

STRENGTHENING KNOWLEDGE BASED SERVICES IN ARGENTINA



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ABSTRACT

Purpose: This study aims to analyze KBS in Argentina and to identify the main opportunities and challenges in order to make proposals for strengthening KBS exports through improving access to major markets, employment and human capital and indirect exports.

Originality/value: This paper contributes to the discussion on KBS exports in Argentina. It provides a sectoral outlook, identifies the main opportunities and challenges and makes proposals for strengthening KBS exports.

Design/methodology/approach: This paper examines KBS in Argentina using quantitative and qualitative information, such as statistics from official sources, international organizations and private institutions; literature review; and consultations with the private sector.

Findings: There are significant opportunities to develop KBS in Argentina: availability of skilled labor and good communications infrastructure at competitive costs, more political stability and better life quality than other emerging locations. Argentina benefits from a good international reputation in some KBS sectors, such as advertising, audiovisual services and software. Additional efforts are needed in other areas to develop high-value KBS exports. The main challenges to strengthen these activities include human capital formation oriented to services that could face bottlenecks due to labor scarcity, negotiation of trade in service agreements and double taxation agreements and development of indirect exports.

KEYWORDS

Knowledge based services. Software. Business services. Audiovisual. Servification.

1. INTRODUCTION

Trade in knowledge-based services (KBS) – services that use high technology and/or have the relatively highly skilled workforce that is required to benefit fully from technological innovations (OECD, 1999) – has been dynamic: between 2005 and 2014, global exports of KBS grew by 11.8% per year on average, while world exports of goods and services increased at an annual rate of 7.2% in the same period.¹

Several elements contributed to KBS good export performance. On one hand, services in general became more important in all stages of the global value chains: service contribution to world trade in terms of value added is 45% and only 23% when exports are measured in terms of gross value (Low, *Rethinking Services in a Changing World.*, 2016). There is a transition from manufacturing systems to service-based business models (“servinomics”) (Aquilante et al., 2016), where firms become more competitive by using services to complement or substitute production of goods (Crozet & Millet, 2015) and where consumers demand more services to merchandise providers, especially in business-to-business.

On the other hand, progress and development in information and communications technology (ICT) enabled remote provision of services that previously required consumer and provider to be in the same location. Thus, many services became tradable internationally and many firms seek to increase their competitiveness through offshoring. Technological change also resulted in dynamic international trade of new services² and blurred the frontier between goods and services. A good example of the latter is the music industry, where digital is the primary stream of revenues for recorded music, overtaking sales of physical formats (IFPI, 2016).

Argentina has not been an exception to these trends: KBS are increasingly important and in 2015, they became Argentina’s second most relevant export sector in 2015 after soybean and related products. These services are strategic because of their potential to create high-quality jobs, attract investments and increase exports. This, the purpose of this paper is to analyze opportunities and challenges faced by Argentinian KBS exports and to make proposals to strengthen the international integration of this sector.

¹ Source: Author’s calculation with data from WTO.

² E.g. Mobile apps, which did not exist some years ago, reached USD 50 billion in 2016 and would double by 2020 (App Annie, 2016).

This study is divided in six sections. After this introductory section, the second part includes the theoretical framework and reviews literature on this subject. The third section describes the purpose and methodology of this study and the fourth part examines KBS in Argentina (in general and specific sectors: business, professional and technical services, software and computer services and audiovisual services). The fifth section analyzes opportunities and challenges to Argentina's KBS international integration and makes policy proposals. Finally, the sixth section exposes main conclusions.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Two complimentary approaches are useful to understand the relevance of KBS: on one hand, studies focused on the increasing importance of services in economy, more specifically, their interaction with manufacturing, and on the other hand, papers focused on the role of knowledge in generation of wealth.

2.1. Servitization of goods

Classical economic theory did not take services into account because they could not be accumulated. Later approaches considered these sectors, but they focused on low productivity. During the 20th century, theories on international trade only concentrated on goods because they assumed that most services were non-tradable internationally. As services became more relevant – especially in advanced economies – and manufacturing was organized in global value chains during the seventies and the eighties, interest in these activities raised.

Progress and development in ITC and the reduction of transport costs and trade barriers resulted in trade and production schemes where services are more visible, relevant and tradable (Low, *Rethinking Services in a Changing World.*, 2016).

The idea that services were less productive than other sectors changed on the evidence that when economies reach middle-income levels, the share of services in consumption, employment and output rises and that of manufacturing decreases (Manyika, et al., 2012) and that services share in total employment and gross domestic product per capita are positively

correlated (Schettkat & Yocarini, 2006). Most productive services are skilled personal services, including KBS (National Board of Trade, 2010).

This scenario inspired more research on services and efforts to estimate their contribution to the economy. Many studies focused on manufacturing “servitization”³, i.e. the evolution of the manufacturers' capabilities to offer services as a complement to or a substitute for the goods they produce (Vandermerwe & Rada, 1988). Some papers underline that services can add value to goods as outputs (e.g. software) and by joint-offer (e.g. post-sales services) (National Board of Trade, 2010). In both cases, firms servicify their goods to be more competitive, to offer differentiated products (Baines & Kay, 2009), stimulate consumer loyalty, increase benefits (Neely, 2008) (Suarez et al., 2013) (Visnjic et al., 2014), reduce vulnerability to economic fluctuations, get higher prices (Ariu, 2014) and improve market access (Lodefalk, 2015).

2.2. Knowledge economy

Research on knowledge economy gained relevance in the late nineties and used this expression to define systems where the generation and the exploitation of knowledge play a key role in the creation of wealth and value added and where comparative advantages in many sectors are based on knowledge (DTI, 1999) (Leadbeater, 1999).

Knowledge economy can be understood and measured from different perspectives: on an occupational basis (share of knowledge workers/skilled jobs), according to innovation (share of innovating firms) or from the point of view of knowledge sectors (knowledge-intensive industries and services) (Brinkley, 2006).

The latter is the most relevant definition to this study: KBS are activities that use high technology and/or have relatively highly skilled workforce that is required to fully benefit from technological innovations. KBS include financial services, health services, educational services, software and computer services, legal services, accounting, marketing and advertising, engineering, audiovisual services, research and development (R&D), among others (OECD, 1999).

³ When analyzing this phenomenon, researchers refer to servitization (Crozet & Millet, 2015), servicification (Rentzhog & Anér, 2015) (Low, *Rethinking Services in a Changing World*, 2016) (Lanz & Maurer, 2015), servicizing, manuserService (Low, 2013) and servinomics (Aquilante, Bustinza, & Vendrell-Herrero, 2016).

2.3. Research on KBS in Argentina

KBS in Argentina expanded during the last two decades and became one of the most relevant export sectors. However, academic interest in this sector is limited especially when compared to research on other industries (except for software and computer services).

In fact, most papers on this issue were developed by a few authors. They studied the international and national situation of KBS (López & Ramos, 2011) and the competitiveness of this sector in Latin America. López et al. (2014) use the TradeCAN⁴ methodology and find that most KBS in Argentina are dynamic activities that increase their market share in international trade (especially concerning exports to the US, Spain and the Netherlands). In other studies, they focus on the determinants of competitiveness by carrying out surveys to KBS firms in Latin America (López et al., 2013) and international reports (López & Ramos, 2013) and they highlight the availability of human capital, quality of ICT infrastructure, labor costs, agreements to avoid double taxation and protection of intellectual property rights. López et al. (2009) examine the share of the Latin American KBS in global value chains.

Some researches⁵ on global services in Latin America examine Argentina's experience. Most of them underline the positive impact of the devaluation of the peso in 2002 on the emergence of the industry, the transformation that followed and the good performance of the sector in Argentina related to other Latin American countries. There are also some non-academic reports on KBS published by public⁶ and private entities, which analyze the economic outlook of this industry in general and/or subsectors and some specific subjects related to KBS on a regular basis.

3. PURPOSE AND METHODOLOGY

This paper aims to contribute to the discussion on Argentina's international integration in the KBS sector through an extended and updated

⁴ This methodology classifies industries according to their growth rate and market-share variation.

⁵ See Gereffi et al. (2009), Hernández, et al. (2014), among others.

⁶ Knowledge Economy Observatory (Observatorio de la Economía del Conocimiento – OEC) (Ministry of Production), Creative Industries Observatory (Observatorio de Industrias Creativas – OIC) (BA Government).

analysis of the industry, identification of opportunities and challenges and some policy proposals.

For the purpose of this study, KBS include business, professional, scientific and technical services (legal services, accounting, management consulting, managerial services and public relations services; advertising, market research, and public opinion polling services; research and development; architectural, engineering, scientific and other technical services; and other business services), software and computer services, audiovisual services and royalties and license fees.

The analysis is based on quantitative and qualitative information, such as statistics from official sources, international organizations and private institutions and literature review. This information is complemented by two surveys made by the Knowledge Economy Observatory (OEC) of the Ministry of Production, where this research is developed. The first one took place in April 2016 and was answered by the authorities of more than 30 KBS clusters or business entities. It requested quantitative and qualitative information about clusters and their organization, as well as member firms. The second survey was made in September 2016 and was responded by private firms from KBS sectors. Both surveys included questions about firm characteristics, main clients by industry, main export markets, relevance of exports in the total sales and most important strengths and challenges.⁷

OEC works closely with government authorities responsible for policies related to KBS (especially the Under-Secretariat for Technological and Productive Services), as well as the representatives from the most important KBS private entities. For this reason, this study also includes information from consultations with government officials and private stakeholders, such as the Federation of National ICT Associations from Latin America, the Caribbean, Spain and Portugal (ALETI), Argencon, Chamber of Businesses for Software and Information Services of Argentina (CESSI), KBS clusters and private firms.

This information is very useful to understand the main strengths and challenges of the industry, its main trading partners and to find out – at least in a qualitative way – the linkages between KBS and other industries as well, considering that available input-output tables are old and not adequate to measure servicification in Argentina.

⁷ Argencon, EY (KBS), CESSI, Fundación Observatorio Pyme (software and computer services), Asociación Argentina de Publicidad (advertising), Asociación de Desarrolladores de Videojuegos de Argentina (ADVA) (videogames).

4. KBS IN ARGENTINA

During the last two decades, KBS⁸ gained relevance in Argentina. Exports grew from USD 151 million in 1996 to USD 6.5 billion in 2015 (Graph 1). They increased steadily until 2011 and then were affected negatively by capital controls and other restrictions that remained in force until the end of 2015. However, they outperformed exports of other services and goods and their share in total exports rose from only 0.5% in 1996 to 9.1% in 2015, when they became Argentina's second most relevant export sector after soybean and related products.⁹ In 2014 Argentina was 32nd exporter of KBS and 2nd in Latin America after Brazil.¹⁰

Argentina has had a trade surplus in KBS since 2005 explained by business, professional, scientific and technical services (BPSTS) and software and computer services (SCS). Argentina is the main exporter of the latter and audiovisual services (AVS) of the Southern Common Market (MERCOSUR).

The US is the main destination (41%) for Argentina's KBS exports followed by the European Union (EU) (26%) (Spain, Belgium, the United Kingdom – UK –, Germany) and other Latin American countries (Chile, Mexico, Uruguay, Brazil, Colombia).¹¹ In contrast to trade in goods, exports to MERCOSUR have little relevance due to double taxation and other barriers in Brazil¹² (OEC, 2016a).

There are 416,000 registered direct jobs in KBS firms in Argentina¹³, almost three times the employment level in the mid-nineties – and about 25% of those jobs are directly related to exports.¹⁴ Employment in KBS grew faster than in other activities and the share of these services in the total private formal employment rose from 4.3% in 1996 to 6.5%-7.0% during

⁸ Royalties and license fees are included in KBS total exports. However, they are not analyzed due to lack of detailed information.

⁹ Automotive exports – usually Argentina's second most relevant export sector – dropped sharply as a result of recession in Brazil. KBS exports decreased in 2016 and they were Argentina's third export sector after soybean and related products and cereals.

¹⁰ Data on Mexican exports is uncomplete. Source: Calculation by the author with data from WTO.

¹¹ As INDEC data on geographical distribution of KBS exports is uncomplete, the information mentioned in this paper also considers surveys carried out by different entities (GCBA, 2010; OEC, 2016b; OPSSI, 2016) and interviews with the private sector.

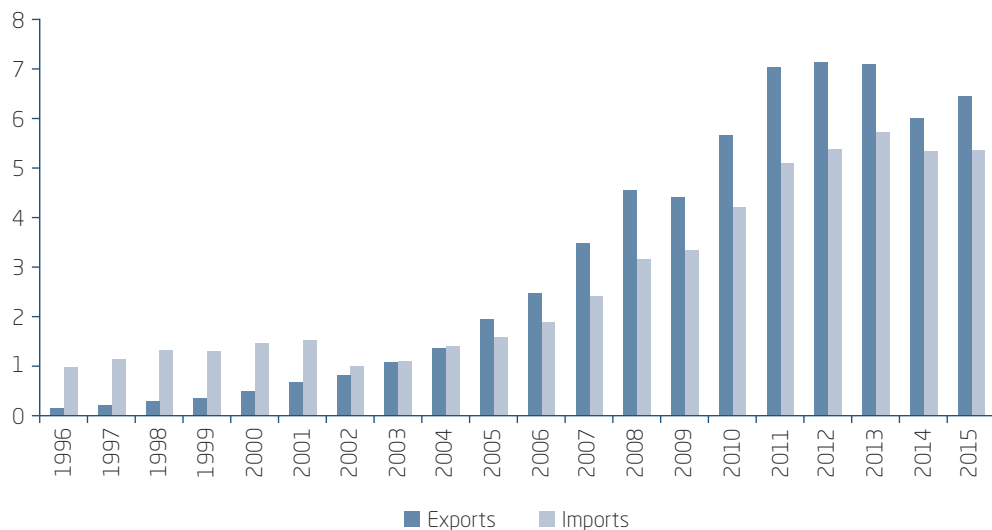
¹² When exporting services from Argentina to Brazil, firms have to pay 47.8% of their income in Brazil and then pay additional taxes in Argentina. Despite of the bilateral agreement, the method established by Argentina to avoid double taxation does not enable cross-border exporters (mode 1) to deduct tax payed in Brazil. Source: Interviews with main KBS exporters and tax specialists.

¹³ Source: Calculated by the author with data from OEDE.

¹⁴ Source: Argencon.

the last decade. Jobs in KBS contrast to other industries because of their skills, formality and higher wages (Chart 1) (OEC, 2016a). When considering also freelancers, entrepreneurs and informal workers, about 1 million people work in KBS activities.

(Graph 1)
TRADE IN KBS^a
USD billion



Note: ^aKBS includes BPSTS, SCS, AVS and royalties and license fees.

Source: Elaborated by the author with data from INDEC.

(Chart 1)
KBS^a JOBS VS. ALL INDUSTRIES
Skills, informal employment and wages

Description	KBS	All industries
Workers with a university degree (%) ^b	63.1%	9.2%
Informal employment (%) ^c	22.6%	33.4%
Average annual gross salary (USD) ^{c,d}	17,133	16,453

Notes: ^a ISIC: SCS (7210, 7220, 7230, 7240 and 7290) legal services, accounting, management consulting, managerial services and public relations services (7410), architectural, engineering, scientific and other technical services (7421), advertising, market research, and public opinion polling services (7430), other business services (7422, 7499), R&D (7300), AVS (9211). ^b ^c Elaborated by the author with data from INDEC (3Q16). ^c Weighted average. ^d Formal employment in the private sector (December 2016).

Source: Elaborated by the author with data from OEDE and BCRA.

Small and medium enterprises (SMEs) represent 99% of the firms in KBS and most of them are located in the metropolitan area. Two thirds of the KBS private formal jobs and 58.6% of the firms in these sectors are in City of Buenos Aires and Province of Buenos Aires. Other important locations are Córdoba City, Rosario and Mendoza City. However, many local and state governments are encouraging KBS (especially ICT) in the rest of the country because they are labor-intensive activities and require lower fixed capital investments than most manufacturing industries. There are more than 30 KBS clusters in Argentina and the most developed are located in the City of Buenos Aires and the City of Córdoba followed by emerging clusters in Rosario (Santa Fe), the City of Mendoza, San Miguel (Tucumán), Bariloche (Río Negro), Tandil and Mar del Plata (Buenos Aires) (OEC, 2016a).

4.1. Business, professional, scientific and technical services (BPSTS)

BPSTS represent around three quarters of KBS exports and employment (almost 318,000 registered jobs in the private sector¹⁵). This industry comprises legal services, accounting, management consulting, managerial services and public relations services; advertising, market research, and public opinion polling services; R&D¹⁶; architectural, engineering, scientific and other technical services; and other business services.

BPSTS demand is concentrated in services and manufacturing, such as consumer goods, metallurgy, legal and accounting services, automotive industry, financial services, health services, textile and apparel, chemicals, plastics, among others (OEC, 2016b).

BPSTS exports increased at an average annual growth rate of 22.6% during the last two decades. They reached USD 4.5 billion in 2015, above the previous year, but still below their maximum level (2012). They are Argentina's sixth most relevant export sector (4.3% of total exports of goods and services) and the first category among services.

Argentina is the 33rd largest BPSTS exporter in the world and the second in Latin America after Brazil.¹⁷ Trade balance in Argentina has been positive since 2002 (Graph 2) and in 2015 trade surplus in this sector attained USD 2.1 billion. As shown in Graph 3, exports exceeded imports in most subsectors.

¹⁵ As there are many freelancers in these services, this data underestimates employment in BPSTS.

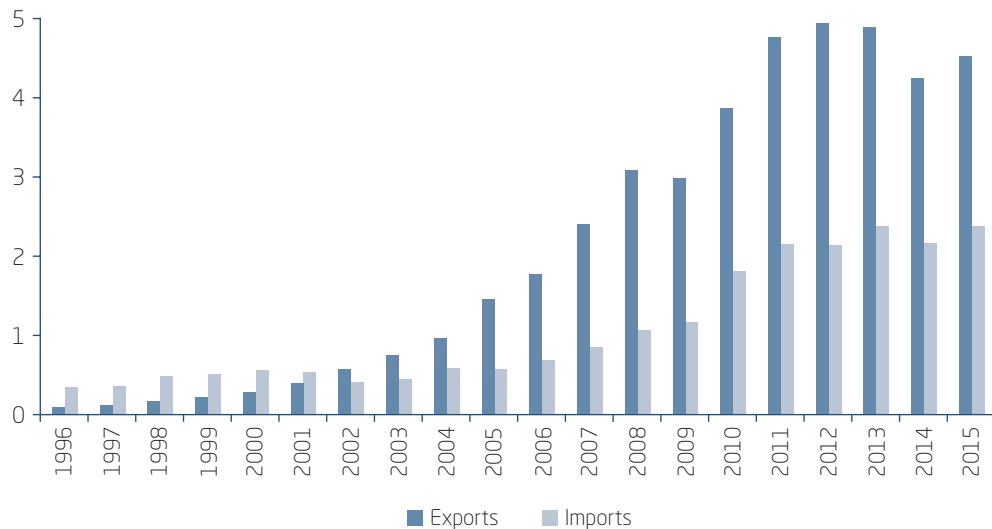
¹⁶ R&D (ISIC 7300) was included in BPSTS in order to use similar data in employment.

¹⁷ Source: WTO. 2014 data.

(Graph 2)

TRADE IN BUSINESS, PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES

USD billion



Source: Elaborated by the author with data from INDEC.

BPSTS export composition changed when the peso appreciated in real terms. The share of less sophisticated services where labor costs are the main determinants of competitiveness (e.g. call centers) decreased and more skilled services became more relevant. However, Argentina still exports mainly medium-sophisticated services (accounting, finance, clinical tests, advertising, architecture, payroll, marketing and sales) and some highly sophisticated services such as business consulting, market intelligence and legal services (López & Ramos, 2016).

The main advantages of Argentina in this sector are skilled and English-fluent labor availability and similar time zone with the United States. Although there is no detailed information, the US is the top export destination of Argentinian BPSTS, mainly accounting and advisory services, R&D and advertising services. The US does not withhold income tax on service exports, which makes it a more attractive destination than other countries, especially considering that most trade is intra-firm and most companies in the sector are American. Most exports of architectural and engineering services go to Latin American countries.¹⁸

¹⁸ Source: Calculated by the author with data from INDEC and Bureau of Economic Analysis.

Although cultural and language similarity with Spain made this country a significant destination of BPSTS exports in the last decade, this market, as well as other European countries, has lost importance in the context of the crisis that affected the region, as well as the competition with countries that incorporated to the EU since 2004 (especially Poland and the Czech Republic).

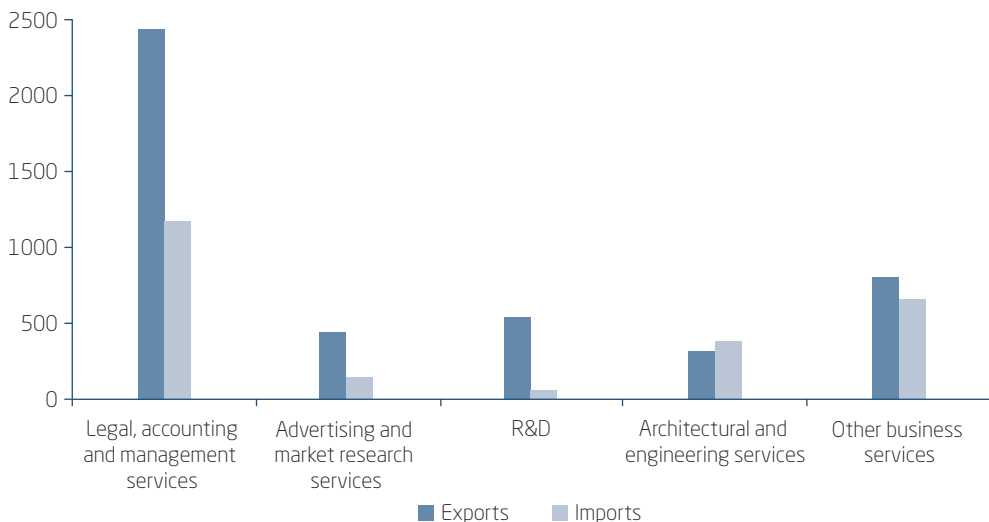
Latin America is also a relevant market, although Brazil has a low share because of double taxation and significant market access restrictions.¹⁹ Not specified BPSTS, advertising, engineering, as well as business consulting are relevant in the exports to the neighboring country.²⁰

BPSTS are highly concentrated in the City of Buenos Aires and the Province of Buenos Aires, with more than 60% of employment and companies, followed by Cordoba and Santa Fe. The more centralized activities in the metropolitan area are advertising, R&D, as well as clinical tests. More than half of the business service companies in the City of Buenos Aires are exporters, although the share of exports in the total sales is low (27.2%) (GCBA, 2010).

(Graph 3)

TRADE IN BUSINESS, PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES BY SUB-SECTOR

Million USD, 2015



Source: Elaborated by the author with data from INDEC.

¹⁹ Source: Interviews with the private sector.

²⁰ Source: Calculated by the author with data from Siscoserv.

Legal, accounting and management consulting services account for 35% of the employment in KBS. They exported USD 2.4 billion and were the most relevant export sub-sector in 2015 with the highest trade surplus among BPSTS (Graph 3). Argentina, especially the City of Buenos Aires, has become a regional hub for the provision of this kind of services to multinational companies from different industries, by setting up subsidiaries or by outsourcing services. Leading international companies, such as Accenture, American Express, Cencosud, Chevron, Citibank, Coca Cola, Danone, Disney, Exxon Mobil, EY, HP, IBM, IRSA, Johnson & Johnson, JP Morgan, Kimberly Clark, Lexmark, McDonald's, Microsoft, Peugeot, Philip Morris, Phillips, PwC, Quilmes, Siemens, Telefónica and Tetrapak, among others, to have service centers in the country.²¹

R&D exports have grown almost continuously for the last 20 years and they reached USD 505 million in 2015. Clinical research outstands in this category especially in less knowledge-intensive activities (tests on patients). However, in the most complex activities, it is possible to identify some national companies that export R&D services to their parent companies located abroad, such as Tenaris, INVAP (López & Ramos, 2016) and Satellogic. There are also Argentine firms which export R&D services incorporated in goods (which are not registered in the 'Services' account in the payment balance) in intensive-knowledge sectors, such as biotechnology (e.g. Bioceres, Don Mario).

Argentinian exports of **advertising** were USD 453 million in 2015, accumulating the highest growth of KBS in the last 20 years. This sector took off and became international in 2002, when local costs denominated in USD reduced substantially because of the peso devaluation but then this industry lost competitiveness as the peso appreciated in real terms. In addition, as most exports were related to imports and foreign investments, they were seriously affected by the restrictions to international capital flows between 2011 and 2015.²² In this context, advertising suffered a drop in exports in the recent years, which has not yet been compensated by the 2015 recovery. The same happened to other KBS sectors.

Argentina is worldwide recognized for the quality of its advertising services: the country is ranked 5th in the Gunn Report global ranking of advertising creativity. It has been top ten for the last 18 years. The most relevant companies in the sector are national, as well as foreign (Leo Burnett,

²¹ Source: Argencon.

²² Source: Interviews with the private sector.

Grey, Del Campo Saatchi & Saatchi, The Community, DDB Don, among others).²³ Despite that, as the UK is considered the world leader in advertising, many companies export to this country from where they re-export these services to third markets. For this reason, the UK is the main destination of exports with the US.²⁴ In 2015 exports of architectural and engineering services from Argentina were USD 309 million, with a USD 64 million trade deficit. The main destinations are other Latin American countries. The most relevant companies provide engineering services (Techint, Tecna, CH2MHill, etc.) (López & Ramos, 2016). In the case of architecture, firms occasionally sell abroad for specific projects.

According to the private sector, main obstacles to export include lack of bank guarantees needed to provide services abroad, absence of mutual recognition agreements related to education and other restrictions in some specific markets (e.g. local experience requirements in Brazil). In some engineering fields, human capital scarcity could also limit growth.

4.2. Software and computer services (SCS)

The most dynamic sector in KBS has been SCS, driven by favorable relative prices after the end of convertibility at the beginning of the last decade, human resource availability and entrepreneurial skills, world offshoring trends, investments of national and foreign companies and public support since 2004²⁵ (Melamud et al., 2016). For the last 20 years, formal employment in software has multiplied by 7 and has now more than 92,000 jobs (22% of total KBS employment).

Private sector representatives argue that difficulties to find adequate human capital are limiting growth and reducing competitiveness. In order to prevent these restrictions, in 2016 the government launched an ambitious program to certify 100,000 coders, 10,000 engineers and 1,000 entrepreneurs in this sector in four years. Most relevant activities in SCS in Argentina are software development (business management, security and video games) and the provision of computer services (consultancy, computer support, development of applications and customized software) (Melamud et al., 2016).

Large national and multinational firms account for 77.8% of SCS sales to the domestic market. Financial services are the main clients (28.8% of the

²³ Source: www.gunnreport.com

²⁴ Source: Interviews with the private sector.

²⁵ The Law of Promotion of the Software Industry (Laws 25922/2004 and 26692/2011) provides fiscal stability and tax benefits to beneficiary firms.

total sales), followed by telecommunications, SCS, trade and manufacturing industry (OPSSI, 2016). According to a survey from the OEC, sales to manufacturing correspond to food, pharmaceutical and automotive industries. In the City of Buenos Aires, services (excluding retail trade) represent half of the sales and manufacturing industry accounts for 20% (Fundación Observatorio Pyme, 2016). Although SCS firms provide services to a wide variety of industries, linkages with other value chains are limited, especially in the countryside where the main clients are retail trade and tourism. SCS companies express the need of more productive articulation with regional economies (Ministerio de Producción, 2016).

As for geographical distribution, SCS are even more concentrated than BPSTS: three out five firms and more than 70% of registered workers are in the City of Buenos Aires. Other important locations are the provinces of Buenos Aires and Cordoba.

SCS exports, which were negligible in 1996, expanded to USD 1,500 million in 2015, recovering partially from the slowdown in the three previous years. SCS is the 10th export sector of Argentina and has a trade surplus since 2003 (Graph 4). In 2014 the country was the 23rd global exporter of SCS and the first in Latin America.²⁶ Argentinian SCS are supplied internationally mainly through modes 1 and 4 (cross-border supply and presence of natural persons²⁷).²⁸

In 2015, almost half of the companies exported on a regular basis and one out of five firms occasionally sold abroad. About 50% of Argentina's SCS exports go to the US. Latin American countries are also significant destinations, especially Chile, Mexico, Uruguay, Brazil and Peru. The main clients abroad belong to the SCS industry (26.8%), financial services and manufacturing (CESSI, 2016).

Software development outstands (58.8%) in SCS exports, as well as the sale of own products and related services (20.9%) (CESSI, 2016). Despite of being a small sub-sector (2,000 workers and USD 30 million annual sales), video games is a highly exporting activity (exports account for 95% of the total sales) and the main destinations are the US, Europe and Asia.²⁹ Main SCS exports to Brazil are software licenses (38.8%) and ICT consultancy (23.4%).

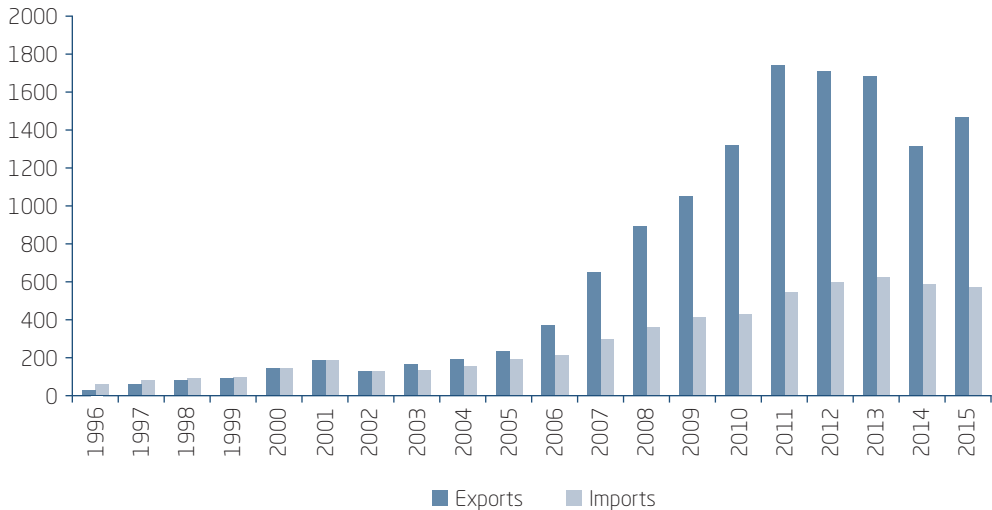
²⁶ No data available for Mexico.

²⁷ Individuals from Argentina entering the territory of another country to supply a service.

²⁸ Source: OEC (2016b).

²⁹ Source: ADVA.

(Graph 4)
TRADE IN SOFTWARE AND COMPUTER SERVICES (SCS)
 Million USD



Source: Elaborated by the author with data from INDEC.

In contrast to BPSTS, where main exporters are multinational firms, in SCS, there are many important domestic firms. In fact, there are four Argentinian “unicorns”³⁰: Globant, Mercado Libre, Despegar.com and OLX. Main SCS exporters include national businesses that have gained international relevance, as well as leading multinational firms (Neoris, Everis, IBM, HP, EMC-Dell, EY, Accenture, Indra, SAP, Grupo ASSA, Core SDI, Belatrix, Globallogic, among others).

4.3. Audiovisual services (AVS)

The consolidation of some large national audiovisual producers and the drop in costs in USD after the devaluation of the peso in 2002 made it possible for Argentinian exports of AVS to expand until 2008. From then on, sales abroad have been erratic, while imports continued to grow, resulting in trade deficit since 2009 (Graph 5). However, Argentina is one of the top 10 world AVS exporters (USD 264 million in 2015).

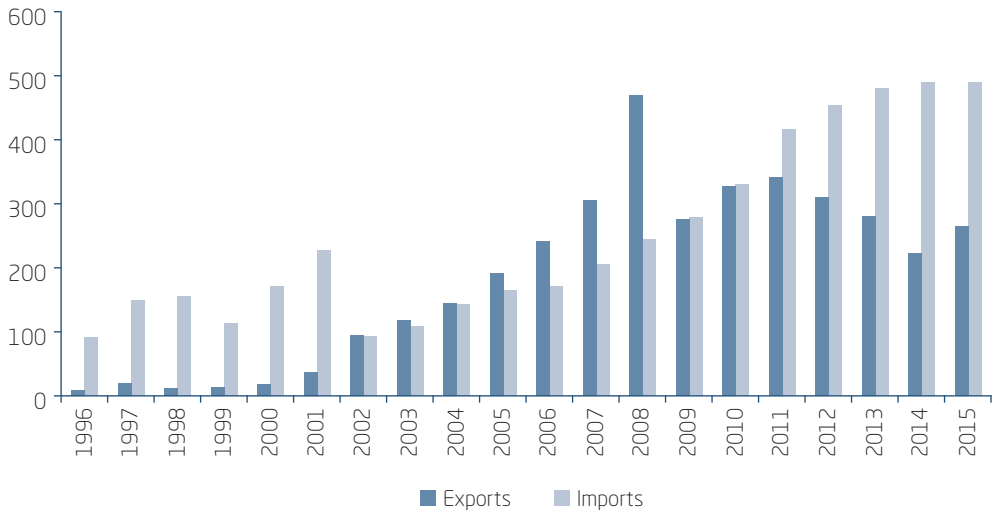
Film production and distribution employ more than 7,000 registered workers. Nine out of ten companies are located in the City of Buenos Aires.³¹

³⁰ Private companies valued at USD 1 billion or more.

³¹ The City of Buenos Aires supports AVS by means of tax benefits.

These figures underestimate the relevance of this industry as they do not include the production of contents for television and other audiovisual related activities (the AVS value chain is much more fragmented and heterogeneous than in other KBS), where freelance work prevails.

(Graph 5)
TRADE IN AUDIOVISUAL SERVICES (ASV)
 Million USD



Source: Elaborated by the author with data from INDEC.

One out of three audiovisual firms in the City of Buenos Aires sells abroad and exports represent 39.2% of the total sales. The main AVS clients are in the US, Spain, Italy, Uruguay, Mexico and Brazil (GCBA, 2010).

During the last decade, AVS have been highly dependent on public funding, especially subsidies and government advertisement. However, the audiovisual policy for the coming years is currently being discussed.

Despite of that, audiovisual industry in Argentina has a good reputation worldwide. For example, it is the only Latin American country with two winners of the Academy award for best foreign language film.³² Argentina and Mexico have received the most Academy awards nominations in the region during the last 20 years.³³

³² “The Official Story” (1985) and “The Secret in Their Eyes” (2009).

³³ They both received four nominations since 1996.

Some Argentinian companies (Promofilm³⁴, Cris Morena Group³⁵, Cuatro Cabezas³⁶ and Pol-Ka) were pioneers in the region exporting canned contents and/or formats, especially since the nineties. Afterwards, other local producers, such as Ideas del Sur, Underground and 100 Bares started exporting³⁷ (Barbadori et al., 2009). Because of the nature of the business, many national firms develop their services in co-production with foreign companies, such as Disney, The History Channel, Discovery Networks, Turner, Nat Geo, A&E, HBO, Endemol, Telefé, Pramer, Sony Pictures, Fox, Televisa and Dori Media Group. In some cases, international co-production enables firms to benefit from national and foreign subsidies. Likewise, there are well-known companies in specific niches like animation (e.g. Mundo Loco, Caramba Studio), special effects (e.g. Oner VFX, which sells its services to productions in the US, Europe and Latin America), among others.³⁸

5. OPPORTUNITIES, CHALLENGES AND POLICY RECOMMENDATIONS

KBS have had a very good performance in Argentina during the last decades, in terms of exports, as well as employment. The fact that it is very dynamic sector worldwide constitutes a great opportunity for its development and international positioning. However, there are significant challenges to be faced. This section discusses some relevant topics and suggests action in three main axes: external market access, human capital and employment, as well as indirect export development.

5.1. External market access

Similar culture, language and time-zone with some of the main global importers of KBS are strategic to Argentinian exports. Although these activities face less barriers than others with comparative advantages (e.g. food products),

³⁴ First it adapted imported formats and then started to develop and export its own formats.

³⁵ Leading producer of contents for teenagers and winner of more than 70 national and global awards. CMG has exported to more than 40 countries, including contents, royalties and licence fees. Source: CMG.

³⁶ Cuatro Cabezas started as an independent producer and was acquired by Eyeworks in 2007 and by Warner Bros. in 2014. It exports formats, specific contents for multinational firms and film equipment (temporary exports).

³⁷ Producer of "The Secret in Their Eyes", winner of an Academy award in 2010.

³⁸ See more in MRECIC (2013).

it is important to strengthen the presence in main destinations (US, Latin America) as well as to recover market share (EU) or develop new markets (Brazil). The following actions are suggested:

- Trade in services agreements: Deepening of existing agreements (MERCOSUR and Chile, the latter is already being negotiated) and reaching new agreements that enable national treatment and improve market access (completing current negotiations, -such as EU, and starting negotiations with other countries).
- Agreements to avoid double taxation: Argentina has only 20 agreements to avoid double taxation and some of them are not adequate for cross-border exports of services, at least in some cases. It is important to improve the agreements when needed (as it is already being negotiated with Brazil) and to subscribe new agreements to reduce tax burden on exports.
- Agreements to facilitate mutual recognition of education and enable exports of architecture and engineering services.
- Development of a “Country Brand” by strengthening consolidated activities (e.g. advertising) and improving the positioning of BPSTS, SCS and AVS with high potential. In order to do this, more public-private articulation is needed, as well as more links between public entities to take advantage of existing initiatives.
- Investment attraction oriented to KBS export activities. There have been investment announcements recently³⁹ and these activities are the most promoted at the national level, as well as in the main cities of the country.
- Facilitation for obtaining working visas and extending their validity. This is especially important for services exported through modes 3 and 4, such as SCS (usually to complement exports by mode 1), architecture and engineering services.
- Better exploitation of existing cooperation networks with third parties (e.g. Enterprise Europe Network for the case of SCS in the EU).

5.2. Employment and human capital

Human capital availability is essential for KBS. Argentina is one of the best positioned economies in Latin America in several international

³⁹ Some large investments in KBS activities were announced by Globallogic, Globant, Huawei, MercadoLibre, Siemens, among others. Source: Argencon and SubseSTP. According to EY (2016), investments in KBS will reach USD 2 billion.

rankings⁴⁰, although it is far from other emerging countries in Asia and Eastern Europe. One of the main strengths is the availability of skilled English fluent labor, especially orientated to legal, accounting, management consulting⁴¹, architectural, design and advertising services. In contrast, scarcity in human capital limits the expansion of other sectors, such as engineering⁴² and computer services.

An additional challenge is related to the growing automation of employment⁴³. Less qualified and more routine activities are more exposed to this phenomenon, while the less vulnerable are those which require creative and social intelligence skills (Frey & Osborne, 2013). Legal, accounting and management consulting services (the sub-sector with the highest participation in employment and exports), as well as computer support and programming are the Argentinian KBS at a high risk to be replaced by robots and artificial intelligence. In contrast, R&D, software development, database management, advertising, design, architecture and engineering and audiovisual services are less vulnerable.

In this context, some actions are suggested:

- Strengthening English contents, computer science and mathematics at all education levels.
- Encouraging the enrollment in educational programs related to disciplines with greater potential (engineering, computer science, basic sciences and activities where creativity and social intelligence outstand) through communication, as well as specific incentives. Some available programs include scholarships for IT and engineering disciplines (Becas TIC, Becas Bicentenario) and “Programa 111 mil”, an ambitious plan aimed at developing entrepreneurship (1,000 new entrepreneurs), strengthening education in universities (10,000 new professional in some KBS areas) and certifying 100,000 analysts (coders) in the next four years.

⁴⁰ Argentina ranks 56/130 in terms of human capital (WEF, 2016) and 39/140 in the higher education and training pillar of the global competitiveness index (WEF, 2015). Brazil ranks 93rd and 83rd and Mexico 65th and 86th, respectively.

⁴¹ Considering higher education programs related to KBS, disciplines related to legal, accounting and management services accounted for 55% of the students and 61% of the graduates in 2015. Source: Author’s estimations with data from SPU.

⁴² The share of students and graduates of these disciplines in Argentina is lower than in other emerging countries. Source: World Bank.

⁴³ Automation not only impacts on labor markets by eliminating some jobs and creating others; it also alters comparative advantages by changing the nature of the activities and thus, the source of competitiveness (i.e. automation in unskilled-labor-intensive industries will undermine comparative advantages based on low wages).

- Promoting articulation between the academy and the private sector in order to keep the curricular contents up to date, as well as promoting employability.

5.3. Indirect export development

SBS and BPSTS are used in the production of goods and services. That is why articulation between KBS suppliers and other productive chains is essential for boosting the sector and developing its indirect exports (i.e. through their incorporation in goods or services sold abroad). It is therefore suggested to promote links between KBS private entities and their peers in other sectors:

- **Agroindustry.** Argentina is very competitive in this sector, but articulation between regional economies and KBS is still limited. National and provincial governments are interested in promoting KBS federal development. This provides an opportunity for fostering cooperation, especially between software and agriculture. In fact, there is a growing ecosystem of business related to agrotech. However, in some regions, additional efforts are needed to ensure the availability of human capital and to improve connectivity infrastructure.
- **Capital-intensive industries.** These are the activities with the greatest demand for services (Manyika et al., 2012). A closer link with these sectors would not only help to strengthen KBS, but would also increase the competitiveness of some manufacturing industries (e.g. electronic products manufacturing through developments of internet of things). This could be especially important for engineering and software services. For the latter, there are some initiatives from the government and the private sector (CESSI) to encourage digital transformation of production that should be complemented by more active policies. It would also be essential to improve statistics on indirect contribution of services to exports, in order to identify challenges and opportunities better. Further research could contribute to explore this area.



6. CONCLUSIONS

For the last 20 years, KBS gained relevance in the Argentinian economy and became a strategic sector. They create formal, qualified and well-paid

employment and have a good export performance: they became the second export sector after the soybean complex (from representing 0.5% of sales abroad in 1996 to 9.1% in 2015) and they have registered a trade surplus for 12 years.

Argentina is one of the best positioned countries in Latin America in the KBS global market. There are opportunities to continue developing its potential. Compared to other developing countries, key strengths include the availability of skilled labor and communications infrastructure at relatively competitive costs, political stability and quality of life. In some sectors, such as advertising, audiovisual services and some SCS, Argentina has a very good reputation worldwide, while in others it must still make efforts to develop capabilities and consolidate as a high-value KBS exporter.

The main challenges to achieve this goal are:

- Human capital formation in areas where bottlenecks could restrict growth. This is especially important to expand exports of software and engineering services. “Plan 111 Mil” recently implemented by the government could duplicate workforce in SCS and thus deal with these restrictions, but additional efforts are needed in terms of basic education in math and computer science.
- Negotiation of trade in services, double taxation and mutual recognition agreements in order to reduce the barriers that currently limit access to certain markets.
- Increasing the articulation of KBS with other productive chains in order to develop indirect exports. This is the area where less progress has been made, but also the one that has the biggest potential. Developing linkages with highly competitive industries, like agriculture and food production, would be strategic, especially for developing KBS in regional economies, while fostering cooperation with capital-intensive industries could make these sectors more competitive.

Acronyms

ADVA	Argentinian Videogame Developers Association (<i>Asociación de Desarrolladores de Videojuegos de Argentina</i>)
ALETI	Federation of National ICT Associations from Latin America, the Caribbean, Spain and Portugal
AVS	Audiovisual services
BCRA	Central Bank of Argentina
BPSTS	Business, professional, scientific and technical services

CESSI	Chamber of Businesses for Software and Information Services of Argentina (<i>Cámara de la Industria Argentina del Software</i>)
EU	European Union
ICT	Information and communications technology
INDEC	National Institute of Statistics and Censuses (<i>Instituto Nacional de Estadísticas y Censos</i>)
ISIC	International Standard Industrial Classification
KBS	Knowledge-based services
Mercosur	Southern Common Market
OEC	Knowledge Economy Observatory (<i>Observatorio de la Economía del Conocimiento</i>)
OEDE	Employment and Business Observatory (<i>Observatorio de Empleo y Dinámica Empresarial</i>)
OIC	Creative Industries Observatory (<i>Observatorio de Industrias Creativas</i>)
R&D	Research and development
SCS	Software and computer services
SMEs	Small and medium enterprises
SubseSTP	Under-Secretariat for Technological and Productive Services (<i>Subsecretaría de Servicios Tecnológicos y Productivos</i>)
US	United States
USD	US dollars
WTO	World Trade Organization

REFERENCES

- AT Kearney. (2014). *The AT Kearney global location index 2014. A wealth of choices: From anywhere on earth to no location at all*. Retrieved from <http://www.basis.org.bd/resource/A%20Wealth%20of%20Choices.pdf>
- AAP. (2013). *Evolución de la actividad publicitaria argentina. Inversiones*. Buenos Aires, Argentina: Asociación Argentina de Publicidad.
- App Annie (2016). *App Annie mobile app forecast: The path to \$100 billion*. Retrieved from <https://www.appannie.com/en/insights/market-data/app-annie-releases-inaugural-mobile-app-forecast/>
- Aquilante, T., Bustinza, O., & Vendrell-Herrero, F. (2016). *Services in European manufacturing: Servinomics explained*. Retrieved from <http://bruegel.org/2016/03/services-in-european-manufacturing-servinomics-explained/>

- Argencon. (2015a). *El futuro de Argentina. Aporte de los servicios del conocimiento*. Buenos Aires, Argentina: Argencon. Retrieved from <http://www.argencon.org/downloads/sbc-argentina.pdf>
- Argencon. (2015b). *Argenconomics*. Buenos Aires, Argentina: Argencon.
- Ariu, A. (2014). *Crisis-proof services: Why trade in services did not suffer during the 2008–2009 collapse*. Working Paper Series No. 1691. Frankfurt, Germany: European Central Bank. Retrieved from <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1691.pdf>
- Baines, T. L., & Kay, J. (2009). The servitization of manufacturing: A review of literature and reflection on future challenges. *Journal of Manufacturing Technology Management*, 20(5). doi 10.1108/17410380910960984
- Barbadori, T., Gil Paricio, G., Sampieri, L., & Seivach, P. (2009). *La exportación de contenidos y servicios de producción televisiva en la Ciudad de Buenos Aires*. Buenos Aires: Observatorio de Comercio Internacional de la Ciudad de Buenos Aires.
- Brinkley, I. (2006). *Defining the knowledge economy*. London: The Work Foundation.
- CESSI (2016). *Plan de Mercados Externos 2016*. <https://es.slideshare.net/cessiargentina/plan-de-desarrollo-de-mercados-externos-2016-cessi-argentina>
- Crozet, M., & Milet, E. (2015). *Should everybody be in services? The effect of servitization on manufacturing firm performance*. Paris: CEPII. doi 10.1111/jems.12211
- DTI (1999). *The competitiveness white paper: Building the knowledge-driven economy*. London, UK: Department of Trade and Industry. Retrieved from <http://webarchive.nationalarchives.gov.uk/+http://www.dti.gov.uk/comp/competitive/pdfs/compindx.pdf>
- EY (2016). *Argentina investment outlook: Winds of change*. Buenos Aires: EY.
- Frey, C. B., & Osborne, M. (2013). *The future of employment*. Oxford: Oxford Martin School. doi 10.1016/j.techfore.2016.08.019
- Fundación Observatorio Pyme. (2016). *La coyuntura de las PyME de software y servicios informáticos de ciudad de Buenos Aires*. CABA: Fundación Observatorio Pyme.
- García, P. (2013). *Comercio global de servicios: Características generales y determinantes*. Montevideo, Uruguay: BID.
- Gayá, R. (2014). Servicios globales en América Latina y el Caribe. *Carta Mensual INTAL* (214). Retrieved from http://www19.iadb.org/intal/Cartamensual/Cartas/PDF/214/es/CartaMensual214_Columna%20de%20An%C3%A1lisis_Art1.pdf



- Gayá, R. (2015). *El sistema multilateral de comercio y las nuevas tecnologías*. (BID-INTAL, Ed.). Integración y comercio (39). Retrieved from <http://www19.iadb.org/intal/icom/notas/39-11/>
- GCBA. (2010). *Exportaciones de servicios de la ciudad Autónoma de Buenos Aires*. Retrieved from <http://comex.mdebuenosaires.gob.ar/contenido/objetos/exportservicios.pdf>
- Gereffi, G., Castillo, M., & Fernández-Stark, K. (2009). *The offshore services industry: A new opportunity for Latin America*. Washington, DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/handle/11319/1267?locale-attribute=en>
- Hernández, R. A., Mulder, N., Fernández-Stark, K., Sauvé, P., & López Giral, D. Y. (2014). *Latin America's emergence in global services. A new driver of structural change in the region?* Santiago: ECLAC. Retrieved from <http://www.cepal.org/en/publications/35949-latin-americas-emergence-global-services-new-driver-structural-change-region>
- IFPI. (2016). *IFPI Global Music Report 2016*. Retrieved from <http://www.ifpi.org/downloads/GMR2016.pdf>
- Lanz, R., & Maurer, A. (2015). *Services and global value chains – Some evidence on servicification of manufacturing and services networks*. Geneva: World Trade Organization. Retrieved from https://www.wto.org/english/res_e/reser_e/ersd201503_e.htm
- Leadbeater, C. (1999). *New measures for the New Economy*. Technical meeting Measuring and Reporting Intellectual Capital: Experience, Issues, and Prospects. Amsterdam, Netherlands. Retrieved from <https://www.oecd.org/sti/ind/1947910.pdf>
- Lodefalk, M. (2015). *Tear down the trade-policy silos! Or how the servicification of manufacturing makes divides in trade policymaking irrelevant*. VOX, CEPR's Policy Portal. Retrieved from <http://voxeu.org/article/servicification-manufacturingandtradepolicy>
- López, A., & Ramos, D. (2011, Septiembre-Diciembre). Los servicios intensivos en conocimiento: ¿Una oportunidad para diversificar la estructura exportadora argentina? *Boletín Informativo Techint*, (336), 101-130. Retrieved from <http://www20.iadb.org/intal/catalogo/PE/2012/09733a06.pdf>
- López, Andrés; Ramos, Daniela; (2013). ¿Pueden los servicios intensivos en conocimiento ser un nuevo motor de crecimiento en América Latina? *Revista Iberoamericana de Ciencia, Tecnología y Sociedad – CTS*, Septiembre, 83-115. <http://www.revistacts.net/volumen-8-numero-24/133-dossier/565-ipueden-los-servicios-intensivos-en-conocimiento-ser-un-nuevo-motor-de-crecimiento-en-america-latina>



- López, A., & Ramos, D. (2016). *Análisis tecnológicos y prospectivos sectoriales. Servicios empresariales*. Buenos Aires: MINCYT.
- López, A., Niembro, A., & Ramos, D. (2013). *Las exportaciones de servicios en América Latina: Factores de competitividad, obstáculos y políticas públicas*. Buenos Aires: RedLas. http://www.redlas.net/materiali/priloge/slo/redlas_lopez-niembro-ramos.pdf
- López, A., Niembro, A., & Ramos, D. (2014). La competitividad de América Latina en el comercio de servicios basados en el conocimiento. *Revista de la CEPAL*, (113), 23-41. doi 10.18356/9c5dede8-es
- López, A., Ramos, D., & Torre, I. (2009). *Las exportaciones de servicios de América Latina y su integración en las cadenas globales de valor*. Santiago: CEPAL. http://www.cepal.org/cgi-bin/getProd.asp?xml=/publicaciones/xml/3/35963/P35963.xml&xsl=/tpl/p9f.xsl&base=/publicaciones/top_publicaciones.xslt
- Low, P. (2013). The role of services in global value chains. In D. K. Elms, & P. Low, *Global value chains in a changing world*. Geneva, Switzerland: World Trade Organization. Retrieved from https://www.wto.org/english/res_e/booksp_e/aid4tradeglobalvalue13_e.pdf
- Low, P. (2016). *Rethinking Services in a Changing World*. Geneva: E15 Expert Group on Services – Policy Options Paper. E15Initiative. International Centre for Trade and Sustainable Development (ICTSD) and World Economic Forum (WEF). Retrieved from http://e15initiative.org/wp-content/uploads/2015/09/E15_no17_Services_final_REV_x1.pdf
- Manyika, J., et al. (2012). *Manufacturing the future: The next era of global growth and innovation*. San Francisco, CA: McKinsey Global Institute. Retrieved from <http://www.mckinsey.com/business-functions/operations/our-insights/the-future-of-manufacturing>
- Melamud, A., Bruera, I., Grosso, J., & Rozemberg, R. (2016). La cadena de valor del software y servicios informáticos. *Boletín Informativo Techint*, (351), 105-129.
- Ministerio de Producción. (2016). *Mesa ejecutiva de software y servicios informáticos*. Buenos Aires: Ministerio de Producción – Secretaría de Transformación Productiva.
- MRECIC (2013). *Argentina Audiovisual*. CABA: Ministerio de Relaciones Exteriores, Comercio Internacional y Culto.
- National Board of Trade. (2010). *Servicification of Swedish manufacturing*. Stockholm: Kommerskollegium. Retrieved from <http://www.kommers.se/Documents/dokumentarkiv/publikationer/2010/skriftserien/report-2010-1-servicification-of-swedish-manufacturing.pdf>



- Neely, A. (2008). Exploring the financial consequences of the servitization of manufacturing. *Operations Management Research*, 1(2). doi 10.1007/s12063-009-0015-5
- OEC (2016a). *Informe de Servicios Basados en el Conocimiento No. 1*. Retrived from <http://www.produccion.gob.ar/wp-content/uploads/2016/08/Informe-Analitico-OEC-Nro1-2016-06.pdf>
- OEC (2016b). *Informe de Servicios Basados en el Conocimiento No. 2*. Retrieved from <https://www.slideshare.net/secret/ArqjXTYdNQyJVP>
- OECD (1999). *Science, technology and industry -scoreboard 1999– benchmarking knowledge-based economies*. Paris, France: OECD. Retrieved from <http://www.oecd.org/sti/sci-tech/oecdsciencetechnologyandindustry-scoreboard-1999-benchmarkingknowledge-basedeconomies.htm>
- OPSSI (2016). *Reporte anual sobre el sector de software y servicios informáticos de la República Argentina*. Buenos Aires: CESSI. Retrieved from <http://www.cessi.org.ar/descarga-institucionales-2106/documento2-8dff5be5123cac1e74c1d00e21c09fde>
- Rentzhog, M., & Anér, E. (2015). *The news services era – Is GATS up to the task?* Geneva, Switzerland: E15 Expert Group on Services – Policy Options Paper. E15Initiative. International Centre for Trade and Sustainable Development (ICTSD) and World Economic Forum (WEF). Retrieved from <http://e15initiative.org/publications/the-new-services-era-is-gats-up-to-the-task/>
- Rozemberg, R., & Gayá, R. (2015). *Oportunidades y desafíos del comercio de servicios para el MERCOSUR*. Buenos Aires: Cámara de Exportadores de la República Argentina (CERA).
- Schettkat, R., & Yocarini, L. (2006). The shift to services employment: A review of the literature. *Structural Change and Economic Dynamics*, 17(2), 127-147. doi 10.1016/j.strueco.2005.04.002
- Suarez, F. F., Cusumano, M. A., & Kahl, S. J. (2013). Services and the Business Models of Product Firms: An Empirical Analysis of the Software Industry. *Management Science*, 59(2), 420-435. doi 10.1287/mnsc.1120.1634
- Vandermerwe, S., & Rada, J. (1988). Servitization of business: Adding value by adding services. *European Management Journal*, 6(4), 314-324. doi 10.1016/0263-2373(88)90033-3
- Visnjic, I., Wiengarten, F., & Neely, A. (2014). Only the brave: Product innovation, service business model innovation, and their impact on performance. *Journal of Product Innovation Management*, 33(1), 36-52. doi 10.1111/jpim.12254



WEF (2015). *The global competitiveness report*. Geneva, Switzerland: World Economic Forum. Retrieved from <http://reports.weforum.org/global-competitiveness-report-2015-2016/>

WEF (2016). *The human capital report*. Geneva, Switzerland: World Economic Forum. Retrieved from <https://www.weforum.org/reports/the-human-capital-report-2016>

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