



Global Location Trends

2018 Annual Report: Getting ready for Globalization 4.0

IBM Institute for Business Value

Executive Report

Operations



IBM-Plant Location International

IBM-Plant Location International (PLI) is a global service of IBM Services, specializing in corporate location and economic development strategies. With a global center of excellence in Brussels-Belgium, IBM-PLI provides location strategy and site selection services to corporate clients, analyzing international business locations for expanding or consolidating companies to select the optimal location (country/city). IBM-PLI also advises economic development organizations on improving their areas' competitiveness, strategic marketing, developing value propositions and marketing tools.

IBM-PLI maintains a proprietary Global Location Trends database, which tracks cross-border "greenfield" and expansion investments around the world. Every year, the data are used to produce the Global Location Trends annual report, a detailed Global Location Trends, *Facts & Figures* report, as well as multiple country reports. The analysis of foreign investment presented in these reports focuses on *job creation*. From an economic development perspective, job creation is the best indicator of the local economic impact of the investment. For more information, visit ibm.com/gbs/pli.

In this report

What factors are driving foreign direct investment and impacting economic growth around the world

Where is foreign direct investment originating and which countries and regions are benefitting

What must government and economic developers do to navigate the new era of Globalization 4.0

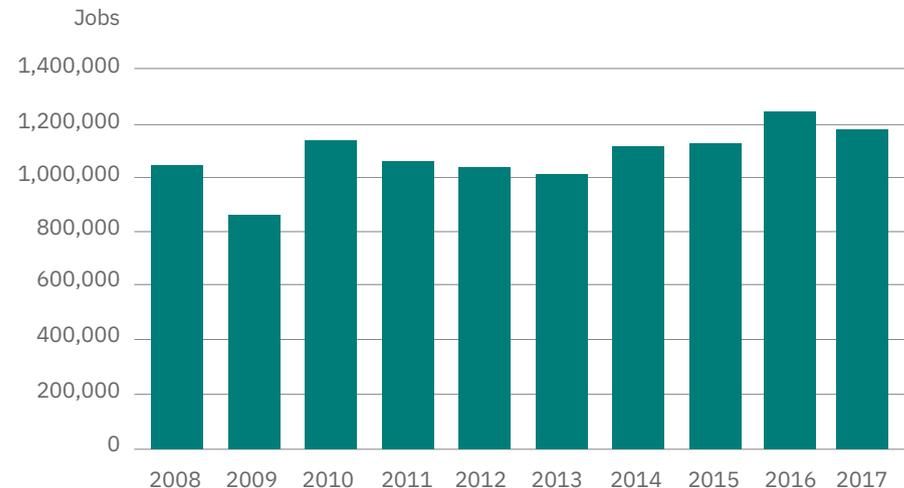
A new era is upon us

As digital disruption significantly affects global corporate investment patterns, the next wave for the global economy is emerging. This is the era of Globalization 4.0 – an era that aligns international value creation with the promise of technologies associated with the Fourth Industrial revolution. An increasingly data-driven economy is transforming global value chains and driving the participation of different locations and geographic regions. Our eleventh annual report on global investments trends shows greater volatility in foreign direct investment (FDI). This volatility is evident both overall and for individual countries as companies and countries adapt to Globalization 4.0. Navigating this new era for economic development and job creation will likely put increased pressure on policy makers to shape business environments that are responsive to rapidly – and continually – changing industry requirements.

Foreign direct investment drops

Two powerful forces are shaping the new era of Globalization 4.0 and disrupting the global economy in the process. First, digital technologies are transforming industries and global value chains at an unprecedented rate, with significant implications for how and where value is created. Often referred to as the Fourth Industrial Revolution, the emergence of new digital technologies is not only changing the internal operations of companies, but giving rise to a new data-driven global economy.

Figure 1
New foreign investment activity 2008-2017





Global job creation through foreign investment **decreased 5%**



The United States reclaimed the **#1 spot in foreign investment attraction**



China, India, Mexico and multiple other **emerging markets experienced declines**



Technology jobs **continued to increase**

Second, growing hesitation exists over the future trade agreements that have underpinned corporate internationalization efforts over the last several decades. Ongoing Brexit negotiations are creating uncertainty in Europe, and the US administration is placing the future of NAFTA and other trade agreements in doubt. As a result, the continued ability of companies to access international markets and operate globally is in question.

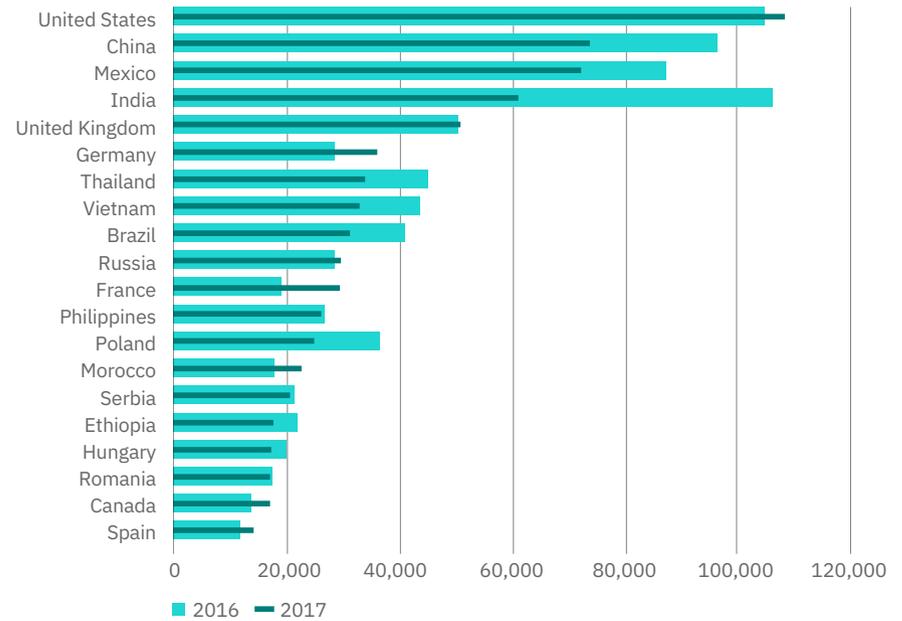
While the consequences and end state remain unclear, the combination of rapid technological change and uncertainty about future trade is already influencing corporate investment considerations (see Figure 1). Accordingly, global foreign investment activity, measured by the number of jobs created, declined in 2017 by approximately 5 percent. In contrast, the number of foreign investment projects increased by almost 10 percent to record levels, suggesting a shift toward smaller-scale projects on average.

The overall decline in job creation from foreign investment has typically been associated with a significant geographic reconfiguration of where investment is headed. Hence, while overall investment to Africa grew by more than 10 percent, investment in Asia, Latin America and the Middle East declined by between 10 and 20 percent. Meanwhile, investment in Europe and North America remained relatively stable in job creation, but strongly increased in number of projects.

US reclaims global top position

The performance of individual countries also reflects differences in regional trends. After a year of small growth in inward investment, the United States regained the position as top destination country for FDI (see Figure 2). In contrast, the three big emerging market destination countries – China, India and Mexico – all experienced significant reductions in inward investment of 20 to 30 percent. This decline highlights a major shift in global foreign investment activity, as these countries received far fewer large investment projects compared to previous years.

Indeed, this may signify a wider trend toward smaller projects as a result of automation and greater strategic weight given to proximity to customers, rather than scale. In addition, the lower level of investment may reflect investor concerns about operational risks in each of these countries. For example, companies are already displaying less appetite for major investment commitments to Mexico under the prevailing uncertainty about future access to the US market. There are similar concerns about increasingly challenging operating conditions in China and India, coupled with reservations about future economic prospects and growth. In the case of India, the decline largely results from fewer large investment projects in key sectors, such as transport equipment and information communications technology (ICT). However, it is interesting to note that while India increased inward investment measured by number of projects, companies are committing much smaller projects to the country. As a result, last year's top destination country now ranks fourth, with China in second and Mexico third.

Figure 2*Top-ranking destination countries by estimated jobs – 2017 (2016)*

Western Balkans cements leading position

Measured relative to population, a number of smaller countries lead the global ranking, with Serbia taking the top spot (see Figure 3). The country continues to receive significant inward investment in key sectors such as textiles, transport equipment, chemicals and electronics. Not surprisingly, manufacturing activities account for almost 80 percent of all jobs created from FDI. The continued strong performance by Serbia and the wider Western Balkans on this measure testifies to the region's growing success in attracting foreign investment and cementing its position in global value chains. While the performance of individual countries varies from year to year, the region as a whole is experiencing a sustained high level of interest from foreign investors.

Similarly, the Baltic countries are experiencing continued high levels of inward investment, with Lithuania ranking second overall and Estonia and Latvia featuring among the global top 20. The region has been particularly successful in attracting ICT investment, and this sector is the most significant source of inward investment measured by both number of projects and jobs created.

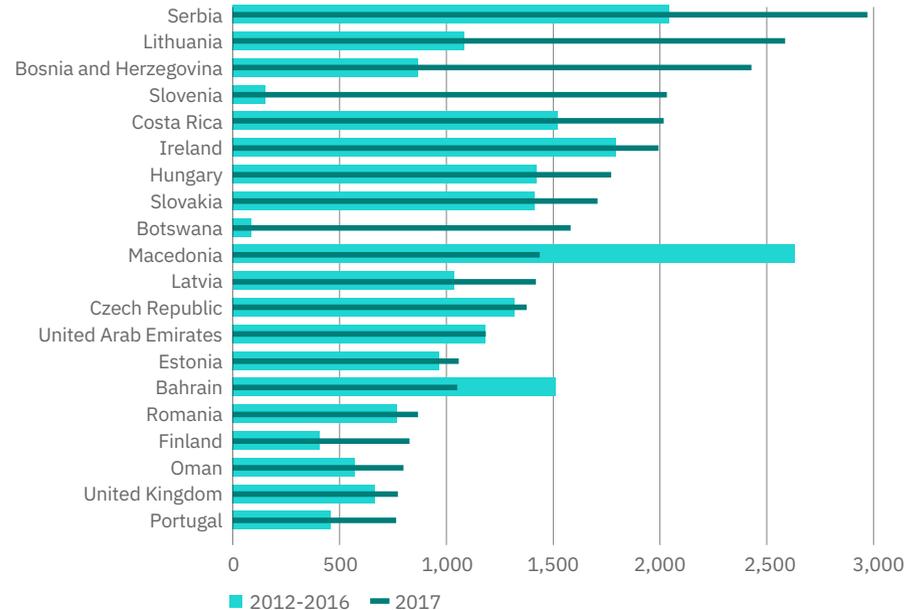
Furthermore, three countries that have traditionally ranked highly on this measure – Costa Rica, Ireland and Hungary – all feature in the global top 10. This suggests that these countries are able to position themselves with strong and sustainable value propositions toward foreign investors. At the same time, they've become adept at continuously looking for ways to improve and enhance their differentiating capabilities.

How do we assess the quality of jobs being created?

In many countries, it is not only the number of jobs from FDI that is important, but also the type of jobs. More specifically, many countries are primarily interested in attracting higher-value investment projects that create high-paying and/or knowledge-intensive jobs. To this end, IBM-PLI developed an FDI Value Indicator that assigns a value to each investment project, depending on sector and type of business activity. This value indicator does not measure the absolute number of jobs, but rather assesses the added value and knowledge intensity of the jobs created by the investment project. As such, this Value Indicator allows us to evaluate the *job value* of the investment projects attracted.

Figure 3

Top-ranking destination countries by estimated jobs per million inhabitants



Note: This analysis excludes countries with a population of less than one million.

Ireland challenged for its top position

A very different picture emerges when comparing the average job value of investment projects to the volume of job creation (see Figure 4). Ireland continues to lead the world for attracting high-value investment, generating substantial inward investment with strengths in key high-value sectors such as ICT, financial and business services and life sciences. But Singapore is now a close second, with Lithuania and Switzerland right behind. These countries and others are strong contenders for challenging Ireland's leadership position as evidenced by their demonstrated ability to attract significant investment in selected high-value sectors. Lithuania's strong performance in 2017 is augmented by its appearance in the value ranking at third place, resulting from its strengthening proposition for ICT investment. Similarly, the other top 10 countries all benefit from their success in attracting many ICT projects.

Figure 4

Top-ranking destination countries by average job value of investment projects – 2017 (2016)



Note: Countries with less than 50 projects were not assessed because of sample size

Trade uncertainties

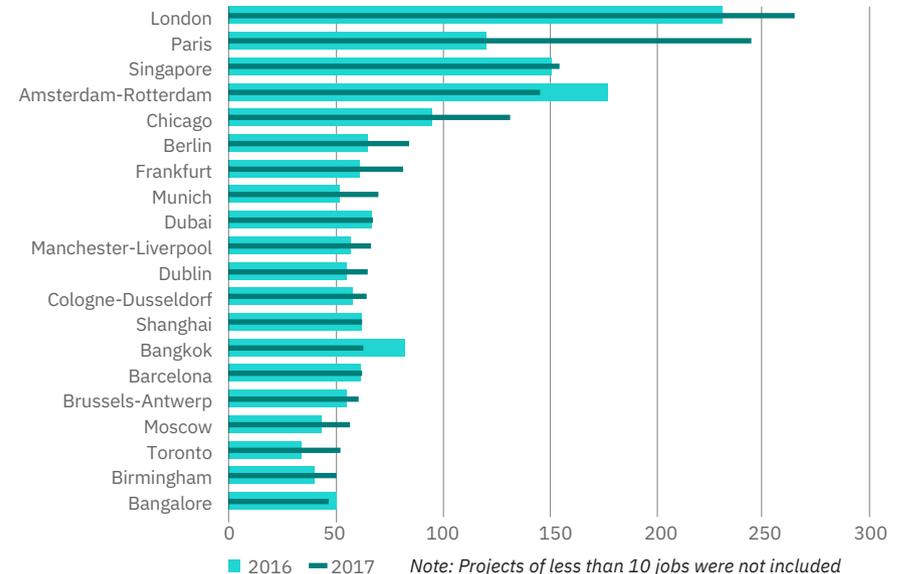
Trade and FDI have always been closely linked. Trade agreements dictate access to markets and the ability of companies to leverage international supply chains. Corporate investment strategies and decisions are thus typically based on existing trade agreements. For example, efforts to move to just-in-time supply chains, trade without duties or customs delays have become more important for companies (with limited or no buffers in supply chain). Any change to trade agreements can necessitate companies to review corporate footprints and evaluate corporate investment activity. We are already witnessing significant changes in corporate investment behavior with the current Brexit process in Europe and growing uncertainty about trade conditions in other parts of the world, notably North America. In the immediate future, any significant disruption to trade conditions could likely have detrimental impacts on overall levels of global investment. Meanwhile, the position of individual countries in global value chains, such as the United Kingdom and Mexico, may become more challenging.

A tale of many cities

At the city level, London remains the number one destination city measured by number of projects (see Figure 5). That said, Paris is now a very close second after considerable growth in 2017 and is fast encroaching on London's previously dominant position. Even more worrisome for London, while it attracted more local sales and services operations, the number of headquarters projects declined by almost 40 percent. Meanwhile, Germany shows strong overall growth across several cities, with Berlin, Frankfurt, Munich and Cologne-Dusseldorf featuring in the global top 20. Ranking second globally, Singapore is the top destination city in Asia, and Chicago retains its standing as the top destination city in North America.

Figure 5

Top-ranking metropolitan areas by number of projects

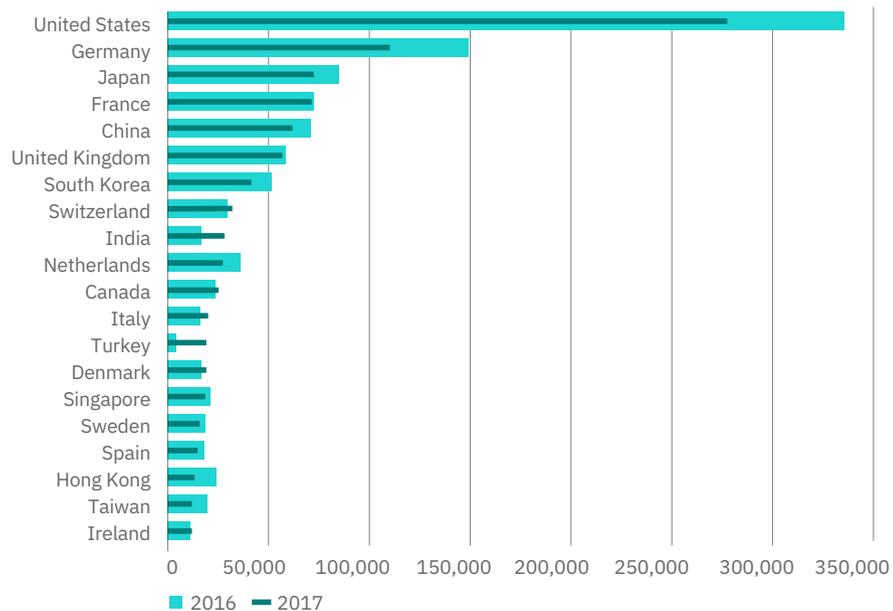


Global FDI remains dominated by US and German companies

The United States continues to be the main source of FDI, with Germany second (see Figure 6). While companies from these countries led the strong growth in overall FDI activity in 2016, outward investment from both these countries declined in 2017. The resulting reduction in overall global investment illustrates the dependency of global investment on these two countries as dominant sources of investment activity.

Figure 6

Top-ranking origin countries by estimated jobs



Regional differences

Europe

While overall FDI in Europe remained relatively stable, measured by the number of jobs created, individual countries saw significant changes in performance. The United Kingdom, after moderate growth, continues to be the top destination country for foreign investment in Europe, despite the uncertainty surrounding Brexit. However, other leading European economies, such as France and Germany, saw more significant growth. Moreover, while the overall level of inward investment to the United Kingdom is high, there is a marked change in the nature of foreign investment activity in the country. Significantly more investment was noted in 2017 in facilities serving the local UK market, such as sales offices and distribution activities. More contestable projects serving international operations, such as headquarters, manufacturing and shared service centers, declined considerably. These results suggest that international companies are reshaping their operations to the future reality of a United Kingdom outside the European Union. Accordingly, while there may be a greater need for dedicated UK market-serving operations, the country is perhaps becoming less attractive for activities serving the wider European market, and its position as the preferred entry-point for Europe for international companies is more tenuous.

Indeed, the strong performance of other European countries is in part the result of this trend, with several companies establishing new European operations in Germany and France, for example, with these two countries ranking second and third respectively. Much of the growth of inward investment in Germany originated from US and UK companies, notably in the ICT and business services sectors. France is also positioning itself as a strong contender in these sectors, with ICT now the top sector for inward investment in France, both measured by the number of projects and jobs created.

Several countries in Central and Eastern Europe experienced declines in inward investment measured by the number of jobs created, largely resulting from a trend toward fewer large-scale manufacturing projects. Therefore, while the overall number of investment projects in many of these countries increased, the average size of projects was significantly lower. In Poland, the number of jobs created from inward investment declined by approximately 30 percent, while investment in Hungary, Slovakia and the Czech Republic declined by more than 10 percent, 35 percent and 20 percent, respectively. The Western Balkans saw mixed overall results, with Serbia maintaining a stable strong performance, Bosnia and Herzegovina tripling inward investment and Croatia and Macedonia both experiencing serious declines of more than 60 percent.

Asia-Pacific

In 2017, FDI in Asia experienced a significant decline of approximately 20 percent, signifying a dramatic disruption of corporate activity on the continent. The changing nature of manufacturing investment is impacting many of the leading economies in Asia, with fewer of the large projects that have traditionally been a key source of inward investment for the continent. Hence, investment to China and India fell by 20 percent and 40 percent measured by jobs created. The overall number of projects remained stable in China, but increased in India. Similarly, investment to the Philippines increased measured by number of projects, while the number of jobs created decreased moderately, a trend particularly prominent in shared services sector activities. The move toward increased but smaller-scale projects is also seen in services activities, where companies are increasingly looking to apply automation to improve operations and efficiency. As automation technologies and artificial intelligence capabilities become widely adopted in the future, the changing nature of shared service centers will likely become more evident in corporate investment activity.

Market-seeking investment

Market-driven investment has become more important as a source of inward investment globally. In some countries, market-driven investment represents the large majority of overall inward investment. Market-driven investments focus on enabling companies to tap into the potential of a local market. The geographic scope of the market served is typically limited to the city, region or sometimes country, but not so wide as to give rise to a real location choice. Rather, investment decisions are driven by market and profitability trade-offs, but they are also impacted by general operating conditions in each market. In countries with significant or growing local markets, market-driven investment can constitute a significant part of inward investment, but success in attracting market-driven investment is not in itself an indication of a competitive business environment, as companies making these investments do not have a location choice.

Many of the Southeast Asian countries that emerged as alternative locations to China and India for manufacturing and services activities – and benefited accordingly – saw considerable decreases in inward investment in 2017. For example, investment in Thailand and Vietnam decreased by around 25 percent.

Africa

The African continent experienced growth in inward investment in 2017. Overall job creation from FDI projects reached the highest levels on record at more than 110,000 jobs. This increase largely results from significant investment activity in a few important sectors, such as textiles, chemicals, and energy and utilities. This sectoral focus may in part explain why Africa avoided the declines in manufacturing investment seen in other emerging market regions. Sectors like textiles have been less subject to digital disruption and automation than other manufacturing industries. This sector remains relatively labor intensive and continues to generate several large-scale manufacturing investment projects.

It is interesting to note that increasing investment projects in the ICT sector propelled it near the top for investment sources for Africa measured by number of projects – second only to tourism. This finding highlights the global reach of digital disruption and how it can create opportunities and challenges for all regions.

The growth in inward investment primarily benefited a few countries on the continent, notably Morocco, Algeria and Nigeria, which grew by approximately 30 percent, 275 percent and 80 percent respectively. Morocco is now the top destination country for foreign direct investment in Africa measured by number of jobs created, bumping Ethiopia down to second place. South Africa, which was previously the continent's top destination for investment, experienced a further decline in inward investment

performance and is now ranked tenth overall measured by number of jobs created. However, the country continues to be the top destination country in Africa measured by number of projects. These results suggest that it continues to be attractive for (smaller) operations that serve a domestic or wider regional market, but may fail to attract its share of the larger manufacturing projects coming to Africa.

North America

Overall investment to North America declined, mainly from significant reductions in investment into Mexico. The uncertainty surrounding NAFTA and future access to the US market may in part explain why companies are more reluctant to commit to new greenfield or expansion projects in Mexico. For example, investment in the dominant transport equipment sector (mostly automotive) fell by more than 35 percent. In contrast, inward investment to the United States and Canada recorded growth of 5 and 25 percent respectively. The growth in Canada was mainly driven by increased market-seeking investment. Meanwhile, the growing US economy continues to be a major draw for investors seeking to tap into the large market, with substantial investment activity in wholesale, retail and tourism. Both countries also experienced a strong inflow of technology companies seeking access to talent and innovation in multiple high-tech regions.

Within the United States, competition between states for inward investment traditionally is fierce. This year, North Carolina, Texas and Illinois make up the winner's circle, with the final positions determined in a "photo finish." Not far behind are Alabama, California, Indiana, Michigan, Ohio, South Carolina and Tennessee, all of which experienced growth in FDI job creation.

Latin America

Investment in Latin America declined by 20 percent in 2017, with significant falls across most countries on the continent, including major economies such as Brazil and Colombia. Despite a decline of almost 25 percent, Brazil is the top destination country in the region, although investment in resource-related sectors, such as metals, mining and extraction, fell dramatically. Costa Rica ranks second after a strong performance in life sciences and business services, while investment in other key sectors such as ICT dropped significantly. Meanwhile, Colombia ranks third despite losing much of the momentum it created over recent years, with FDI declining considerably.

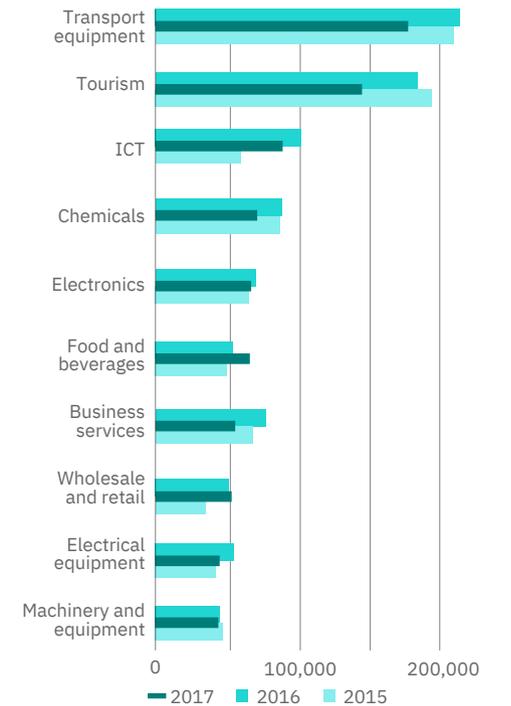
ICT investment increasing dramatically

Transport equipment continues to be the top sector for foreign investment globally, despite a decline of more than 10 percent, while tourism maintains second position (see Figure 7). But the most impressive performance is seen in ICT, the third-ranking sector. Investment in this sector increased 5 percent in number of jobs created and 10 percent in number of projects, taking the top spot globally on the latter measure.

It is noteworthy that the manufacturing-focused sectors, and particularly those with traditionally many larger projects, witnessed some of the most significant declines in investment activity, such as chemicals, transport equipment and electrical equipment.

Figure 7

Top-ranking sectors by estimated jobs



The rise of fintech and other niche tech opportunities

The growing fintech sector and associated investment activity illustrates the importance of ICT and its transformational role in the global investment landscape. Many countries now receive substantial fintech investment. For example, major business hubs such as London, Paris and New York attract numerous projects in this emerging niche segment. Locations that combine deep financial services and technology capabilities are particularly well positioned to benefit from fintech investment. However, other emerging locations are also benefitting from this trend. Some countries in Africa, for example, are attracting several projects in the fintech segment as companies seek to use digital technologies for leapfrog development of the financial services industry there. These results also illustrate how much of the growing ICT investment intersects digital technologies and traditional sectors, creating unique niche tech opportunities. Going forward, we are likely to see more locations positioning themselves for digital investment opportunities as they relate to areas of traditional strength, such as in areas like agritech, govtech and logistics technologies.

Functional trends

While the sectoral ranking remained fairly stable, marked differences appear in functional trends. Manufacturing investment decreased significantly, while shared service center investment continued the decline seen in previous years. For both of these functions, larger investment projects in particular have been negatively affected by the uncertainties and disruptions shaping the global economy. In contrast, investment in market-seeking sales and services activities increased, along with R&D activities.

Future perspectives

It is clear that the digital disruption associated with the Fourth Industrial revolution is – despite still being in its infancy – significantly affecting global corporate investment patterns. This impact is manifest in two distinct trends.

First, the rise of investment within the ICT sector itself, which is now the largest sector for FDI measured by number of projects, and third measured by number of jobs. The rapidly growing levels of investment in the ICT sector are benefitting both mature and emerging economies with, for example, ICT now also a dominant source of inward investment on the African continent.

Second, digital technologies are changing the nature and scale of investment projects across other sectors and functions. Most notably, there is a shift away from large-scale manufacturing projects toward smaller manufacturing facilities closer to key markets. This trend has particularly impacted key manufacturing locations in emerging economies that have previously benefitted from their role as export platforms in the past. It may also in part explain the dramatic declines in the number of jobs created from foreign investment in China, Mexico and Thailand, for example.

Often referred to as the Fourth Industrial Revolution, the emergence of new digital technologies is not only changing the internal operations of companies, but giving rise to a new data-driven global economy.

The era of Globalization 4.0

Going forward, the impact of digital disruption is expected to become more marked, with implications for both manufacturing and services activities. The data-driven global economy emerging from Globalization 4.0 may cause significant further disruption to global value chains and the participation of different locations and geographic regions. More specifically, Globalization 4.0 has different value drivers than earlier eras.

- First, it changes the role of economic scale through lower barriers to entry and less labor-intensive operations, which makes scale less significant as a source of competitive advantage for companies. Moreover, it will increasingly be possible to scale without mass through platform-based business models, creating opportunities to internationalize far more rapidly than before.
- Second, companies will increasingly seek a different geographic balance in their operations, with proximity to key markets and greater responsiveness to local customer needs given greater priority.
- Third, companies are expanding their value creation through collaborative ecosystems, rather than maintaining a simple focus on linear supply chains, with a concomitant need for partnerships without relying solely on vendor-buyer relationships.
- Finally, Globalization 4.0 will have significantly different skills requirements, with changes to traditional job roles and a greater emphasis on digital skills. Such skills will increasingly be applied in agile business organizations that are constantly seeking to innovate and adapt for competitive advantage.

The growth and jobs challenge

In navigating the new era of Globalization 4.0 for economic development and job creation, policy makers must maintain a sharp focus on responsive business environments for rapidly changing corporate architectures and requirements. This focus should include concerted efforts to ready the labor force for the future, including establishing industry partnerships to help shape and deliver learning for the future. Such efforts should not be limited to traditional formalized learning, but should also embrace new education and training paths and opportunities to facilitate continuous learning in a range of environments – work, community and home.

In addition, governments can lead by example and embrace the opportunities that new technologies offer to help transform the way government operates and delivers end-user experiences within the wider society. In doing so, the boundaries between public and private sectors will likely become more blurred as governments act as a genuine partner for companies in efforts to innovate and create customer value locally and internationally. This could require policy makers to reimagine the role that government can play as an enabling industry partner and recognize the potential to be a key part of corporate ecosystems for value creation, and not merely a provider of basic infrastructure and public services.

As this year's results show, failing to adapt to the changing global economy can have dramatic ramifications for inward investment. As companies rapidly redirect investment toward countries that can provide better capabilities and opportunities for value creation, the next few years are likely to be characterized by greater volatility in FDI, both overall and for individual countries. In this context, grasping the new opportunities and addressing the challenges associated with Globalization 4.0 will be key determinants of economic success.

For more information

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The IBM Global Location Trends database monitors global location trends through new foreign investment

For many years, the only available data for analyzing FDI trends around the world has been the capital investment data as published by the United Nations. These data measure the capital flows through various forms of FDI, including mergers and acquisitions (M&A) and portfolio (dis)investment. Often these FDI flows are used to measure the success of geographical entities (countries, states and even cities) in attracting foreign investment. However, this can lead to misleading conclusions on the capacity of the locations to attract foreign companies. M&As and portfolio investments are driven mostly by an interest from the investor in a target company with the objective to gain market share, acquire technology and so on. The business location of the target company is typically not the main driver for the investment, and a location decision is rarely part of M&A investment decisions.

A better approach to measure the success of individual countries in attracting foreign investment is, therefore, to focus on those investment projects for which a clear decision on the investment location has been made. This is the case for vast majority of so-called greenfield investment projects as well as for new expansions of existing operations owned by foreign enterprises (as such expansions often can be realized in different locations owned by the company). For this reason, IBM-PLI started to develop the Global Location Trends database in 2002. The Global Location Trends database tracks announced decisions of companies to locate new operations in regions outside of their headquarters region and country on an ongoing basis.

The analysis of volumes of foreign investment from IBM-PLI focuses on *job creation*. From an economic development perspective, job creation is the best indicator of the local economic impact of the investment. Job positions created through the investment are typically filled by employees in the local labor market (or staff who relocate to that market) and consequently generate income and welfare in the region around the investment location.

Data from the Global Location Trends database are used to produce annual Global Location Trends reports. Besides this executive summary report, IBM-PLI produces individual *country or state reports* (on request), and a detailed *Facts & Figures* report, which includes a wider variety of international rankings based on investment activity, as well as many country and state/province profiles. For more information on how to access these reports, please contact Roel Spee at roel.spee@be.ibm.com or visit the IBM-PLI website: www.ibm.com/gbs/pli.

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