Healthcare's strategic partnerships with educational institutions, such as the University of Szeged and Eötvös Loránd University (ELTE), have been key to its success.

Local startups, such as Cryo and iKnife by MediMass, have also found success in Hungary's medical sciences industries with outside support. With financing from venture capitalists, Cryo invented and commercialized technology to improve cell tolerance to freezing and embryo monitoring systems used in in vitro fertilization. Cryo sold the technology to Sweden's Vitrolife in 2012.

Forging the links

For innovation to thrive, density matters. Consider tech hubs such as Boston and Silicon Valley, where university researchers collide regularly with industry incubators and venture capitalists. Peripheral players, including local governments and public relations firms that facilitate networking by hosting networking events and actively promoting the sector. This combination of activities has given rise to uniquely prosperous, entrepreneurial ecosystems that countries such as Israel and Belgium have replicated, and Hungary would do well to emulate.

Hungary, however, is still struggling to throw off its historical legacy. The volume of Hungary's pharmaceutical industry ranked sixth globally in the 1920s,¹⁹ but the second part of the 20th century shunted its growth. Although the country continued to serve as a research and development hub for Soviet bloc economies – a factor that would help it recover some of its lost glory in the transition to capitalism in the 1990s – opportunities encouraging innovation and collaborative networking were scarce.

Local companies have yet to establish close ties in foreign pharmaceutical and medical technology hubs in the USA or Switzerland, where they might establish the kind of collaborative networks that stimulate innovation and cross-fertilization, and that offer access to an expanded talent pool and financing.

Hungary could help to break this cycle by promoting local medical science champions, providing favorable financing conditions and state guarantees, and linking projects to key industry players, as in the case of Israel or Belgium. This could support Hungary's medical sciences companies extend their footprints to international markets, especially targeting life science hubs in the USA, giving them broader access to financing, specialized talent and customers.

Hungary could also entice international players to participate more actively in the domestic economy, such as by establishing partnerships with local universities and public research institutions. These partnerships can take many different shapes from guest lecturers to joint research projects. Such networks could help newer companies successfully spin-out intellectual property or complete licensing deals.

Main research universities in Hungary have already established technology transfer offices targeting the discovery, development and patenting of intellectual property (IP) management and broader technology transfer. However, these offices have yet to reach sufficient scale and integration into core research processes. These challenges can be overcome by hiring world-class talent, partnering with experienced organizations, and through mentoring. The initiatives above aim to translate the high R&D expenditure in medical sciences into an equally high number of research publications and patents. [exhibit 10]

Fostering innovation

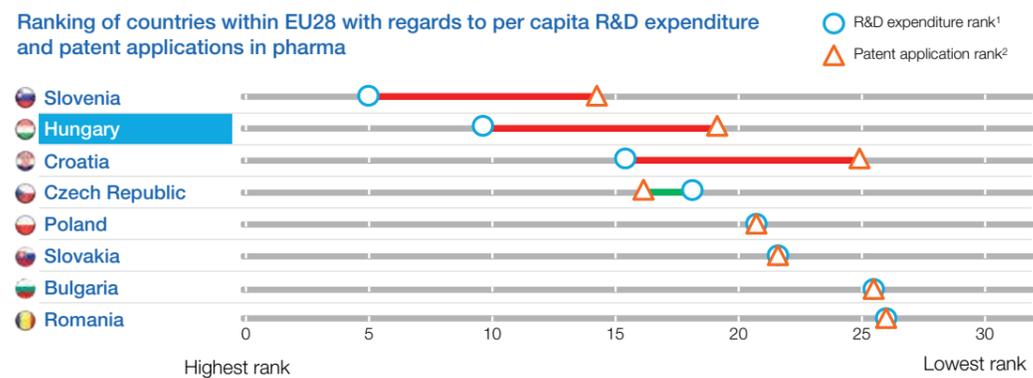
Through its programs, the European Institute of Innovation and Technology (EIT) health sector consortium, EIT Health, has fomented the kind of robust and vibrant competition that results in innovative breakthroughs. EIT Health is a good example of how to promote networking and innovation in the medical sciences industry, particularly for start-ups. EIT Health consists of more than 130 leading medical sciences companies investing a combined €2 billion toward promoting innovation and commercialization in the life science in six regional health sciences clusters: Croatia, Hungary, Poland, Portugal, Italy and Wales.²⁰ EIT Health sponsors efforts such as the "{Life Science} meets IT" hackathon, held in Hungary, which awards prizes to entrepreneurs who produce innovative, tech-forward business plans tackling a health sector problem.²¹ EIT Health also sponsors the InnoStars Awards competition for early-stage health science ventures, and offers financial and consultancy support to competition finalists.²²

Hungarian industry leaders and public agencies can consider similar initiatives to incite collaboration, such as by setting up online educational platforms and mentoring programs for local researchers and entrepreneurs, hosting collaborative working spaces dedicated to medical sciences at universities or research institutions, or organizing networking events that bring together local venture capitalists, international players and entrepreneurs. They can also do more to incentivize financial support for incubators focused on medical products.

Stronger, more vibrant links between local and foreign industry actors, educational and research institutions will go a long way to building the kind of networks Hungary needs to become a hub of innovation in the medical sciences.

Exhibit 10

Number of pharma patents does not reflect the relatively high spending on R&D





Keeping score

A range of collaborative actions to forge links in the medical science industry offers payoffs for a wide range of stakeholders, including existing multinationals (MNCs), educational institutions, investors, medium-sized companies, researchers and local governments. MNCs will be able to increase their R&D and manufacturing base in a more cost efficient way. Investors and MNCs will more easily source innovative, early-stage projects. Clinical trials will enjoy faster recruitment timelines, and deliver higher quality data. Universities and researchers will have opportunities to monetize research results and participate in global research. Local medium-sized companies will gain opportunities to expand and diversify sales across regions. The country as a whole would benefit from increased economic growth and related gains in investment.

To realize these benefits, a coordinated and orchestrated effort addressing the identified bottlenecks will be necessary amongst multiple players, both from the private sector and the political sphere. The prize should be worth it: scaling up mid-sized companies, attracting manufacturing sites, funding research spin-offs and attracting more clinical trials have the potential to increase annual industry output by over €800 million, contributing an uplift of close to 0.1 percent annual growth of Hungary's GDP through 2025. These changes could help Hungary become a regional, if not global, magnet of innovation.



Automotive: Stepping up to the world cup

András Kadocsa, Ricardo Moya,
Krisztián Lipcsei

In just two decades, Hungary's automotive industry has emerged as a manufacturing and assembly powerhouse. The sector contributes four percent to the country's GDP²³ and employs 3.6 percent of the total active workforce.²⁴ Automotive is the country's most important manufacturing subsector, and one with great potential for growth. But a number of global trends, including a move by investors toward lower-cost Asian destinations and the rise of new technologies requiring specialized labor, threaten to stall the subsector's progress. To stay in the game, Hungary will need to launch development initiatives and transform Hungary into the preferred destination for high value-added manufacturing.

Hungary can begin by championing automotive manufacturing and assembly as a flagship industry. Specifically, it could establish an automotive cluster that offers integrated industry-specific services and infrastructure. The government could also steer a longer-term shift from basic manufacturing towards a service-based industry delivering research and development (R&D) services and technologically advanced manufacturing. To this end, Hungary will need to incentivize investments in higher value-added projects, such as automotive complexes offering business and R&D functions that transform Hungary from inexpensive offshore assembly destination to high-tech near-shore R&D hub.

To accomplish these objectives, Hungary will need education initiatives geared toward building a pool of industry talent. Educational partnerships with automotive players, and explicit targeting of high value-added investments will be key. Our estimates suggest that the right combination of initiatives could enable automotive to stay on its explosive growth trajectory, with a potential for nearly 100,000 new jobs and a 0.3 percent increase in annual GDP growth through 2025.



Setting the stage

Automotive is Hungary's most important manufacturing subsector

The automotive industry accounts for 18 percent of Hungary's gross national exports, and 11 percent solely comprises passenger vehicles. Since 2005, three of Hungary's original equipment manufacturers (OEMs) – Audi, Mercedes, and Suzuki – more than tripled combined production to 520,000 vehicles in 2015.²⁵ The sector supplies vehicles to most of Western Europe, as well as the U.S., China, and Japan. [exhibit 11]

Relatively low wages and proximity to key markets have been key to Hungary's attractiveness. Gross manufacturing wages average less than USD 5.5 per hour, which is just a fifth of wages in the

highest-cost countries. But with wages rising at a compound annual growth rate of two percent, and steeper increases expected. Hungary is losing its appeal as manufacturers take their investments to destinations offering lower labor costs and higher labor availability.

Today, Hungary's strategic importance to global automotive manufacturing is not one-way. Due to a heritage dating back to 1905 (only 18 years later than the inception of automotive in Germany), the sector became a cornerstone of the Hungarian economy: it was the single largest subindustry within manufacturing in 2015 with regards to employment.

Exhibit 12

A large number of manufacturing companies are moving capacities to other countries on grounds of shifting global markets or labor cost/availability

Examples from recent manufacturing exits in Hungary

Subsector	Number of employees restructured ¹	Year	Where to	Rationale
High Tech	1,620	2014	Vietnam	Cost rationalization
High Tech	500	2014	Malaysia & Japan	Hungarian market is shrinking
Automotive	500	2015	Poland, Romania & Germany	Unable to expand locally
Packaged goods	160	2015	Belgium, Poland, Germany & France	Hungarian market is shrinking

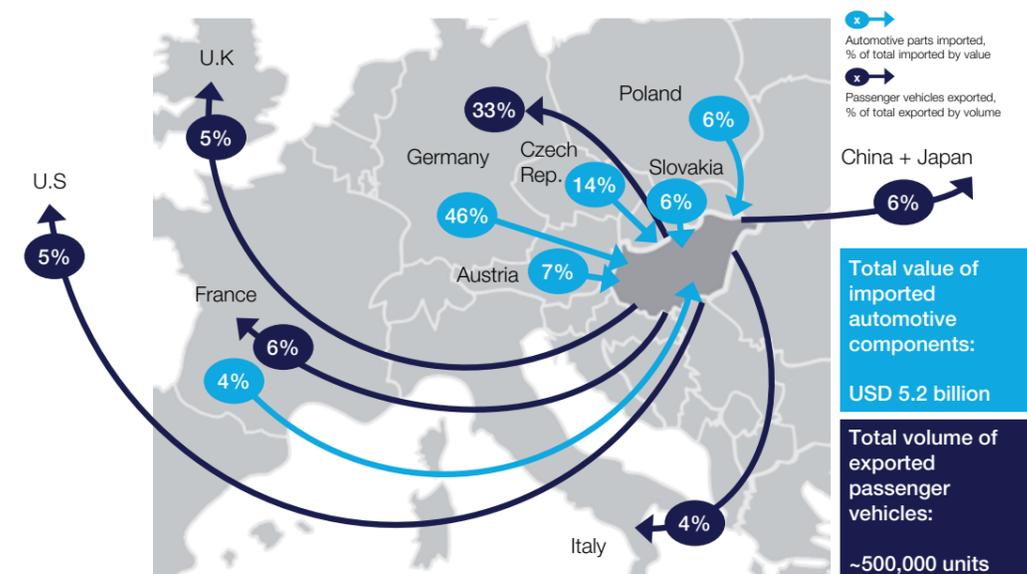
¹ Estimate based on available news sources & employment data

SOURCE: Press releases

Exhibit 11

Hungary is an assembly powerhouse, exporting most of its finished passenger vehicles to Western European markets

Automotive components (by value) as imports, passenger vehicles (by volume) as exports, 2015



SOURCE: UN Comtrade

...but global trends threaten the sector's appeal

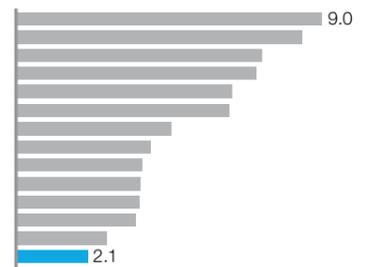
Hungary is still attracting investments, particularly from traditional manufacturers serving Western European markets. However, potential investors are increasingly looking to less conventional areas to optimize their footprints. Some countries, such as Malaysia, that were previously out of the question due to a relative lack of automotive experience and distance from core markets, are seeing an uptick in automotive investments, driven by lower (albeit increasing) relative labor costs and fresh demand in Asia. [exhibit 12]

There is also increasing concern about the declining availability of skilled workforce in Hungary. Typical key professions, such as welders and forklift drivers, are becoming increasingly hard to find. Increasing global interconnectedness – even if only on a regional scale – means that Hungarian factories that were originally established to take advantage of inexpensive labor are now experiencing workers' demands for higher wages. Switching jobs in the sector has never been easier, and employees working in high demand clusters are even targeted by factories across the Hungarian border. In big part due to investors' strong preference for establishing their footprints in existing automotive clusters, even the availability of unskilled labor has become a problem for automotive manufacturing in Hungary. [exhibit 13] Meanwhile, some Asian destinations such as China have outpaced the country in terms of relative labor productivity.²⁶

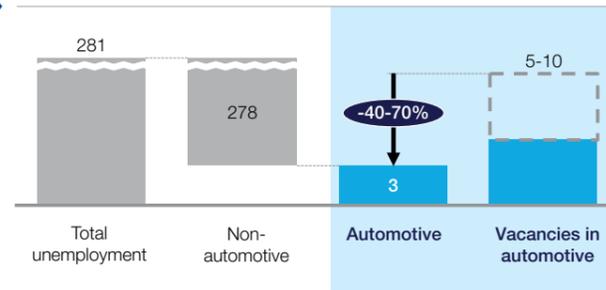
Exhibit 13

Automotive suffers from major overall labor shortage in Hungary

Automotive has the lowest unemployment rate across all industries
Percent, April 2016



Current open positions would take up three times the available workforce having left a job in automotive
Thousand employees, April 2016



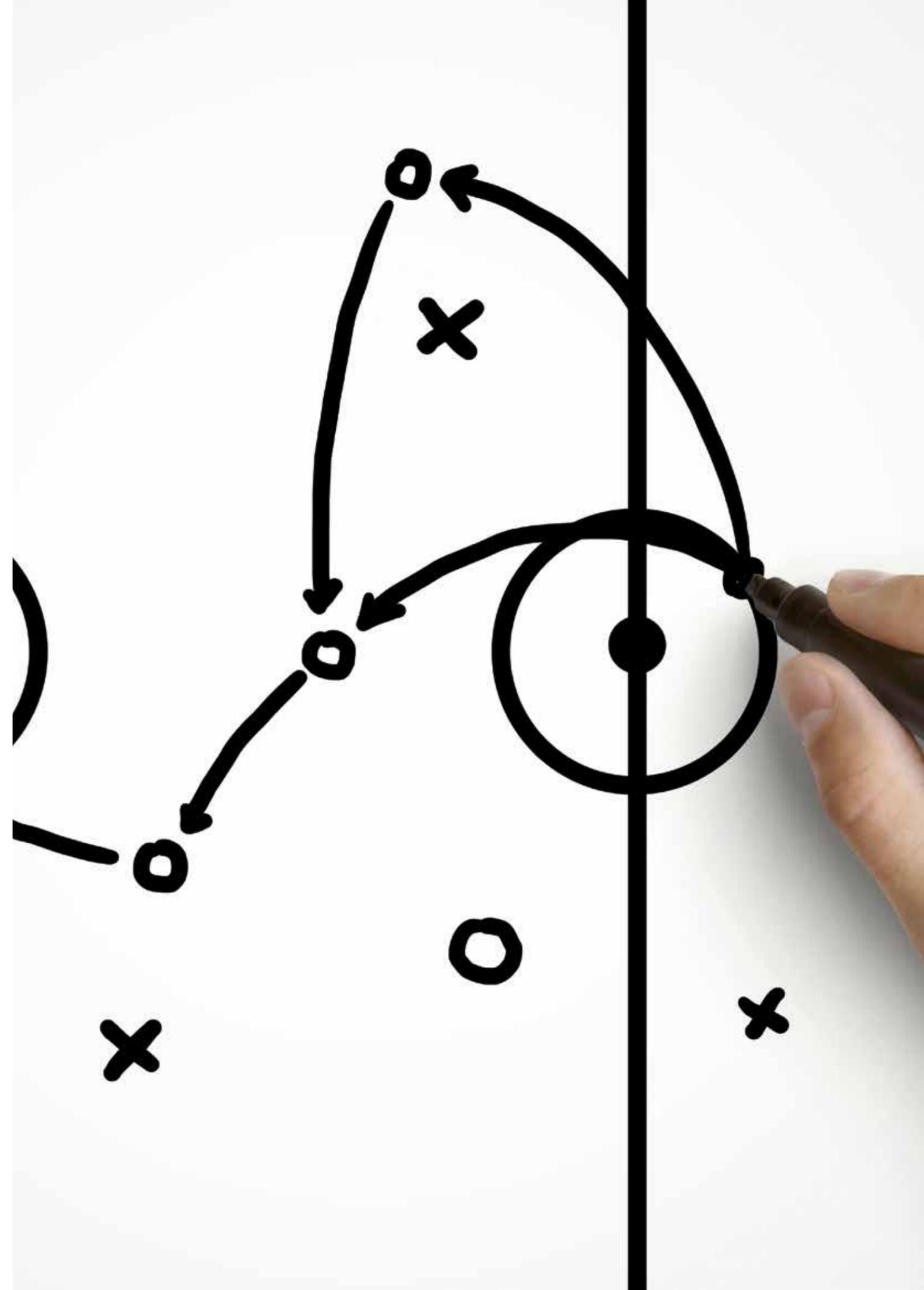
SOURCE: Job classified portals, Central Statistical Office (KSH)

There are even more disruptive trends on the horizon. The car of the future is rapidly approaching, constructed out of lightweight aluminum alloys and containing more plastic, electronics and wiring than ever before. While major parts of the vehicle, such as the body or the braking system, should remain familiar, other components will undergo dramatic transformation. The interior, for instance, will offer an array of gadgets, such as fully-connected entertainment system, (semi-)autonomous driving, or cloud-connected technologies. More traditional parts, such as the powertrain system, will also begin looking vastly different.

Manufacturing will undergo a similar transformation, driven by the adoption of new technologies associated with new and altered components, as well as the onset of digital technologies, often called "Industry 4.0", that are eliminating or altering human labor requirements. Some new digitally-driven manufacturing processes are already improving productivity rates at manufacturing sites around the globe.²⁷ They could eventually equalize productivity rates among

a number of distant regions. At the same time, these technologies are also requiring new types of laborers, such as professionals who can manage the advanced data analytics systems required to run digitized predictive maintenance.²⁸

Our research suggests that Hungary's current pool of higher-skilled labor is not meeting employers' needs. Based on our interviews with leading suppliers, some employers complain that they are hiring graduates trained in engineering or software development, but their new hires lack skills that are relevant to the automotive industry. Although some workers receive training through apprenticeships, according to our interviews with leading industry managers, based on perceived employment readiness, current vocational education is not geared to industry requirements. 'Brain drain' poses another problem, since many companies employ workers only to see them leave after a year or two in favor of higher paying jobs outside Hungary. A diverse set of engineers, scientists and other skilled labor are in very short supply.



Gameplan

Best strategies for growth...

Hungary can learn from the experience of other countries that have previously undertaken major growth initiatives. Specifically, it can pull from a variety of international best practice strategies that have helped countries from Morocco to Singapore make the transition from traditional industrial assembly to high value-added manufacturing and services. Some best practice strategies combine a mix of government-driven initiatives to develop flagship industrial projects, invest into upgrading industry-specific education, and heavily incentivize innovation.

(i) Strategically targeting investors

An important example for developing flagship projects is Morocco's Emergence Plan, an industrial transformation program that the government launched gradually between 2005 and 2008, serving as a 10-year strategy. Morocco's Emergence Plan aimed to attract new investments to accelerate the development of seven strategic sectors; of which four, including automotive, were deemed "core sectors". The plan proposed the creation of flagship industrial zones related to these sectors, and laid out a well-defined agenda to attract the right mix of investors to each zone.²⁹ Two of the zones, Tanger Automotive City and Atlantic Free Zone, have been the most successful. They offer investors an industrial platform involving integrated logistics, optimal connectivity, diversified services, as well as specialized training centers, sector-specific educational programs and financial aid for newly trained employees. Together, the two zones have added roughly 62,000 jobs related to automotive manufacturing.

The success of the Moroccan automotive emergence plan is largely the result of a micro-targeting approach that identified and captured an optimal mix of automotive manufacturers. At the time of conception, Morocco's government identified nearly 2,900 components involved in vehicle assembly. It then selected 100 priority parts that could be compounded into seven or eight modules, and produced and assembled by eight

specific specializations; two of these were already in place. After building the optimal training plan to support this specific manufacturing operation, and integrating the labor, logistics and markets to serve automotive manufacturers, the government was easily able to target and attract a set of automotive companies that could benefit most from a cluster investment.

The strategy succeeded: exports of motor vehicle parts grew by 66 percent between 2005 and 2012, and passenger vehicle exports surged from a trade value of USD 71 million in 2005 to USD 949 million in 2012.³⁰ The plan proved so successful that French automotive manufacturer Renault established a manufacturing facility and accompanying training center, Academy Maroc, in Tanger Automotive City in 2012, creating up to 36,000 jobs. More major investments are in the works – the most notable of which is the PSA plant, which is expected to start production by 2020.³¹

Singapore took a similar strategic approach to transforming its automotive sector. Following the 1997 Asian Financial Crisis, the government aggressively prioritized growth in knowledge-driven industries. To this end, the Ministry of Trade and Industry worked with multiple agencies to devise an automotive industry roadmap, with a primary focus on research and development activities, and production of high-value products. For example, the Economic Development Board, a statutory board governed by the Ministry of Trade and Industry, provides strong monetary benefits to small- and medium-sized enterprises in the area of R&D, as well as tax exemptions to foreign investors. The agency also focuses on developing specialized research clusters that provide an ecosystem for large companies in which they can easily operate together with their international peers.³²

The Agency for Science, Technology and Research (A*STAR), also works with the EDB to provide industry insights. Another agency, Spring Singapore, supports startups and innovations to achieve a global scale. Singapore currently hosts more than 800 companies involved in research on infotainment, engine control modules, and other areas.

(ii) Strategically targeting education

Another way governments can enhance the appeal of their automotive sectors is to invite the participation of automotive companies in educational curriculum development. Japan began this process as early as 1962, when it introduced technology colleges, called Kosen, to respond to increasing demand for engineers. Kosen are seven-year institutions that offer general education and specialized engineering courses tailored to the needs of specific industries. Since local companies actively participate in curriculum development and offer students hands-on training, Kosen are consistently responsive to changing industry needs. In 2008, Kosen graduates received an average of 24.7 job offers from leading industrial companies.

Specialized Skill Councils in the UK and Australia offer similar programs to shape automotive-specific education curriculum. These councils are industry-led non-profit companies whose boards comprise representatives of local companies, allowing them to keep pace with industry trends. The UK's council, the Institute of the Motor Industry, sets qualification standards, offers apprenticeships, and provides continuing education programs. In Australia, vocational education throughput is driven entirely by industrial gap forecasts. Auto Skills Australia develops and reviews automotive sector training packages to ensure its workforce maintains relevant skills. It also partners with governments in the Philippines and Vietnam to provide vocational and training programs that expand manufacturers' access to regional talent pools.³³

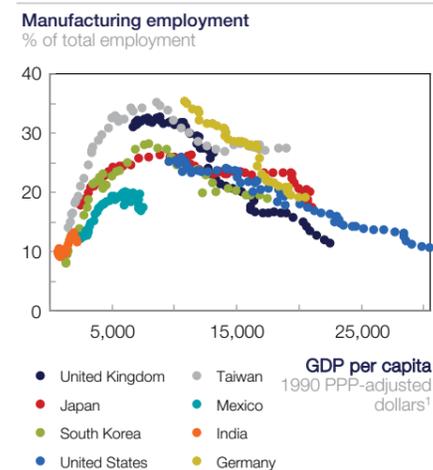
...and Hungarian adaptations

The changing nature of automotive manufacturing and assembly presents Hungary with a unique opportunity. Although the country's appeal as an inexpensive manufacturing destination is decreasing, it has the potential to capitalize on its strengths and become a high value-added manufacturing and near-shore automotive R&D choice. Historically, this type of transformation has been critical in forming the current global footprint of the automotive sector. [exhibit 14]

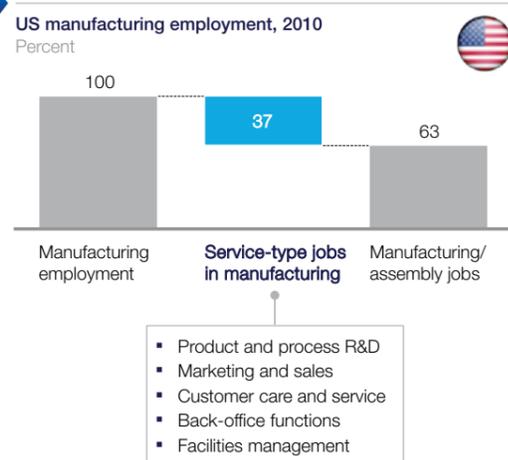
Exhibit 14

As lower cost contenders appear, the reigning production powerhouses traditionally shift to a higher value added, service-focused offering

Economies go through a standard evolution curve, during which manufacturing loses its absolute share while shifting towards higher value added activities



In the United States, production jobs make up only two thirds of total jobs in manufacturing, with service-type jobs continuously gaining importance



¹ Adjusted using the Geary-Khamis method to obtain a 1990 international dollar, a hypothetical currency unit that allows international comparisons adjusted for exchange rates and purchasing power parity (PPP).

SOURCE: GGDC 10-Sector Database; "Structural change and growth accelerations in Asia and Latin America: A new sectoral data set," *Cliometrica*, volume 3, Issue 2, 2009; BEA; BLS; McKinsey Global Institute

To realize this potential, the following successive actions would be recommended. First, a flagship automotive cluster would need to be established that offers integrated services tailored to a micro-targeted set of automotive manufacturers. Second, the implementation of industry-driven educational programs that cultivate expertise in next-generation automotive trends could be encouraged. Finally, the industry should be strategically shifted towards attracting high value-added investments with a strong focus on R&D. We elaborate on each strategy below.

(1) Building on best practices exemplified in Morocco, Hungary should develop a flagship automotive cluster offering an integrated, micro-targeted value chain. The cluster will need to include a strong logistics platform, a diverse set of industrial services tailored to the targeted

automotive companies' specific manufacturing profiles, and training platforms guaranteeing a continuous flow of professionals needed by cluster investors. Based on international examples, such a flagship cluster has the potential to attract up to two new OEMs over the next decade. This addition, together with enhancing the capacities of existing OEMs, has the potential to more than double vehicle production and create roughly 30,000 jobs.

(2) Hungary will need a team of engineers, scientists and mechanics with expertise in cutting-edge technologies to serve these automotive clusters. It can start building this talent by encouraging educational partnerships between automotive companies and local universities, particularly near a prospective cluster. Audi, for example, sponsors a joint scholarship program

for vehicle engineers at Széchenyi István University, and develops curricula for six academic departments at the university. It offers traineeships to eligible students and funding for research. These efforts help students acquire skills directly relevant to the needs of Audi or other automotive companies, and help universities to drive industry-specific innovation through R&D. Similar partnerships could be implemented nationwide to expand the pool of employment-ready talent.

An Automotive Sector Skills Council could be established to implement and oversee these partnerships. The council could be a non-governmental entity, owned and governed by professionals delegated by leading national automotive sector companies. It should provide industry demand data for capacity planning, maintain codified and up-to-date skill descriptions, and assist in developing curricula.

The Skills Council's work will impact students along the entire education value chain, helping to mitigate the effect of the brain drain by providing an elite, local alternative to well-performing students. It will also boost university completion rates and provide on-the-job value creation in the first years of employment.

(3) The Hungarian Investment Promotion Agency (HIPA) is currently responsible for promoting automotive investment opportunities, and has communicated an explicit preference for higher value-added investments. This is a good example of the sort of positioning that investors looking to expand their footprint in research and manufacturing of higher-value-adding components need.

Hungary does not need to look far for potential ways to promote the sector. For example, in the more mature German market, a well-regarded "Electric Mobility Act" (2014) established policies and investment strategies to put one million electric cars on German roads by 2020.³⁴ The government offered a €1.5 billion research incentive to support the development of batteries and "energy efficiency, safety and reliability systems for electric vehicles". Although Hungary's market is less mature, it could consider similar incentives pushing tech-forward solutions to automotive manufacturing.

Hungary can also borrow strategies from Poland, where promotion and targeted subsidies have attracted significant investments in automotive R&D in recent years, driving high growth in the sector, even as vehicle throughput declined. While Hungary can consider this trend as an example of what is possible in peer economies, it might also serve as a warning that, unless Hungary acts soon, it could lose out on the road to automotive sector growth.



Keeping score

The automotive industry has been one of the main cogwheels of the Hungarian manufacturing industry in the last century. It has seen tremendous growth, achieved access to worldwide markets, and is an important element of the footprint of many automotive manufacturers in the world.

The industry is now at a crossroads. Although a number of short-term issues, for example the serious lack of skilled labor, is threatening its progress, it also has a major opportunity. The sector is well positioned to tap into the trends of the future. If Hungary decides to do so, it could expect the country to become an important, service-driven R&D and high value-added manufacturing hub – just as other countries, the ones that comprise the advanced markets today, have done already.

Our recommendations focus on tapping into this opportunity, with initiatives aimed at pushing automotive up the value chain. Our estimates suggest that these actions could fuel an increase of more than €4.2 billion annual gross value add through 2025, translating to an uptick of approximately 0.3 percent in annual GDP growth. These changes would help Hungary earn a spot on the global map for next-generation auto manufacturing.



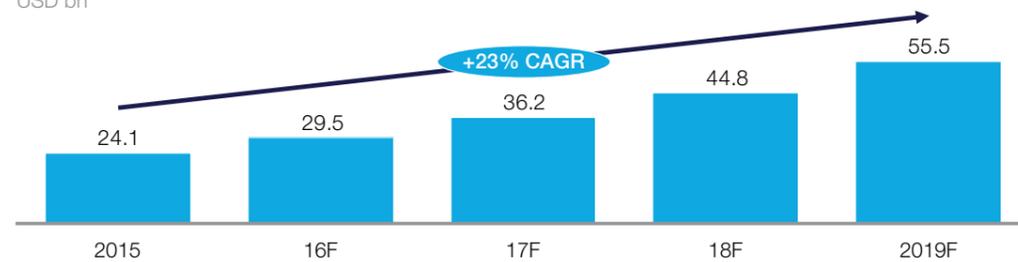
Thriving in the major league of knowledge process nearshoring

Katalin Miskolci, Matthias Daub,
Ágota Vörösházi

Exhibit 15

Outsourcing of knowledge intensive activities is expected to grow by 23% annually

Global Knowledge Process Outsourcing (KPO) market size
USD bn



"In line with global perspectives on outsourcing business activities across the globe, companies are looking for more analytical and specialist expertise, and hence KPOs are seen to be increasingly fitting such requirement of companies that are eager to outsource to third party service providers."

Technavio market research

SOURCE: Research reports

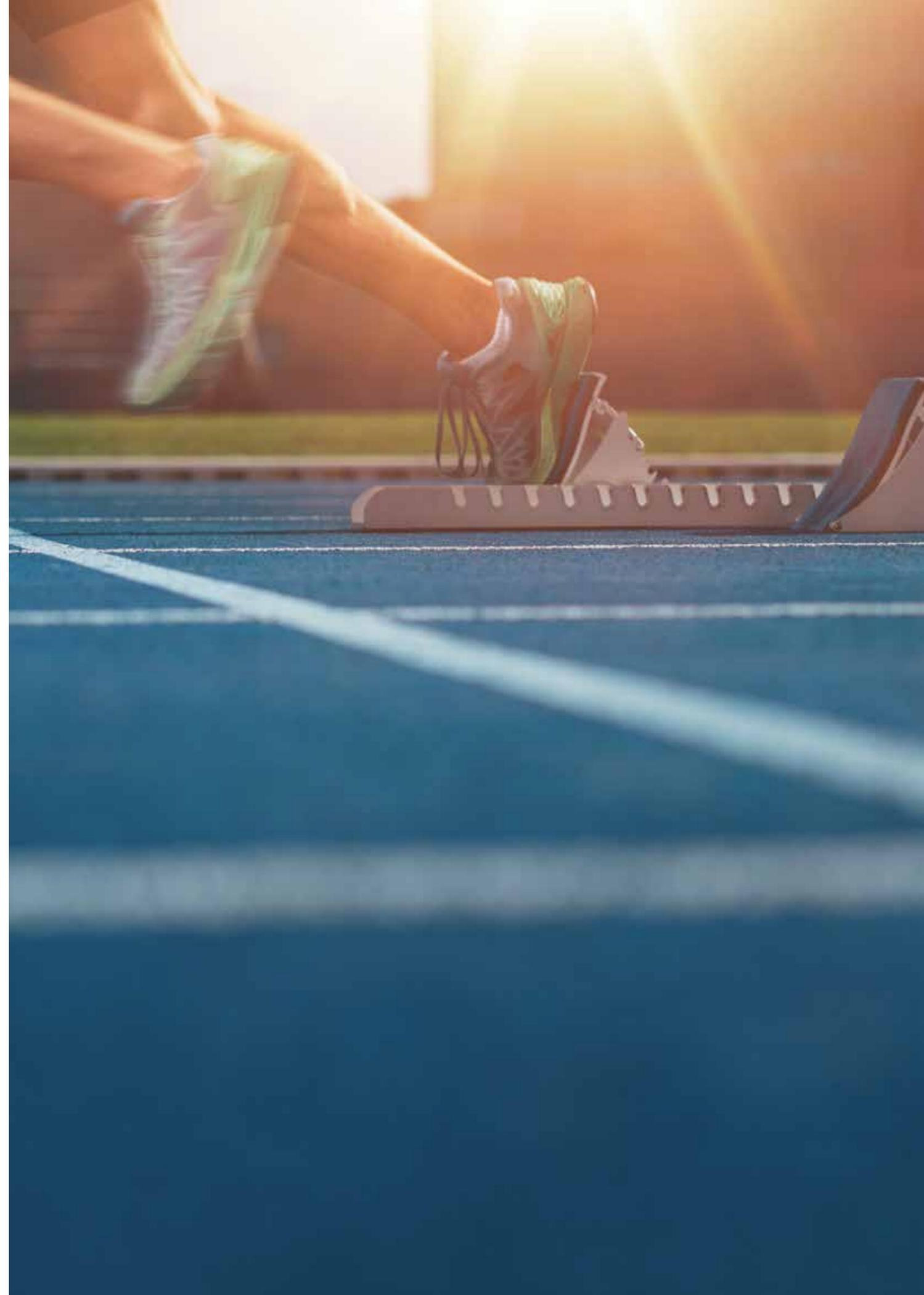
One of the fastest growing industries in the world is also one of the least visible: shared services. Multinational companies are increasingly shifting what were once considered siloed back-office operations to shared services centers (SSCs), located mostly in low-cost countries. The nature of demand is changing, too, as companies ask SSCs to deliver increasingly complex services that require more and more specialized skill sets.³⁵

Global demand seeking next-generation, knowledge-intensive shared services is growing rapidly. A key area, the Knowledge Process Outsourcing (KPO) industry, is expanding by 23 percent a year to a value exceeding US\$ 50 billion by 2019. [exhibit 15] Demand for knowledge-intensive services in company-owned ("captive") SSCs is also on the rise.

These trends are good news for countries in Central and Eastern Europe (CEE) where the SSC sector grew by 17 percent between 2008 and 2015. CEE countries offer robust SSC ecosystems

of relatively low-cost, highly skilled talent and well-established regulatory and physical infrastructure. At the same time, costs are rising and talent pools are shrinking due to increasing competition in the job market and a talent exodus to Western Europe. These are common challenges for many CEE countries, and how they position themselves in this environment will determine the future shape of the SSC industry in the region.

Hungary is no exception. To build on these strengths and fight off challenges, Hungary can nurture the expansion of knowledge-intensive SSCs, which we call Centers of Competence (CoCs). The country could grow its SSC sector by as much as 60 percent and create more than 45,000 new jobs over the next 10 years, almost doubling current employment within the SSC industry. [exhibit 16] To get there, Hungary will need to emphasize the features that make it an ideal location for Center of Competence (CoC) investments.



Setting the stage

Demand for traditional SSC functions in finance and accounting, human resources, procurement and information technology (IT) services will continue to search for lower cost destinations. Over the past years, multinationals across a wide range of industries from banking to technology firms have migrated basic services in these functional areas to India, the Philippines, or to so-called second tier lower cost cities in Eastern Europe. Digital technology is also changing the nature of demand for these less complex SSC services. Automation allows companies to significantly reduce basic manual work and increase productivity. Both of these trends are shaping the types of activities performed in SSCs in the future.

Whereas traditional back-office support included relatively basic tasks, multinationals are increasingly reliant on SSCs to provide complex behind-the-curtain business support. Consider, for example, a derivatives trading unit in London that depends on mathematical modeling support from an SSC, or a global insurance company that runs scenario analysis on life insurance products from an actuarial-focused SSC.

Meanwhile, services once managed mostly by humans, such as payroll and accounts receivable, are increasingly automated. Digitization can reduce the number of employees required for simple support processes by more than 50 percent.³⁶ The transition to automated back-office operations has been slow, however, in part because of relatively high capital expenditure requirements and big changes to workflows. But many repetitive, administrative tasks will disappear from the standard SSC repertoire in coming years.

In addition to the automation challenge, Hungary's cost position and workforce availability are losing their edge. Hungary's labor costs may be half of what they are in some Western European countries, but they are rising – although not as fast as in some other leading SSC markets in the region. Competition from other Eastern European markets, such as Bulgaria, Romania, and the Baltic countries, is growing as well.³⁷ Hungary's SSCs can no longer rely on labor arbitrage alone to attract investors. Furthermore, volume-based growth is unsustainable due to the declining number of unemployed university and college graduates in Hungary.³⁸

To prepare for the change, SSCs will need to define specific areas for automation and work on a transition plan. They can also start acquiring capabilities to serve clients in ways that machines cannot emulate. Knowledge-intensive services, such as graphic artistry, software development, mathematical modeling, advanced analytics and sensitive interactions with people and their data provide SSCs with a way forward to becoming Centers of Competence (CoCs). For example, an SSC performing basic transactional services, such as standard report generation, could upskill and expand its workforce to deliver more complex reporting and related commentary, and eventually perform big data analysis and pull insights using sophisticated software. Similarly, an SSC devoted to managing investment accounts could hire talent to perform valuation calculations and investment analyses with sophisticated tools and models.

The availability of a versatile, multi-skilled workforce is critical for SSCs to evolve into CoCs. In this regard, Poland, the Czech Republic, and Hungary excel. Each of these countries offers investors a highly skilled workforce and has an established track record in providing shared service support. [exhibit 17] The same three countries lead in the prevalence of captive (owned by the outsourcing company, not an outside KPO vendor) SSCs among all their shared service centers. Such market conditions favor CoC development because companies can move sensitive, business critical, knowledge-intensive work to their own captive nearshore centers that they would not outsource to KPO vendors. Hungary is leading in this regard in CEE, with a predominantly captive SSC market: 78 percent of centers in Hungary have a dominant captive profile compared to 49 percent on average in CEE. [exhibit 18] To stay ahead of the curve, Hungary will need to make its value proposition more attractive and more apparent to investors.

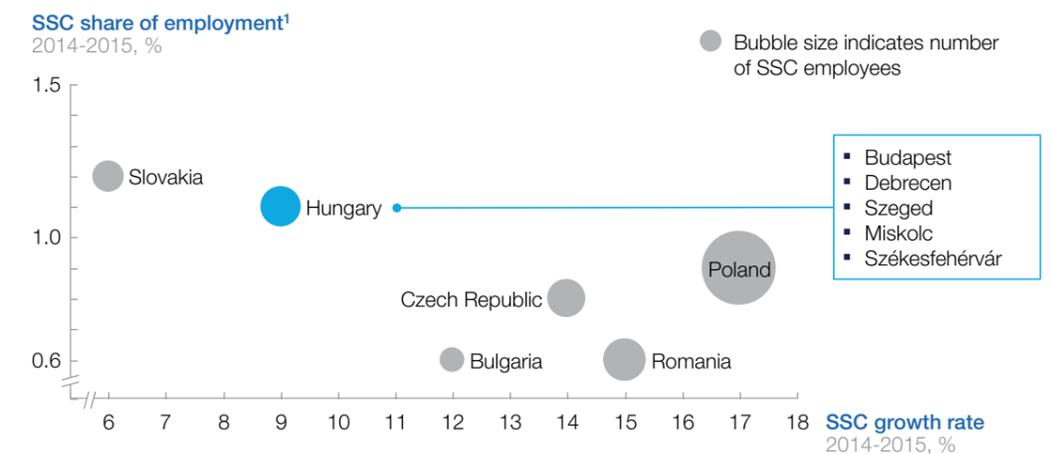
Exhibit 16

Centers of Competence drive the next wave of growth in shared services



Exhibit 17

Hungary is one of the most mature SSC hubs in CEE



1 Bubble size indicated number of SSC employees
SOURCE: Central Statistical Office (KSH), ABSL - McKinsey data

The way forward for Hungarian SSCs is to provide multinationals with advanced specialized services, including marketing and sales, research and development, tax, accounting, legal and graphics services, mathematical modeling, operations, and finance analytics, among others. Investors seeking these services often consider quality a more important factor than the labor cost difference between countries. Hungary offers a strong value proposition: the talent pool of SSC-ready employees is deep and wide, particularly for skills related to mathematics, marketing and sales, analytics, finance and engineering. [exhibit 19]

Consider the examples of Morgan Stanley and Citi, which established SSCs in Hungary over a decade ago to provide higher value-added services such as risk management, infrastructure engineering, and mathematical modeling. Morgan Stanley's SSC has been growing at approximately 10 percent a year, and now employs over 1300 people. Both companies have expanded the scope of their offerings to include a broader range of complex business functions. For example, Citi's Citi Service Center, originally focusing on providing IT support for Citi's global financial operations, has evolved to include global decision support, trading monitoring, financial product control, and corporate treasury services. Morgan Stanley's Center has also added enhanced services, especially in mathematical modeling, quant solutions, risk management, finance and accounting analytics, and anti-money laundering services which are supported in part by the bank's long-standing partnerships with university institutions.

Exhibit 19

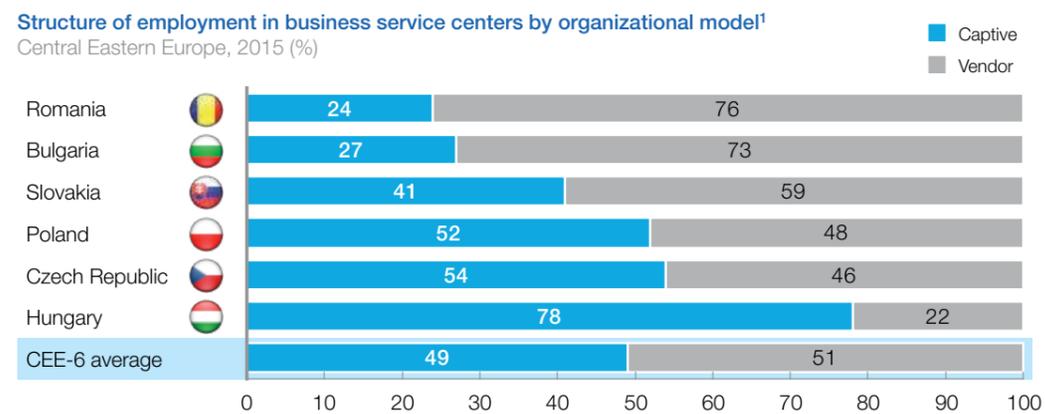
Marketing, sales & analytics SSCs are best positioned based on the wide talent pool expected to graduate soon in Hungary

Type of hub	Typical activities	Related academic fields (examples)	Number of students entered tertiary education in 2014, '000
Marketing and sales	<ul style="list-style-type: none"> Manage marketing expenditure and provide market intelligence services Create promotion plans 	Marketing, business administration, finance, sociology	29
Analytics and reporting	<ul style="list-style-type: none"> Support product development with data analytics Automatize reporting systems 	Business information, mathematics, software engineering	18
R&D	<ul style="list-style-type: none"> Provide contract research Conduct clinical trials for global pharma companies 	Biotechnology, MD, chemistry, biology	17
Pricing	<ul style="list-style-type: none"> Provide transfer pricing services Prepare advance pricing agreements and support negotiations 	Finance and accounting, business administration	13
Legal – compliance and controls	<ul style="list-style-type: none"> Litigation preparation Internal audits and process design 	Law, political studies	11
Supply chain management	<ul style="list-style-type: none"> Manage stock to optimize working capital Offer route optimization services 	Business administration, logistics	6
Graphics and service design	<ul style="list-style-type: none"> Design end-to-end services and customer experience Support marketing campaigns with visuals 	IT, design	3
Tax	<ul style="list-style-type: none"> Provide tax optimization services in e.g. interaction law systems Conduct tax audits and tax planning 	Finance and accounting	3
Actuarial services and Mathematical modelling	<ul style="list-style-type: none"> Model risks Price and manage financial instruments 	Mathematics, physics, finance, applied economics	1

SOURCE: Felvi

Exhibit 18

Captive SSCs, optimal for the handling of more sensitive, business critical data, represent 78% of Hungarian SSCs



¹ Based on the dominant profile of business service center activity

SOURCE: ABSL – McKinsey Data (Q1 2015)



Gameplan

Hungary could host more of these kinds of knowledge-intensive CoCs, but it will need to convince investors of the sector's continued appeal. The two critical levers to focus on are talent and incentives.

Availability and quality of talent

The most important driver for CoC location decisions is the availability and quality of talent. If they only consider the number of graduates, investors may be misguided in concluding that the talent pool is more favorable elsewhere. Even though Hungary lags behind Poland and Romania in the absolute size of its talent pool, it has no shortage of the specific kinds of talent needed for CoC expansions. Therefore, Hungary could benefit from actively promoting the advantages of its SSC sector that lie in its qualified, multi-lingual talent pool.

Poland, for example, was able to grow its foreign SSC sector by more than 20 percent in just one year, from 142,000 to 177,000 employees, by promoting the country and major Polish cities to investors.³⁹ The central government, local institutions, non-governmental organizations and consultancies collectively launched various comprehensive, targeted campaigns to amplify Poland's strength in the shared services sector. In addition, Polish SSC leaders connect regularly in formal and informal settings, such as at SSC-focused conferences organized among others by Association of Business Service Leaders (ABSL), an organization promoting the sector in Poland with 180 member companies, or by the Krakow-based ASPIRE association, a business group that boasts over 150 members from the city. Sector stakeholders like ABSL produce relevant, detailed reports tracking key indicators of sector health and growth in Poland.

Similar promotional efforts could position Hungary as a leading destination for CoC investments, a hub of multilingual, highly skilled talent.

Developing a current value proposition is just the first step. If Hungary chooses to compete using its highly skilled, CoC-relevant workforce, to stay relevant, it is also important to further accelerate skills development within these fields of expertise. The government and nongovernmental organizations can help investors to manage risks, such as by liaising with investors and universities to fill potential talent gaps. It can broker partnerships between universities and industry in order to help curricula meet the demands of the market. Morgan Stanley, for example, partners with Óbuda University and the Budapest University of Technology and Economics in curricula development to train students in SSC-related skills, and offers internships to exceptional students. Morgan Stanley also co-sponsored the establishment of a 'Financial Laboratory' at the Corvinus University of Budapest, where students learn about real-time financial transactions and research methodologies.

Hungary could endorse more of this kind of industry collaboration with academia to develop a CoC-ready workforce. Industry partnerships in academia could also promote knowledge-intensive SSCs as employers-of-choice to university students, such as business, engineering, social studies, and mathematics majors, who might be unaware of the possibility of working at a CoC. Its recent effort to establish an SSC-specific, two-year adult education program ("OKJ program") is a step in the right direction for future SSC employees, as long as they also have fluency in English and preferably other foreign languages. But Centers of Competence typically require university-educated talent who recognize CoCs as an attractive career opportunity.

Incentives

In addition to addressing the opportunity concerning talent development, investment incentives could be more attractive, more transparently communicated, and better targeted to high-skilled employment.

While viewpoints differ on the right level of financial incentives, qualitative factors of the incentive system are just as important in attracting CoCs. Based on interviews with existing CoCs, companies consider five key factors pertaining to incentives:

- transparency of the incentive system
- focus on personal development
- long-term perspective (length of incentive period)
- incentives for quality over quantity in job creation
- value proposition for specific sectors (industry prioritization)

Hungary performs well on support for personal development, for example, by providing up to 60 percent of general training costs, and on a long term perspective – some tax allowances are provided for up to 10 years, but it could improve the transparency, quality focus and sector specific value propositions of SSC-related incentives.

Current investment incentives are generally less transparent than in other CEE economies. Some subsidy conditions are determined via case-by-case negotiation – a process that investors have described as “painful.”⁴⁰ Investments in less-developed regions of Hungary are also preferred,⁴¹ but there is no comprehensive information to guide investors in these regions. Hungary has made progress in this area, as HIPA already communicates some of its preferences regarding new investments, for example by creating a public, comprehensive and regularly updated incentive strategy and a handbook to guide companies considering expanding in CEE. A next step could be to follow the example of countries, such as Czech Republic, Slovakia, and Poland, which publish a clear set of guidelines governing tax and cash incentives for all types of investments.⁴²

Hungary’s incentives also skew in favor of large investments,⁴³ whereas CoCs tend to be smaller and more specialized. Hungary could design incentives targeting CoC investments that require specialized skill sets or the employment of highly educated talent, even if in small numbers. In the Czech Republic, for instance, cash and tax incentives explicitly favor software development services, which the country has identified as a priority industry. Poland offers special cash incentives to R&D centers that create at least 35 jobs. In Slovakia, investors are eligible to receive income tax relief if 60 percent of their employees are university graduates. Hungary could consider similar cash incentives if at least 30 high-skilled jobs are created that require a university degree. Additional highly transparent cash and tax incentives might favor investments that employ the largest university graduate talent pools in selected priority fields such as R&D, analytics, finance, and legal and compliance services. [exhibit 20]

Targeted value proposition

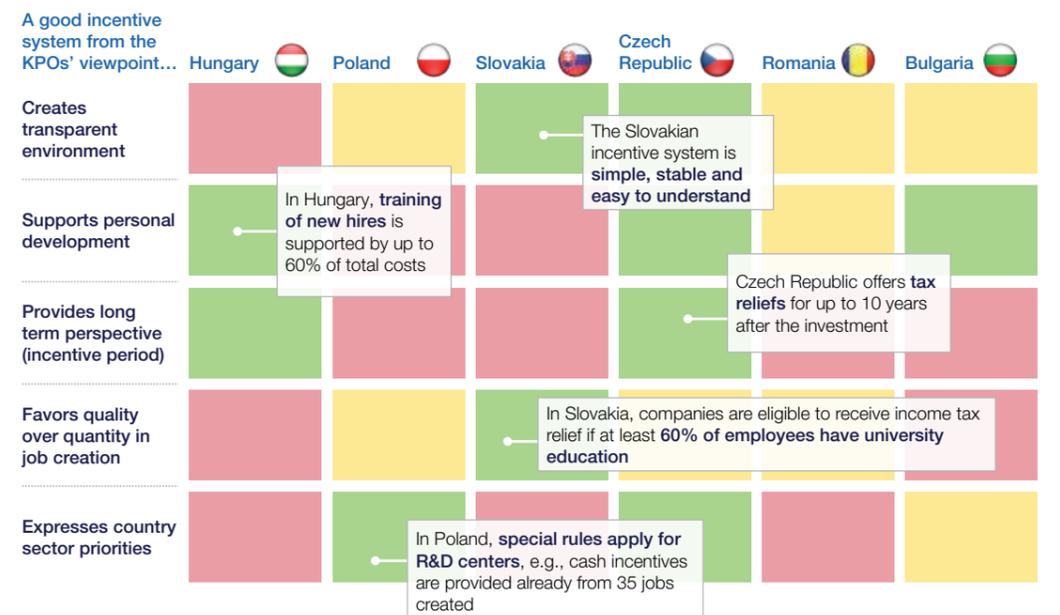
Safeguarding organizations have the means to support a targeted effort encouraging the growth of CoCs. HOA, for example, publishes an information booklet every year addressing potential investors and current players in the outsourcing space. Their reach and depth of information have been increasing, and could develop further, especially by involving other institutions in the effort. The creation and dissemination of transparent, cogent and consistent information and incentive packages could significantly help to attract high-value-added SSC investments. Promotional materials could emphasize the SSC sector’s value proposition, with specific emphasis on CoCs, and could include specific information on local opportunities, such as city-by-city detailed descriptions and relevant parameters that investors would value and can easily find for other countries.

In conjunction with these efforts, central and regional public officials could actively advertise the country’s competitive advantage as a CoC destination to relevant international audiences. Mayors could attend conferences to advertise the quality of their cities’ infrastructure and talent pools. The country as a whole should be more vocal about the high growth of the SSC sector, in part by promoting the example of Morgan Stanley, Citibank and other Centers of Competence as models of what Hungary has to offer.

As part of this effort, safeguarding organizations might consider hosting a regular networking forum among leaders of existing SSCs and relevant stakeholders to identify new areas of growth or share ways to remove common obstacles. The synergies produced by a more connected sector could increase the pull for advanced services.

Exhibit 20

Hungary could adapt its incentive system to be competitive for KPOs in the region





Keeping score

Promoting Hungary as a leading destination for CoC investments could create positive ripples across the SSC sector. Improving and broadcasting strong and clear investment incentives and sharing successful CoC examples employing local high-skilled talent are likely to encourage investors to expand the scope of their existing SSCs. They could also help attract new investments in both traditional SSCs and in CoCs offering advanced knowledge-intensive services, indirectly strengthen innovation in CoCs, and solidify existing shared service centers. In total, the sector has the potential to create upwards to 45,000 new jobs until 2025.

Should the sector's focus shift to increasingly high value-added services provided by CoCs, it could attract high-quality talent, including Hungarians who have left the country for higher paying positions in Western Europe. It could also produce positive economic returns that impact the society more broadly. Our analysis suggests that this combination of factors could provide up to 0.1 percent uptick in GDP growth, grow the sector's share in Hungary's GDP to 1.9 percent in the next ten years, and strengthen Hungary's position at the forefront of the SSC sector in the region.



Local SMEs: Underdog champions

Gergely Gacsal, Szabolcs Kecskeméti

As in most other countries, small- and medium-sized enterprises (SMEs) play a major role in Hungary's economy: they contribute 54 percent of the country's gross domestic product, 23 percent of exports, and employ 70 percent of its workforce. [exhibit 21] However, judging by the performance of the country's larger corporations, as well as that of SMEs in other Central and Eastern European (CEE) countries, Hungary's SMEs could be delivering more value. Our analysis suggests that improving productivity would be key to SME growth. Given the right tools, SMEs have the potential to unleash over EUR 3.8 billion gain in gross value added over the next 10 years.

The pace of the digital age, characterized by the constant possibility of disruption, gives SMEs an opportunity to compete against their large corporate counterparts. SMEs' typically agile governance and mindset make up for their lack in cash reserves, and allow them to regain a foothold by adapting to or even taming disruptive trends. Moreover, many SMEs that date their inception to the digital era, may be very well positioned to be digital disruptors of the future.

The other global headwind shaping SMEs' performance is increasing global interconnectedness, and the new space for competition it generates. Companies are no longer limited to competing solely in their local markets.

This has implications beyond customer reach: thinking about suppliers, trends and competition can consider a much wider geographical frame. When large corporations enter SMEs' native territories, participating in these newly available, non-local markets is not optional anymore. SMEs will be forced to leverage their agility to access the global customer.

Our research suggests that the main challenge facing Hungary's SMEs is one of talent and capabilities, not lack of opportunity. As most building blocks of a successful SME infrastructure are already in place, the sector's productivity depends highly on the skill and will of its managers and workforce to increase it. Efforts to build capabilities would enable SMEs to converge with large corporations in terms of productivity.

There are two approaches to close the gap in productivity. On the one hand, governmental development institutions can address it on a wide scale by providing tools available to the whole SME ecosystem. Alternatively, a tailored SME development program could be established to target a selected number of companies with the imminent potential to become major players. Either approach would help to narrow the productivity gap, benefiting not only SMEs, but also large corporations, the labor force, and the government.



Setting the stage

SMEs are of major importance in terms of contribution to the Hungarian economy. Their relative share of GDP was 54 percent in 2014, slightly lower than their Central Eastern European peer group comprising Bulgaria, Croatia, the Czech Republic, Poland, Romania, Slovakia and Slovenia. In terms of employment, Hungarian SMEs are on par with both CEE and Western European peer countries, employing 70 percent of the total workforce.

However, export contributions are significantly lower in the CEE peer group, and even lower in Hungary, when compared to Western European peers. [exhibit 21] Although this is not an issue by itself, it signals a structural difference and raises questions about fundamental aspects of SME performance, e.g. market access, availability of talent, etc.

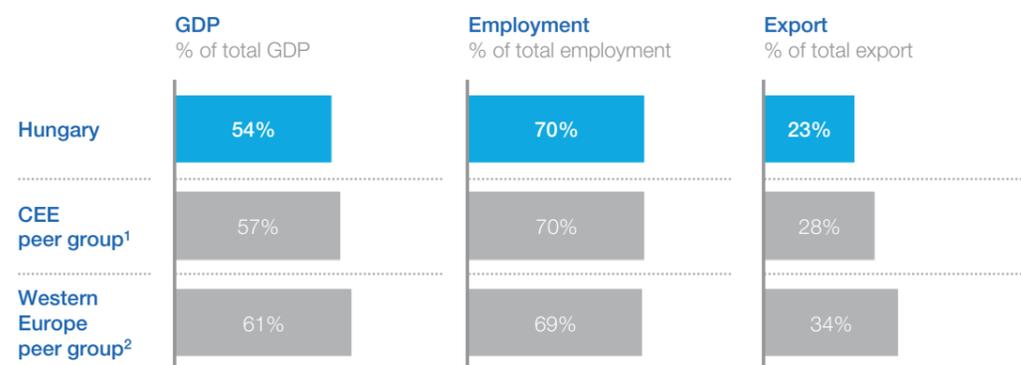
SMEs are generally expected to be less productive than large companies – most commonly due to economies of scale – and a so called “SME productivity ratio” is often observed to understand the magnitude of the gap between SMEs and large corporations. In Hungary, this gap is significantly wider than in either Western Europe or in the large majority of Hungary’s regional peers. [exhibit 22]

While some former and current SMEs, such as automotive suppliers and pharmaceutical companies, have successfully muscled their way into the global value chain,⁴⁴ this is not the norm; most SMEs have yet to acquire the business acuity that would improve their productivity. This significant gap in productivity, combined with the high share of GDP and employment, represent a major opportunity for improvement potential for Hungary.

Exhibit 21

SMEs play an important role in the Hungarian economy, however, they lag in export contribution compared to peer countries

Contribution of SMEs to the Hungarian and peer economies, 2014

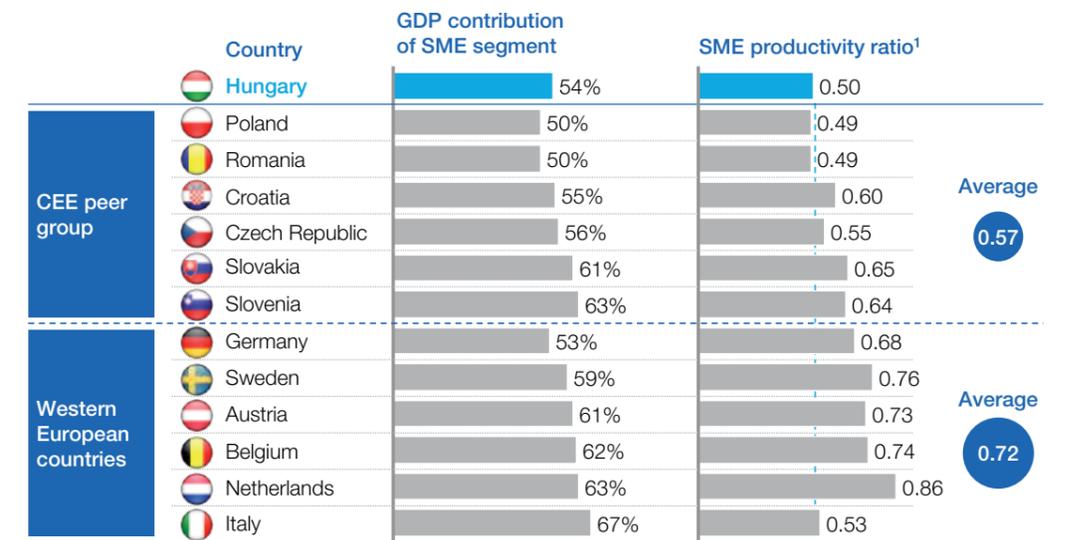


¹ CEE peer group: Bulgaria, Croatia, Czech Republic, Poland, Romania, Slovakia, Slovenia
² Western Europe peer group: Austria, Belgium, Germany, Italy, Netherlands, Sweden

SOURCE: DIW ECON SME Performance Review, Eurostat

Exhibit 22

Hungarian SME segment’s GDP contribution is in line with CEE peers, but productivity ratio shows a ~15% gap to regional peers



¹ Productivity difference calculated based on total gross value added/total number of employees in both sector. Lower number represents less efficient SME sector.

SOURCE: DIW ECON SME Performance Review

Gameplan

Closing the gap: Ideas from abroad

Many countries have addressed the same productivity issue that Hungary has today by initiating SME upscaling programs. It is important to note, that launching new businesses, and pushing them up the value chain depend on entirely different factors within the ecosystem, and thus are also best supported by different interventions. In our research, we focus on the potential for existing SMEs.

There is a range of programs from which Hungary can draw for insights and ideas. These programs involve two types of interventions. The first type of intervention addresses the SME sector as a whole by combining a variety of support tools to help them access financing, improve capabilities, while addressing administrative and infrastructure bottlenecks hindering SME growth. A second type of intervention involves targeted support programs that are tailored to select SMEs with high growth potential, and aim to understand and upscale these companies by providing advisory services and an optimized set of the available support instruments. Our research suggests that, whereas SME development programs can consist of one or both of the above types of interventions, programs that employ both approaches tend to have the most success.

Below, we consider some examples that are particularly relevant to Hungary. These programs target SME development from a range of angles, including funding, advisory services to support expansion, and training/education initiatives to encourage capability building. Countries of various sizes and levels of development have implemented these programs.

- As part of its Emergence Plan, Morocco has recently established a number of business parks specifically to help SMEs gain access to multinational organizations. Morocco provides a strong incentive system for start-ups and SMEs to settle in the parks, such as a considerably lower corporate tax rate. The underlying expectation is that physical proximity in the parks will foster collaboration, and that SMEs will benefit from becoming members of a network, involving ideally not just SMEs, but multinationals as well.⁴⁵
- Singapore's Productivity and Innovation Credit scheme provides a 400 percent tax deduction of up to USD 400,000 or a 60 percent cash payout of up to USD 100,000 on productivity and innovation expenditures. It is part of a wider transformation program targeting the entire SME sector, among others double tax deduction for internationalization related expenditures and a number of other schemes, explicitly or implicitly targeted at SMEs.⁴⁶
- In 2012, the United Kingdom (UK) funded the Growth Accelerator Program and Manufacturing Advisory Service (MAS, under the Business Growth Service umbrella), to promote SME development. The MAS program, which ran from 2012-2015 with an annual budget of GBP 50 million, supported manufacturing SMEs through consultancy services and training. SMEs benefiting from MAS achieved a 15 percent increase in employment and a six percent increase in gross value added compared to a control group that did not participate in the MAS program.⁴⁷
- Singapore's 'Spring' program supports SMEs by subsidizing talent development, providing quality assurance services, and removing trade barriers. Since its inception in 2002, the Singapore Spring has enabled an estimated USD 6 billion in gross value added and created 19,000 jobs.⁴⁸



Achieving the win at home

Hungary has recently launched several SME development initiatives, mostly to augment EU-dedicated funds supporting SME research and development and asset development.⁴⁹ In 2013, Hungary introduced the Growth Loan Program, which provides EUR 2.5 billion in subsidized loans to local SMEs through 2016. The SME loan portfolio achieved a 3.6 percent growth last year.⁵⁰ In addition, multiple public sector agencies aim to provide support to SMEs by offering a set of support instruments, primarily, but not exclusively in the area of financing. The question is what additional effort could help improve the productivity of SMEs?

Following the examples of the presented international SME development programs, a two-part intervention package may be optimal: one part to target the SME ecosystem as a whole by focusing on key factors hindering productivity and a second party to pilot a program selecting and enabling a number of SMEs with high growth potential.

Addressing SMEs on a wider scale

In order to achieve a productivity gain in the SME ecosystem, the first step should be assessing the factors that are responsible for the sector's performance. Our international experts cite four dimensions as the most important for SME development: access to talents and capabilities, access to markets (local and international), access to financing, and ease of doing business. Given the sector-focused approach of our report, we have analyzed the first three factors in order to gain an understanding of potential improvement areas within the Hungarian economy.

During our research, we conducted a number of interviews with leading executives in everyday contact with SMEs – usually as their main clients –, and consulted agency experts on the topic.

The “Survey on the Access to Finance of Enterprises”, conducted by the European Commission, proved a valuable initial hypothesis on the topic. Based on the survey, one of the most pressing problems experienced by SMEs in Hungary were related to finding customers and hiring skilled staff / experienced managers.⁵¹ This leads us to the initial hypothesis that the main issues – and therefore the most improvement potential – lie within finding the right talent and capabilities to successfully enter international markets.

Insights coming from the consulted leading executives and experts strongly supported this hypothesis. They to two main pain areas within SMEs: a lack of innovation, and limited proactivity and entrepreneurship. Based on our expertise in SME development, both are symptoms of an economy lacking sufficient talent and capabilities. [exhibit 23]

Exhibit 23

Limited access to talent and capabilities presents the key improvement area for Hungary's SME ecosystem

Dimension	Evaluation
Access to talents and capabilities	<ul style="list-style-type: none"> Lack of innovation within the SME space, driving up costs relative to quality Negative attitudes towards entrepreneurship, with a strong stigma of failed businesses Although high share of highly skilled workforce is available, SMEs are not the main employer of choice after finishing higher education
Access to markets	<ul style="list-style-type: none"> Local market is very limited in size and purchasing power Peers within the European Single Market present good export opportunities for SMEs Best in class environment for cross-border trade due to limited compliance requirements High volatility of Hungarian Forint
Access to financing	<ul style="list-style-type: none"> Highly transparent lending system A number of state- and EU-funded financial instruments are available for SMEs Venture capital and private equity funding are both present and are actively investing into the sector Low capitalization on stock exchange limits access to equity
Ease of doing business	Cross industry ease of doing business is not assessed as part of the sector specific approach

SOURCE: Doing Business 2016 report, SAFE 2015, EVCA Central European Statistics 2014-2015

A look at the SME sector's R&D activity seems to support the claim about innovation. Even though spending on research and development is robust (1.41 percent of GDP), it is largely driven by investments from multinationals and the government, and not by SMEs pursuing innovation.⁵² It is not merely that SMEs lack access to financing for innovations, as generally, funds for SMEs are often available. 14 percent of the HUF 9.2 trillion in European Union funds ended up with SMEs, but these funds were mostly spent on increasing capacity.⁵³

Innovations do not necessarily have to mean developing novel products. In most cases, SMEs would benefit greatly by making continuous process improvements by taking small and rigorous steps that usually aim to improve efficiency, thereby lowering costs or increasing throughput quality. However, many SMEs might find that they do not have the right people to drive such initiatives.

We see two ways to address this challenge. On the one hand, attracting a higher share of fresh university graduates would help inject new momentum into these businesses. Due to the productivity gap, SMEs are often not attractive employers for graduates today. Employing more of the recent graduates would help SMEs gain better understanding of new technologies, and tackle the language barriers that often prevent entry to foreign markets. In order to help SMEs attract talent, connections between local SMEs and universities could be strengthened. Activities such as forums for leaders of academia and entrepreneurs could foster cooperation. SMEs are also underrepresented in universities' internship program offerings. The introduction of a cross-university, academia-led database on the available talent pool interested in positions at SMEs could boost the sector's visibility. Some countries, for example the Netherlands and Ireland⁵⁴, have also been experimenting with innovation vouchers, which promote collaboration opportunities between SMEs and public knowledge providers (e.g. universities and research institutions).

On the other hand, upskilling current management is also an important lever to boost SME productivity. To this end public sector and educational institutions could offer relevant management courses and skill-building consultancy services on topics such as 'design to value' and 'lean manufacturing'. These may also include business plan development support, potentially via a business development agency. Support on legal issues and procedures could include the provision of legal counsel or information-providing services such as legal contract templates for smaller companies that may not have a legal team. Bringing foreign market expertise to SMEs could also trigger export opportunities. This entails professional support to entrepreneurs from finding foreign trade partners to navigating through the administrative complexities of trade.

Another topic that we observed was a perception that many SMEs lack initiative and entrepreneurship. Relatedly, according to the Global Entrepreneurship and Development Institute, entrepreneurship is perceived less favorably in Hungary than in its peers. Of the three types of variables in the Global Entrepreneurship Index (pillars, institutional and individual variables), the main hindrance stems from the individuals' level. Among others, the population does not recognize opportunities, know successful entrepreneurs, or perceive the associated risks well.⁵⁵

A factor further limiting the initiative to move up the value chain lies in ownership. Many SMEs have sole owners, or owner families, where succession is out of the question, and the current owner has no burning need for productivity improvements. In these cases, other could-be entrepreneurs – for example, managers with long tenure – would be willing to take it over. However, such a buy-in usually involves paying a major price to the current owner. In the case of successful companies,

putting down multiple years of future earnings is only possible through a leveraged buyout. To foster such management buy-ins, public agencies could establish a standard framework for gaining leverage in this situation, and actively promote the option. This could catalyze growth for many successful companies that have stalled in terms of productivity.

International examples show that increasing visibility around successful enterprises fosters entrepreneurial thinking. While the same effect can be seen in the budding Hungarian start-up ecosystem. Examples of SMEs' scaling up or entering international markets –aside from a number of not so recent examples— are not well known. We propose a possible way to address this issue in the next section.

Kick-starting local champions

Many otherwise successful Hungarian SMEs struggle to gain the scale they desire. Entering international markets or becoming a supplier of a global manufacturer is a challenging task, even for companies with the right capabilities and a clear demand for their offering. International trade is one area where first-hand experience is required. Finding partners and financing for large-scale deals is complex, and often involves support from governmental institutions. SMEs also require support in R&D and investments in new technologies, which also has a strong effect on productivity.

Based on our analysis of the Hungarian landscape, there are a number of organizations able to provide that kind of support to SMEs. Among others, for financing, they can leverage instruments from the Hungarian National Bank and Eximbank; for market and capability access, they can reach out to the Hungarian Investment Promotion Agency (HIPA) and the Hungarian National Trading House. However, finding the right instruments for the company's goal, profile and geography is a complex task.

Just as our study recommends having catalyst sectors for the Hungarian economy, it is possible for specific companies within the sectors to act as "catalyst companies". These companies, through gaining scale and driving innovation, improve the business environment they operate in by acting as better quality suppliers, employers, and just as importantly, aspirational examples. The stigma associated with failed businesses makes it more important to support and to communicate the success stories of "champion" SMEs that are moving up the value chain or are entering international markets.

One approach to establish and help develop such catalyst companies is a national SME development pilot program. Such a program, instead of providing an undifferentiated layer of support, provides tailored advisory to participating SMEs. For the first wave of such a program, SMEs can be selected along the supply chain of selected multinational companies, based on potential and the management's willingness to step ahead. After selecting a number of SMEs to take part in the program, a team of experts conducts diagnostics on each company one by one to map out at their potential strategies, and their main blocking factors.

Some blocking factors may be addressed through instruments that are already available but unknown to the companies. In other cases where no specific solution is readily available, new instruments could be developed and the insights gained could form the basis of new initiatives for SME development. Ultimately, such programs help participants by tailoring the optimal mix of support measures, combined with ongoing coaching and the program would also help to create transparency around issues that are not being addressed currently, but pose a major threat for SMEs looking to make the productivity leap.

Companies "kick-started" by the initiative will bring immediate positive impact to the economy. They may also serve as paragons of what SMEs can achieve by leveraging instruments available to all, inspiring other companies to follow. The exemplary angle is also very important in fostering competition and entrepreneurship within the sector, and helps to serve as a foundation for the roll-out of similar programs, providing a continuous catalyst for the SME segment.



Keeping score

SMEs have a critical role to play in Hungary's economy. Comparing the productivity of Hungarian SMEs with peers gives a clear perception of how much additional potential lies in the sector. To reach the productivity levels seen in peer countries in CEE, Hungary should alleviate the factors blocking productivity. This means addressing the issues of talent and capabilities, and kick-starting a number of local champions.

By narrowing the SME productivity gap in export-oriented industries to reach the peer group average within 10 years, the annual gross value added of the SME sector could increase upwards of EUR 3.8 billion, translating to a GDP uplift up to 0.2 percent, when accounting for overlaps with other initiatives in this report.

Exhibit 24

Closing the productivity gap between large corporations and SMEs has the potential to increase significantly the gross value added of the sector





The next gold medal

Hungary faces a complex challenge: to navigate the major megatrends transforming the global economy in a way that results in improved productivity and economic resilience. Achieving this ambitious goal requires both the commitment of policymakers and strong collaboration between the private and public sectors and academia. The aim should be to offer businesses ample institutional support for innovation and expansion, including a labor force equipped with the essential skills and capabilities to thrive in the changing environment.

Successful transformations take time and effort. Our experience shows that the process of defining a well-communicated aspiration, translating the aspiration into specific actions, and systematically monitoring the effects of these actions, is the cornerstone of impactful development.

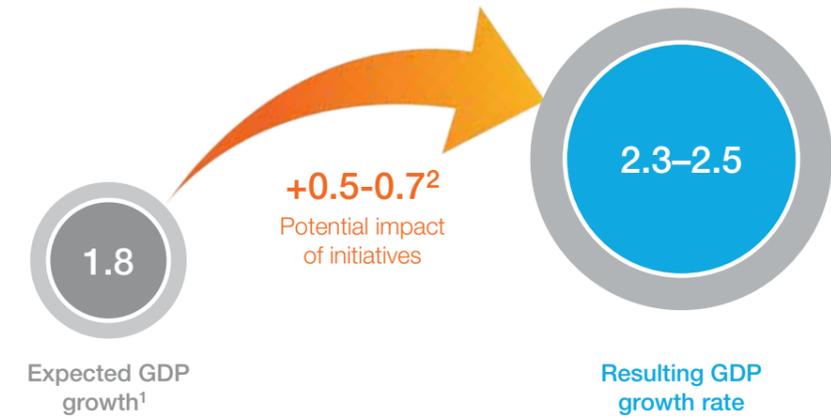
Our estimates suggest that if Hungary follows this roadmap to implement the four targeted initiatives (“anchor sector catalysts”) outlined above and also improves ecosystem enablers, it could fuel annual real GDP growth upwards to 2.5 percent over the next decade through 2025, versus the baseline growth estimate of 1.8 percent. [exhibit 25]

Of the four initiatives, in absolute value, unleashing the potential of the automotive industry and pushing SMEs’ productivity could be the main contributors to growth. However, the high-value-adding jobs created in centers of competence, and the innovation potential enabled within life sciences could be similarly significant. The secondary effects of the four initiatives may be even more important: international experience shows that the growth of one or two segments can catalyze growth in other parts of the economy by promoting innovation, competitiveness and productivity. Ecosystem enablers could further amplify these effects.

The way forward in this new age is unquestionably difficult. But Hungary has what it takes to succeed, and the benefits of success – enhanced productivity and a thriving, digital age economy – should be considered Hungary’s next gold medal.

Exhibit 25

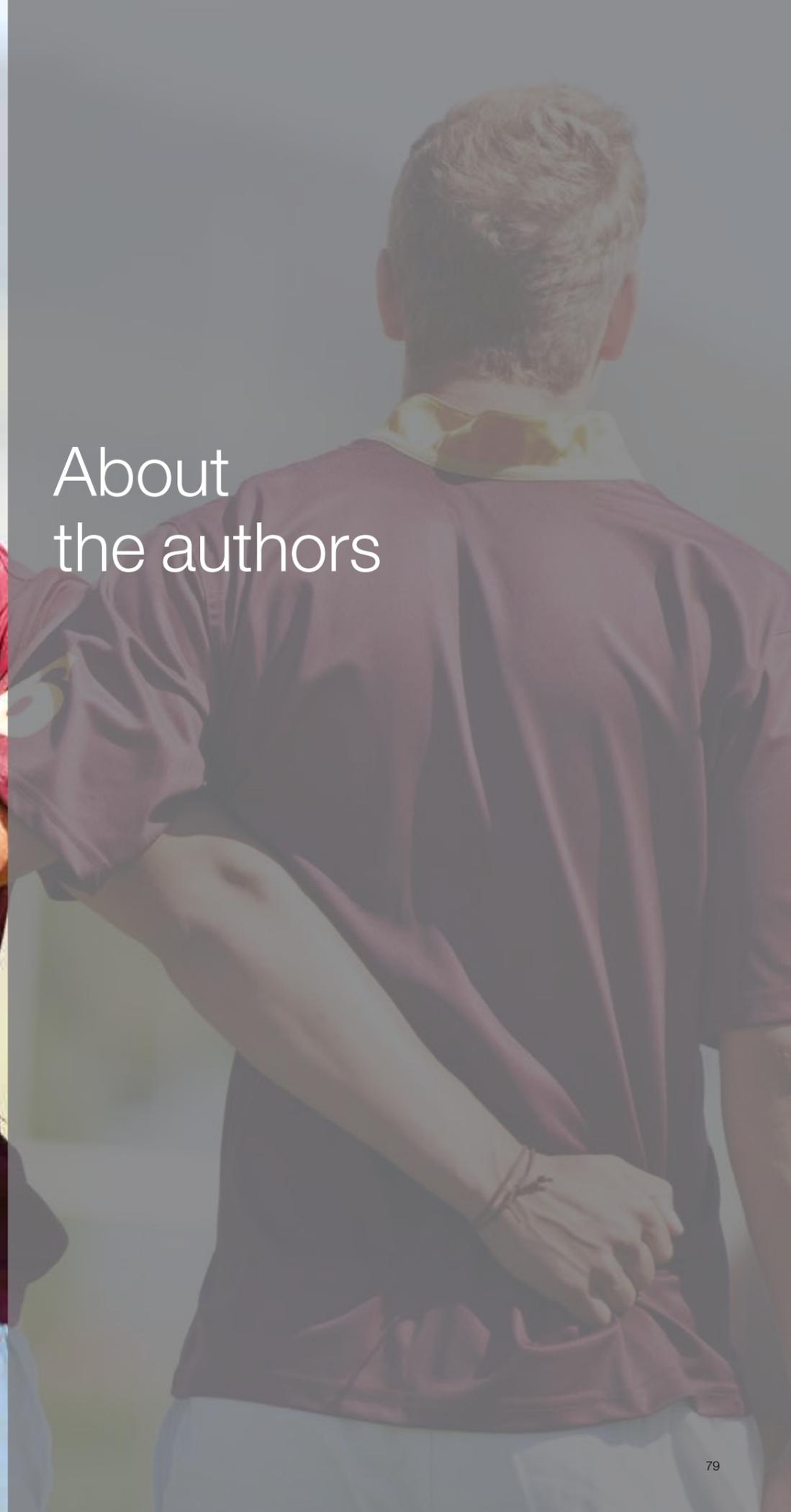
Potential impact estimated to be 0.5-0.7 percentage points of incremental annual GDP growth by 2025
Percent



1 Economist Intelligence Unit, long-term growth estimate
2 Range reflecting the potential cross-sectoral SME impact



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