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Global sourcing of knowledge services and innovation: An integrative literature review

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ABSTRACT

Global sourcing of knowledge services and innovation (GSKSI) has been the subject of several studies in a wide range of areas, including strategy and international management, economic geography, organizational behavior, operations management, among others. The objectives of this paper are twofold: a) to produce a summary of GSKSI studies and b) provide a research agenda for GSKSI. We conducted a systematic review of the academic literature and found that, in addition to essays, reports and theoretical papers, empirical studies on GSKSI are distributed into four main categories: strategic and international management; technology and innovation management; labor, organizational behavior and human resources; and operations management. Our paper contributes in two unique ways: by providing a quantitative analysis of the literature and a qualitative assessment of the results of previous studies.

1. Introduction

Global sourcing of knowledge services and innovation (GSKSI) is a relatively new phenomenon (GIÃO, OLIVEIRA JÚNIOR; 2013; GIÃO, OLIVEIRA JÚNIOR, VASCONCELLOS; 2008). In the 1980s, it was responsible for an insignificant portion of the global economy. In fact, in 1986 there were approximately 5,000 people employed in the area worldwide. However, in 2003 there were already about 350,000 positions available, specifically in the area of business process offshoring in India alone (METTERS, VERMA; 2008). Seven years later, offshoring services generated $252 billion in revenue and employed about 4 million people globally, largely in developing countries (GEREFFI, FERNANDEZ-STARK; 2011). Since the 1960s, a growing number of companies in developed countries have transferred manufacturing operations (shoes, clothing, inexpensive electronic goods, toys, etc.) to nations with lower labor costs (GEREFFI, 2006). In the services sector, this movement began gradually modestly in the 1980s and has grown rapidly since the 1990s. Global sourcing of knowledge services and innovation encompasses activities such as call centers, software development, marketing and sales, research and development (R&D), and legal services, among others (GEREFFI, FERNANDEZ-STARK; 2010). GSKSI is defined here as the global sourcing of knowledge services and innovation previously performed in the home country (DOH, BUNYARATAVEJ, HAHN; 2009; MANNING, MASSINI, LEWIN; 2008), such as product development, computer programming, game development, graphic design and evaluating tests for medical reports, among others. As with the aforementioned offshoring of manufacturing, we propose that GSKSI also differs from the offshoring of simpler services such as scanning or shredding of documents, or call centers that handle minor customer queries. The motivation behind offshoring these latter activities is typically similar to that of manufacturing (cutting costs), whereas there are other components involved in GSKSI, such as the

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search for talent (LEWIN, MASSINI, PEETERS; 2009). Another unique feature of our paper is that it is not based on the service sector, but rather service activities, performed either for service companies or manufacturing firms. This emphasis on activity is in line with the idea of the transnational strategy as a network of globally dispersed activities (GHOSHAL, BARTLETT; 1990), forming a global value chain (GEREFFI, FERNANDEZ-STARK; 2010).

Our literature survey on GSKSI shows a huge increase in the number of academic papers published from 2008 onwards in relation to previous years. We also observed a variety of journals publishing GSKSI related papers, distributed across different academic areas. Increased interest in GSKSI and its distribution across different disciplines and analytical perspectives justify the need for integration and a literature review. The objectives of this paper are twofold: a) to produce a summary of GSKSI studies and b) provide a research agenda for GSKSI. To that end, we addressed the following guiding questions: Which academic disciplines investigate the GSKSI phenomenon? What theories were applied to the GSKSI phenomenon? What research questions have been addressed? What are the theoretical developments in academic disciplines studying GSKSI? What are the research gaps that require further studies?

We surveyed the academic literature for contributions in the field of social sciences, including not only management and organization studies, but also related disciplines such as sociology, economics, and economic geography. Thus, the aim is to provide a broad picture of investigation trends related to GSKSI.

This paper is organized as follows: first, we describe the methodological procedures used. Next, we dedicate one section to commenting on articles that contribute with theoretical breakthroughs to explain the GSKSI phenomenon. The following section provides insights from the empirical articles assessed and suggestions for additional research in the areas in which we identified contributions to understanding the GSKIS phenomenon, including strategic and international management, technology and innovation management, operations management, labor, organizational behavior and human resources. Finally, we close the paper with our conclusions.

2. Paper selection and classification procedures

In order to provide a comprehensive survey of the literature on global sourcing of knowledge and innovation, we followed the procedures of a systematic literature review (TRANFIELD, DENYER, SMART; 2003). A search was conducted using the ISI Web of Knowledge database, with a first round on August 2, 2011, a second round on February 26, 2013, and a third on March 24, 2015. Successive rounds were necessary to incorporate newer studies published after each version of this paper[2]. The searches conducted looked for titles, keywords, and abstracts containing the keywords ((offshor* OR "global sourcing") AND (servic* OR knowledge OR innovation OR R&D)) NOT (oil OR gas)[3]. Searches were restricted to articles, reviews, and editorial materials, despite the fact that many books (e.g., KOTABE, 1992), book chapters (e.g., GIÃO,OLIVEIRA JÚNIOR; 2013), reports from intergovernmental organizations (e.g., United Nations Conference on Trade and Development, 2011), and corporate reports also contribute to this body of knowledge[4]. The initial search returned 433 references. The second round added 91 new articles to the sample and the third produced an additional 91 studies, for a total of 607 references. The cut-off date used was 2014 in order to exclude the partial information for 2015. No start date was established.

All the abstracts of these references were analyzed to determine whether on the studies did indeed address global sourcing of knowledge services and innovation. As a result, 221 papers that were not related to GSKSI were excluded (for focusing on offshore windmills, offshore manufacturing, finance offshoring, etc.). The final sample consisted of 386 papers, which were classified into five categories: Strategic and International Management (SIM); Labor, Human Resources and Organizational Behavior (LHR); Technology and Innovation Management (TIM); Operations Management (OM); and Organization and Management Theory (OMT).

[2] Previous versions of this paper were presented at EURAM and EGOS conferences.

[3] This query has the following conventions: an asterisk means any number of characters will match the keyword (e.g., offshor* returns offshore, offshoring, offshored, and the like). OR means that any conditions are acceptable. AND means that both conditions should be met (e.g., offshore AND service would return only papers containing both terms). NOT eliminates papers that match this condition. Quotation marks require that the paper match the expression in full. Parentheses force an order of execution of the query.

[4] We are grateful to an anonymous reviewer for pointing out these limitations.

The last category included all non-empirical studies. Initially, these categories mapped areas of knowledge according to divisions of the Academy of Management[5]. Two independent coders randomly assigned the categories to their respective knowledge areas. After an initial round of assessment, we observed that coders found it difficult to distinguish between some areas. As such, final reclassification merged similar areas, arriving at the aforementioned five categories. Classification was based on the paper's main contribution as opposed to the scope of the journal in which it was published. Due to space restrictions OMT studies were omitted from the integrative literature review; only statistics from these papers were presented.

3. Descriptive Analysis

This section presents a descriptive analysis of the study sample. The largest category is Strategic and International Management with 156 papers, followed by Technology and Innovation Management (71 studies), Labor, Human Resources and Organizational Behavior (64), Organizational and Management Theory (53), and Operations Management (42).

Tab. 1
Distribution of papers in the sample, by journal

Rank	Journal	Freq.
1	Journal of International Management	17
2	Journal of Operations Management	16
3	Journal of International Business Studies	12
4	MIS Quarterly	11
5	Journal of Information Technology	8
6	Journal of Management Studies	7
7	Journal of World Business	7
8	Management International Review	6
9	International Business Review	6
10	Journal of Global Information Management	6
11	Strategic Management Journal	6
12	Information Technology & People	6
13	Industry and Innovation	6
14	MIS Quarterly Executive	5
15	Information Systems Research	5
16	Research Policy	5
17	Information Systems Journal	4
18	Production and Operations Management	4
19	World Economy	4
20	Journal of Economic Geography	4
21	Industrial Marketing Management	4
22	Other journals (Rank: 22-187) – (Freq.:1-3)	237
	Total	**386**

Source: Calculations from the authors

Analysis of the sample shows that publication is highly concentrated. The top ten journals in terms of publication frequency of articles on the subject under study accounted for 96 papers in the study sample, averaging 9.6 papers per journal and 25 % of the sample. On the other hand, significant distribution was observed, with relevant studies found in 187 journals, averaging 2.06 papers per journal. Table 1 shows the publication frequency for top journals.

Before 2005, only a few studies on GSKSI were published. From 1993 (the earliest date in our sample) to 2004, only 22 papers were published (2.4 papers/year, on average), of which 13 were published between 2002 and 2004. Publication frequency increases sharply after 2004 and has remained steadily high in recent years, illustrating the growing prominence of GSKSI research. Figure 1 shows publication frequency over time in the full sample and by area. It was also observed that some areas of knowledge, such as strategic and international management, were less studied over time, while the number of papers increased in other fields, including technology and information management. Another change observed in our further qualitative analyses of the literature is a declining focus on organizational and management theory. This is partially explained by the fact that conceptual, non-empirical papers were classified in this category. Over the years, as GSKSI studies matured, fewer conceptual papers appeared, with priority given to empirical studies, either in the form of case-based research or large-scale studies of surveys or secondary data.

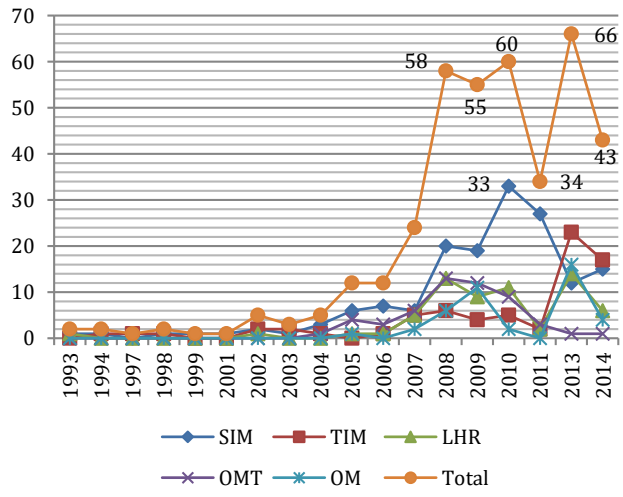

Figure 1: Number of GSKSI articles by year and area
Source: ISI Web of Knowledge. Sample size: 386

[5] See http://aom.org/DIG/

4. Integrative Analysis of the Literature

This section provides a qualitative analysis of a selection of the papers in the sample, divided into their areas of contribution.

4.1 Strategic and International Management

A significant number of papers from our sample contribute to the strategic and international management field. Theoretical contributions for these fields were discussed in the previous section. In regard to empirical studies, the following prevailing topics were identified: drivers of offshoring/global sourcing; the relationship between offshoring/global sourcing and performance; location choice decision; and knowledge cluster development. This section presents the main aspects of these empirical papers.

4.1.1 Drivers

Studies on drivers of GSKSI contribute to overcoming the preliminary idea that cost savings and low wages in developing countries are the main drivers behind this phenomenon. Lewin et al. (2009) report that firms view offshoring new product development as an opportunity to reduce the cost of their innovation activities, mainly through new flexible and globally distributed strategies and partly via home-base replacing strategies. Kotabe and Murray (2004) discuss differences in the importance of global sourcing drivers for core service activities considered pure service activities (e.g. legal, telecommunication, consulting etc.) versus non-pure service operations where service activities are embedded in goods (e.g. restaurants, retailing, construction etc.). Moreover, studies about GSKSI drivers reinforce the idea that firms enhance innovation performance by sourcing, combining and integrating innovation knowledge from strategically advantageous locations (NIETO, RODRIGUEZ; 2011). Firm-level factors, such as the perceived degree of control, range of strategic objectives, and resource availability, also predict GSKSI (MANNING, 2014).

4.1.2 Performance

As an extension of analyzing firm performance in global sourcing of goods, some studies assess performance for global sourcing of services. Kotabe, Murray, Javalgi; (1998) proposed a framework to investigate market performance, considering both the locational (domestic versus foreign) and ownership (internal versus external) aspects of global services sourcing. Murray, Kotabe, Westjohn; (2009) analyzed knowledge-intensive business services by explaining the differential performance among firms, even when they use similar global sourcing strategies. Most studies investigate the performance of the buying firms. However, Lahiri and Kedia (2009) investigated variables related to the quality and performance of BPO providers.

4.1.3 Location choice

Research on location choice is also divided into two separate groups. The larger set of studies analyzes this decision from a buyer's perspective (AMBOS, AMBOS; 2011; HÄTÖNEN, 2009). A central topic in these papers is the relevant variables related to buyer traits when opting for a GSKSI strategy. For example, Ambos and Ambos (2011) found that R&D intensity in the industry (high-tech versus low-tech) as well as the cultural distance between the source and target country are important variables in the decision to offshore R&D and, consequently, deciding on a location.

A second set of studies evaluate location risk. Bunyaratavej, Hahn, Doh; (2007) found that, contrary to conventional expectations, a country is more likely to be a destination for services offshoring as its average wage increases. They also found that education level and cultural similarity are significant drivers of offshoring location choices.

4.1.4 Knowledge clusters

The other stream of research in international management deals with the supply side of GSKSI. The issue here is not about going global, but rather becoming an attractive location for GSKSI. The units of analysis are nations and regions. Research investigates whether these nations and regions can actively become attractive locations for GSKSI. Also of interest are public policies and institutions. Offshore destinations seek to gather capabilities, IT infrastructure, language skills, security, intellectual property guarantees, etc. (OSHRI, KOTLARSKY, ROTTMAN, WILLCOCKS; 2009). Dossani and Kenney (2009) showed that a combination of indigenous firms, MNCs, and entrepreneurs is responsible for learning and building capabilities.

Tab. 2
Selected papers in strategic and international management

Selected Papers	Sample / Research Design	Main Contribution
Kotabe and Murray (2004)	Cross-sectional data from a survey in Fortune 500 US service firms, N=100.	Pure service firms, when compared to non-pure service firms, have lower foreign sourcing drivers, place greater importance on transaction-cost drivers, and use a lower level of foreign sourcing for core service activities.
Bunyaratavej et al. (2007)	Cross-sectional secondary data at country level, N=38.	GSKSI seeks countries with higher wages, higher education levels, and lower cultural distances.
Lewin et al. (2009)	Cross-sectional survey data (ORN), N=880 offshoring implementations, from 233 firms.	Access to qualified personnel, increased speed to market and reducing other costs (non-labor costs) have a positive impact on the probability of GSKSI
Dossani and Kenney (2009)	In-depth case studies from 4 Indian service providers.	A combination of indigenous firms, MNCs, and entrepreneurs has improved learning and building capabilities.
Ambos and Ambos (2011)	Cross-sectional survey and secondary data, N=134 R&D labs from 49 German firms.	R&D intensity of the industry, cultural proximity between the source and target country, the relative advantage of the target country's industry over that of the source country, and firm age are positively related to GSKSI.
Manning (2014)	In-depth case studies from 13 service firms with GSKSI	There are three GSKSI strategic responses (mitigating, tolerating, and relocating) explained by three factors: perceived degree of control, range of strategic objectives, and resource availability.

Source: Sample of papers. Note: papers are listed in chronological order

4.1.5 Technology and innovation management

The long-term impact on the innovative capacity of countries whose companies promote R&D offshoring of their products and processes is key theme in this stream of academic literature. However, the effects of R&D offshoring on client countries are still under to investigation. In the medium-term, offshoring of innovation activities negatively affects the innovation capabilities of the country when these activities migrate offshore (FIFAREK, VELOSO, DAVIDSON; 2008; NAGHAVI, OTTAVIANO; 2009). Contrasting results showed an increase in client firm's performance after offshoring (AMITI, WEI; 2009; BERTRAND, MOL; 2013; CASTELLANI, PIERI; 2013; CECI, MASCIARELLI; 2010; D'AGOSTINO, LAURSEN, SANTANGELO; 2013).

Provider countries' innovative capacity has also emerged as an issue. The development of knowledge clusters in regions of the planet was identified as having the potential to gradually develop capabilities in complex activities of the IT services value chain (COOKE, DAVIES, WILSON; 2002; JAVALGI, JOSEPH, GRANOT, GROSS; 2013; KRISHNA, PATRA, BHATTACHARYA; 2012). However, the connections between MNCs local firms, and national innovation systems are still in a black box (CHEN, 2007).

On a country and industry level, institutional theory was adopted to clarify the role of national innovation and education systems in establishing the attractiveness of countries and regions to knowledge services and innovation. For example, Lehrer and Asakawa (2002) studied a new strategy of seeking embeddedness in the R&D system of the host country. Kshetri and Dholakia (2009), in turn, examined the institutional role performed by professional organizations.

There is a noticeable shift from a national and industry level approach to a predominant focus on firm level issues when analyzing the most significant articles on this topic, which all address firm level issues (e.g., AGERFALK, FITZGERALD; 2008; LEVINA, VAAST; 2008; OSHRI, VAN FENEMA, KOTLARSKY; 2008). Although national and industry levels are still targeted by academic articles, impact evidence suggests that firm level issues are a challenging aspect for new investigations. Predominant themes in articles that contribute to firm level issues are: threats and risks; distributed teams; and drivers and performance.

4.1.6 Threats and risks

Among the risks and threats to clients firms is the possibility of clients being unable to exploit the knowledge gained from the economies of scale of having a foreign provider, particularly in long-term contracts (CHA, PINGRY, THATCHER; 2008). Risks of

knowledge leakage in information exchanged between client firms and providers are also addressed in the literature. Cobb (2003) explored information security risks in financial services provided by foreign firms using the internet. On the other hand, Roy and Sivakumar (2011) proposed strategies for client firms to reduce the threat to intellectual property rights. Although client firms are more widely studied, research also explores the possible risks that suppliers face in offshoring services (AHMED, CAPRETZ, SANDHU, RAZA; 2014, for example). However, it is clear that the literature on offshoring in knowledge-intensive services has recently addressed the risks and threats involved not as part of an argument against global outsourcing, but as a means of identifying recognize and avoiding potential obstacles to its success.

4.1.7 Distributed teams

The literature on managing globally distributed teams and knowledge circulation typically focuses on the dyadic relationship between customer and supplier. There is an emphasis on identifying the most appropriate ways to strengthen the exchange of knowledge between these players. A number of studies highlight cultural aspects. The main discussion among researchers centers on the value of inter-team cultural differences in the knowledge transfer process, as well as ways to overcome problems arising from this cultural distance. There is a trend in the literature to shift the emphasis from exploring the limitations caused by these differences (LEHRER, ASAKAWA; 2003) to ways of reducing distances between globally distributed teams (DAVID, CHAND, NEWELL, RESENDE-SANTOS; 2008; JARVENPAA, KEATING; 2011; TRIPATHY, EPPINGER; 2013). Contextual differences between countries are considered more difficult to overcome, while organizational differences within the information technology industry tend to be mitigated by initiatives that deal with suppliers and captive centers in a similar fashion (LEVINA,VAAST; 2008), promoting a shared organizational identity, despite the geographic and cultural distances between teams (MATTARELLI, TAGLIAVENTI; 2010).

In parallel, another perspective in the study of knowledge circulation and the effectiveness of segmented labor between globally distributed teams emphasizes the role of technological solutions and project management. There is evidence that investments in structured processes and corresponding process-based learning activities can help overcome the inherent difficulties of work dispersion (RAMASUBBU, MITHAS, KRISHNAN, KEMERER; 2008). Along those same lines, strategies are proposed to facilitate coordination between onshore and offshore teams, such as procedural coordination, careful specification and partitioned tasks, as well as implementing mechanisms to overcome communication gaps (ANDERSSON, PEDERSEN; 2010; ARON, JAYANTY, PATHAK; 2007; HOLZWEBER, MATTSSON, CHADEE, RAMAN; 2011; HOWELLS, GAGLIARDI, MALIK; 2012; MANI, SRIKANTH, BHARADWAJ; 2014; MIRANI, 2007).

A common feature in most articles on managing dispersed teams in the offshoring of knowledge intensive activities is the focus on the dyadic relationship between customer and supplier. Recently, the phenomenon of multi-sourcing has also garnered attention. In complex networks formed when multiple vendors are responsible for different parts of a project, such as software production, coordinating the interrelation between suppliers is also vital to the success of these offshoring operations (BAPNA, BARUA, MANI, MEHRA; 2010).

4.1.8 Drivers and Performance

A subset of the literature investigates the motivations of companies that offshore their R&D activities, which have changed over the past two decades in line with changes in offshoring destinations. In 1994, a study by Florida & Kenney found that a number of Japanese firms set up R&D laboratories in the United States seeking not lower costs, but skills and better interaction between local innovation and production. As developing countries have become an alternative for knowledge-intensive activities, motivations for offshoring have begun to change. Abraham and Ahlawat (1998) identified a correlation between the trend of North American firms transferring services to India and the perception of managers in these firms in relation to the Indian software industry. The more limited experience of North American firms in offshoring to India, unsatisfactory infrastructure and greater success with body shopping than in hiring the development of customized software tend to inhibit decisions to outsource the transfer of higher value added services to India. According to Lewin and Zhong (2013), the offshoring of services is largely driven by the search for talent in fields such as

Tab. 3
Selected papers in technology and information management

Selected Papers	Sample / Research Design	Main Contribution
Fifarek et al. (2008)	Longitudinal dataset, patent data from rare-earth industry, N=17,067 to 21,378.	In the medium term, offshoring of innovation activities negatively affects the innovation capabilities of client firm countries.
Amiti and Wei (2009)	Longitudinal dataset, service imports and exports from multiple industries, N=760 to 864.	Offshoring R&D can increase the innovative capacity of client companies.
Mattarelli and Tagliaventi (2010)	Case studies of two teams from Italian firms offshoring to India and Tunisia.	Promoting a shared organizational identity, despite the distances and cultural differences between the teams, tends to entail a more cooperative relationship between customer and supplier.
Martinez-Noya and Garcia-Canal (2011)	Survey, cross-sectional data, N=182, multinational firms headquartered in the US or the EU.	Allocating part of the innovation process to developing countries is still strongly linked to cost reduction.
Krishna et al. (2012)	Descriptive analyses of multiple sources.	India's experience in R&D offshoring has been identified as having the potential to develop that country's innovation capabilities.
Lewin and Zhong (2013)	Descriptive analyses of multiple sources.	Offshoring of services is largely driven by the search for talent in areas such as science, technology and engineering.

Source: Papers of the sample. Note: papers are listed in chronological order

science, technology and engineering. However, when studying the decisions of firms in the United States, Martinez-Noya and Garcia-Canal (2010) also observed that allocating part of the innovation process to other countries is still strongly linked to cost reduction. The authors found that companies were less likely to transfer innovative activities to countries where labor costs are less beneficial.

In addition to drivers, another set of studies on the offshoring of technology and innovation management services seeks to determine whether firms that transfer part of their services to other countries achieve greater success than those that maintain all activities within their own country. Although studies on this subject are not new, results are conflicting. Bhalla, Sodhi, Son; (2008) found no evidence of a clear link between firm performance and the extent of their offshoring operations. However, Amiti and Wei (2009) reported that U.S. firms that have transferred some of their services to other countries showed an average productivity gain of 10% in relation to other. Ceci and Masciarelli (2010) also observed a positive correlation between performance and the offshoring of intangibles.

4.2 Labor, Human Resources, and Organizational Behavior

We identified several articles in our sample whose main contribution encompasses two domains: the sociology and economics of work, and human resources (HR) management and organizational behavior (OB). For the specific purpose of describing the GSKSI literature, these two domains are addressed in a single section. Next, we present insights on different topics within the set of articles, namely wages and employment; culture; human resources management; job process.

4.2.1 Wages and Employment

These papers discuss the effects of multinational companies' foreign activities and offshoring on the labor markets of developed countries (CRINÒ, 2009; RUSSELL, THITE; 2008; WINKLER, 2010). One issue centers on how devastating GSKSI can be to white-collar jobs in developed economies such as the U.S., and the implications for national policies on skills development and education (GEREFFI, 2007; MONCARZ, WOLF, WRIGHT; 2008). In fact, offshoring increased highly skilled employment in the U.S. (Crinò, 2010). On the other hand, the scenario of a homogeneous world, where the same skilled work

could be undertaken in several emerging countries has been under discussion. The assumption that production can occur wherever managers can organize the right mix of skills, technology and market knowledge is challenged in some studies that highlight key differences between manufacturing and knowledge-intensive services. For example, Russell and Thite (2008) observed that little attention is given to the under-employment of skills and labor exploitation in GSKSI; Yu and Levy (2010) shed light on the influence of national institutions in the offshoring of professional services.

4.2.2 Culture

Although there is widespread recognition regarding labor cost benefits, some firms do not engage in GSKSI because of cultural constraints. For cultural reasons German companies generally offshore to Eastern Europe rather than India, despite the cost advantages of the former location (DAVIS, EIN-DOR, KING, TORKZADEH; 2006). Cultural differences and alignment between client and provider is a concern explored in the GSKSI literature (WINKLER, DIBBERN, HEINZL; 2007). Some studies contribute to this debate by testing hypotheses drawn from Hofstede's seminal work (HOFSTEDE, 1980). For example, Hahn and Bunyaratavej (2010) proposed that specific cultural attributes, such as individualism and power distance, are more closely aligned with GSKSI appeal, even after controlling for macroeconomic, linguistic, and risk-related factors. As an extension to the cultural alignment concern, researchers have investigated linguistic capabilities and communication breakdowns in services in offshore destinations (FOREY, LOCKWOOD; 2007; HAMP-LYONS, LOCKWOOD; 2009). Open questions pervade research on the implications of culture on GSKSI and clamor for further contributions. As observed by Hahn and Bunyaratavej (2010), host countries may actively promote certain cultural characteristics to become more attractive to the service economy. As an effect, studies on this topic could investigate learning and cultural change capabilities.

4.2.3 Human Resources Management

The increased use of distributed work arrangements across organizational and national borders and new technology-based work practices emerge as new

Tab. 4
Selected papers in labor, human resources, and organizational behavior

Selected Papers	Sample / Research Design	Main Contribution
Mattarelli and Gupta (2009)	Ethnography on globally distributed teams (N=8)	Status of on-site team members (located in offshored countries) is higher than off-site team members (offshoring locations). The negative effect of high status differentials on knowledge sharing is mitigated by border spanning workers (straddlers). Conversely, when status differentials are low, these straddlers obstruct direct learning.
Upadhya (2009)	Ethnography, "several" software firms in India (N not specified)	The discourse of modern, soft management practices in the official corporate culture in fact translates into Taylorist top-down control systems, very long working hours, intense work pressure caused by client demands and routinizing of labor.
Crinò (2010)	Secondary longitudinal data on 112 US occupations (N=512).	GSKSI is associated with an increase in highly skilled employment in the US, but penalizes tradable (offshorable) occupations at the same skill level.
Yu and Levy (2010)	In-depth interviews, radiology service firms in both offshoring and offshored locations (N=52)	In addition to task attributes, national institutions and occupational regulations also define the offshoring potential of jobs.
Hahn and Bunyaratavej (2010)	Secondary data on FDI projects (N=682) in call centers, shared service centers, and IT service centers	Host countries with lower levels of uncertainty avoidance as well as higher levels of individualism and power distance attract more service offshoring projects.
McCann (2014)	Two data sources. Survey data (N=112) and in-depth personal (N=12) and telephone (N=8) interviews.	GSKSI caused detachment from work and disbelief in management and trade unions for the remnants of offshored locations.

Source: Sample of papers. Note: papers are listed in chronological order

human resources management issues in the context of GSKSI. Research addresses issues such as the social dynamics that emerge across subgroups of onsite-offshore teams and affect the knowledge process (MATTARELLI, GUPTA; 2009); how the relationship between expertise, trust in offshoring service providers, project suitability, knowledge transfer and liaison quality directly impacts offshore project success (WESTNER, STRAHRINGER; 2010); to what extent IT enables and constrains the flow of knowledge and information across time and space (LEONARDI, BAILEY; 2008); and the socio-cognitive tasks and communication processes involved with synchronizing and cocreating understanding in geographically dispersed workers (WILLCOCKS, GRIFFITHS; 2010).

4.2.4 Job process

A critical approach in the labor process of services in offshore locations has also been highlighted (FABROS, 2009; TAYLOR,BAIN; 2005; UPADHYA, 2009). For example, based on an ethnographical study in a call center in the Philippines, Fabros (2009 p. 359) considered the work "toxic" and "robotic" due to the high-stress working conditions and repetitive nature of the activity. Moreover, these types of services are legitimized with strict supervision and monitoring, as highlighted in Upadhya's (2009) study on the labor process and forms of organizational control employed in the Indian software services industry, as well as their implications in the '*subjectification*' and brokering of software workers. Taking a different perspective, a study by McCann (2014) on post-offshoring effects among client workers shows how offshoring increasingly complex back-office activities to India has affected UK workers, promoting work detachment and disbelief in management and trade unions. (See Table 4).

4.3 Operations Management

In operation management studies, make-or-buy decisions regarding services and innovation are emphasized as an extension of supply chain management research (LEVINA, SU, 2008; SAKO, 2006). In the papers related to operations management we identified three broad themes exploring the dilemma of make-or-buy decisions in services and innovation supply chains: antecedents, management, and governance. Papers in the GSKSI antecedents group provide explanations for GSKSI adoption in firms. GSKSI management studies deal with the different strategic alternatives to supply knowledge services and innovation, either from captive operations or outsourced suppliers, as well as contractual issues related to these alternatives. These studies also discuss performance and competitive advantages derived from GSKSI practices. We briefly review the findings of these four groups of papers and then conclude this section by providing a research agenda for OM-related GSKSI.

4.3.1 Antecedents

Metters and Verma (2008) proposed four antecedents to services outsourcing: managerial viewpoint, technological advances, government regulations and incentives, and the cultural component. Several other authors (e.g., ABRAMOVSKY, GRIFFITH; 2006) emphasize the technological factor. Drawing on the information processing theory of the firm, Narayanan, Jayaraman, Luo, Swaminathan; (2011) proposed four antecedents for offshoring: information technology, task security, task complexity, and end customer orientation (Narayanan et al., 2011).

4.3.2 Management

Not surprisingly, given the applied nature of OM, a large number of papers in this field deal with managing the offshoring supplier base (client perspective). For example, Penter, Pervan, Wreford; (2009) proposed a framework of 12 components for effective management of offshoring: aligning offshoring with overall firm strategy, definition of success, senior management commitment, classification of business processes for offshore outsourcing, selecting an offshore engagement model (captive vs. outsourced), knowledge management, choice of location, risk management, transition plan, execution, development of culturally agile managers, and review (Penter et al., 2009). On the other hand, Tate and Ellram (2009) proposed a standard purchasing process for offshore outsourced services consisting of eight components: identification of need, determination of responsibility, analysis, source, negotiate and contract, implement, measure, and manage.

Few OM studies have addressed the outcomes of GSKSI. Narayanan et. al., for example, have identified that internal and external process integration is positively related to provider firm performance

(Narayanan et al., 2011). Penter et. al.(2009) found that BPO increased productivity if executed successfully, but also increased the risk of staff attrition and difficulties with local management models (Penter et al., 2009). Nordin (2008) proposed that offshoring outsourcing is related to the pursuit of cost advantages, while insourcing is associated with differentiation positioning. Handley and Benton Jr (2013) identified that task-specific and location-specific complexity help predict inter-organizational management costs. More specifically, their research shows that the scale of the service and the geographic distance between the customer and provider locations are associated with higher levels of both control and coordination costs; task breadth and geographic dispersion are significantly associated with increased control costs, but not coordination costs; control costs decrease with the degree of service customization; and both control and coordination costs are negatively related to the average cultural distance between provider and customer organizations.

4.3.3 Governance

Governance in GSKSI, defined as the decision between captive or outsourcing operations, was a research stream for OM. Tate, Ellram, Bals, Hartmann; (2009) analyzed data from nine case studies, using an integrative framework drawn from institutional theory, a resource-based view of the firm (RBV) and transaction cost economics (TCE). Their results indicate three sets of motivations in the governance decision: institutional (imitation of competitors, political and institutional conditions of the offshore location), resource-based (efficiency, better use of resources, access to scarce resources), and transaction-cost (higher asset specificity increases opportunistic risk, which in turn favors hierarchical governance, i.e., captive operations). They also proposed that these three motivations occur in a sequence: first, firms follow the pattern of same firms in the industry (institutionalism); second, they are driven by cost and efficiency rationale (RBV); and finally, expectations with non-cost benefits increase (TCE).

Mudambi and Venzin (2010) also used cases studies from mobile handset and banking industries to answer three related questions on governance: magnitude (design of the supply chain, location and ownership of value chain activities), decision making sequence, and dynamics (frequency of strategic decision reviews). Their conclusions for the banking industry (which is relevant to this GSKSI review) regarding magnitude are that the level of activity fragmentation has increased, the degree of offshoring has risen, and high value added activities are increasingly offshored, but this is not yet an

Tab. 5
Selected papers in operations management

Selected Papers	Sample / Research Design	Main Contribution
Penter et al. (2009)	Longitudinal in-depth case studies of clients (N=6) and providers (N=5)	Cost savings, technical service quality, and strategic issues explain performance, which is context-specific and dynamic. Choice of governance mode is a success factor. Advantages of captive operations derive from relationship quality, trust, and collaboration.
Mudambi and Venzin (2010)	In depth-case studies in mobile manufacturing and banking (N not clear).	The level of activity fragmentation has increased, offshoring levels have raised, and high value added activities are increasingly offshored. There is no general sequence for peripheral processes and opportunity driving the sequence of decisions. Banks frequently review their outsourcing decisions.
Manning et al. (2011)	Survey on BPO providers (N=514)	Complex services are project-based, with lower probability of contract renewal.
Narayanan et al. (2011)	Survey data on BPO providers in India (N=205).	Internal and external process integration is positively related to provider performance.
(Handley & Benton Jr, 2013)	Survey data on dyads (N=102)	Task-specific and location-specific complexity help predict inter-organizational management costs.
Jayaraman et al. (2013)	Same as Narayanan et al. (2011).	Task-related (task connectivity and task security) and client-related (end customer orientation and global control) aspects explain the choice of governance control approaches.

Source: Sample of papers. Note: papers are listed in chronological order

established practice. In relation to sequence of decisions, although firms control their core processes, the authors found no general sequence for peripheral processes and opportunity drives the decision sequence. In terms of the dynamics of governance decisions, it was observed that banks frequently review their outsourcing decisions.

Manning et al. (2011) built on ORN survey data to identify the probability of contract renewal. Following a transaction cost economics (TCE) rationale, the authors hypothesized that client specific investment is positively related to the probability of contract renewal and found empirical support for this claim. They also suggested that client involvement in service operations, in accordance with agency theory, is positively associated with the likelihood of contract renewal, which was empirically supported. In addition, they reported that complex services that are project-based, one-off services, decrease the probability of contract renewal. Roza, Van den Bosch, Volberda; (2011) also used ORN survey data to identify governance drivers. Based on TCE, resource-based view theory (RBV) and entrepreneurship theory, they hypothesized and found empirical support for the following: cost-driven offshoring is more likely for larger firms, resource-driven offshoring is equally important for small, medium and large firms, and entrepreneurial-driven offshoring is less likely for larger firms. They also hypothesized that larger firms prefer captive offshoring as the governance decision. However, the authors found no empirical evidence to substantiate this hypothesis, which reveals an interesting research gap. Jayaraman, Narayanan, Luo, Swaminathan; (2013) examined how key task-related and client-related antecedents influence the use of different governance control approaches. More specifically, they found that both task connectivity and task security are associated with the use of structural and administrative mechanisms, while end customer orientation is related to the strength of relational mechanisms. (See Table 5).

5. Research Agenda

This section proposes a research agenda for GSKSI. Rather than segmenting the research agenda by knowledge area, as in previous sections, we provide three research areas that were unanswered in our literature survey.

First, we observed little concern for sustainability issues in GSKSI in the extant literature. In this paper, sustainability issues follow the definition of corporate sustainable development, which includes environmental, social, and economic consequences in management decision making (Bansal, 2005). While services tend to be thought of as “clean”, there is a substantial consumption of natural resources for service delivery and maintenance. For example, British Telecom’s fleet was responsible for 1% of all fuel consumption in the UK (Tuppen, 1993). Therefore, the environmental impact of the increasing need for telecommunications (including telephone and Internet connection) for GSKSI in provider and client countries is still unknown. Likewise, social problems, such as unemployment and lower wages, can potentially affect knowledge workers both in developing and developed countries. Moreover, the increasing fragmentation of tasks in knowledge-intensive work can pose unforeseen problems for workers in GSKSI providers. Given the unique conditions of GSKSI, which relies on highly skilled workers, this fragmentation can create unexpected problems. Previous studies of labor-intensive services or manufacturing do not provide managerial guidance for such problems. Finally, in the economic dimension of sustainability, the dynamics of labor wages and knowledge pools are still unknown. For instance, what are the alternatives when a service provider is operating in a rising-wage location: does it move elsewhere or can it transfer the cost increase to its clients? The original call for research on corporate responsibility in GSKSI (Doh, 2005) remains unanswered.

This last dimension of sustainability evokes a second research area: co-evolution and dynamics. Knowledge pools take time to develop. For example, if a particular country or province decides to develop programming, design, or engineering skills, there is a lag between the decision and the creation of a sizable talent pool, large enough to attract GSKSI. On the other hand, the demand for talent is dynamic. Demand for some talents (such as programming or telecommunications equipment setup) rises and falls according to the previous supply of these talents and the demand for a specific deployment of such talent. For instance, the expansion of telephone lines can increase the demand for workers capable of setting up telecommunication equipment, but stagnation in the need for lines can stall the demand for such workers. A related problem occurs when the demand

for lines in a particular region grows: telecommunication providers lack the skilled personnel required for the job and the local job market takes longer to react (public decision makers, educational institutions, even equipment manufacturers are unable to provide training at the required pace). The strategies to cope with these differences in supply and demand over time are unclear: should providers increase wages, pursue talent in other locations or seek training providers and signal to increase in the training providers' supply capacity? Most likely, firms will implement a combination of these strategies, but extant research does not explain their decision processes.

The third research area identified as unexplored by existing literature was designated non-conventional sourcing. Several unusual forms of sourcing have occurred in recent years: crowdsourcing, concurrent sourcing, and open sourcing, among others. For example, Unix, a well-known computer operating system (OS) initially developed by Bell Labs, was later maintained in open-source format and adopted the name Linux. Today, many different proprietary systems run a modified version of Unix (smartphones, mainframe computers, personal computers using Apple's or Google's OS). Seen from this perspective, these proprietary systems "sourced" thousands of hours of programming for free, to develop and test their systems. What are the ethical and legal limits on this type of use? Is this model reproducible for other knowledge-intensive industries, such as accounting or legal services? Crowdsourcing is a form of micro-task sourcing, such as Amazon's Mechanical Turkey, where workers are paid a small fee to perform a minor small task. Researchers themselves assign such workers tasks when taking part in experiments or responding to a questionnaire. Finally, concurrent sourcing takes place when a firm sources the same kind of service both internally and externally (PARMIGIANI, 2007); for example, when the service manager of a large telecommunications firm decides to have network teams (last mile service, which connects telecommunications central offices with racks or consumers) from an outsourced firm and an internal department[6]. This gives the manager an alternative to the external provider in case of contract termination and controls the costs of the internal department by comparing them to the external supplier. The factors that influence the choice of such non-conventional sourcing practices, and their outcomes, are still unknown.

6. Conclusion

The purpose of this paper was to produce a summary of GSKSI academic studies in order to guide researchers toward the core questions and research gaps identified by the academic literature. We conducted a systematic review of academic papers and found that, in addition to essays, reports and theoretical papers, the empirical studies on GSKSI are distributed into four main categories: strategic and international management; technology and innovation management; labor, organizational behavior and human resources; and operations management. These findings suggested a distribution of GSKSI literature and contributions beyond strategic and international management fields.

This dispersion suggests that the GSKSI phenomenon may require a multidisciplinary approach to provide a complete understanding of the structure and dynamics of the phenomenon. Indeed, when the goal is to identify which theories are explanatory in understanding GSKSI, the co-evolutionary approach has the potential to simultaneously analyze macroeconomic, institutional/policy, industry, and firm levels. This approach has been applied in several analyses of GSKSI in important articles (e.g., LEWIN et al, 2009; MANNING, 2008). The GSKSI phenomenon is not an extension of existing practices and, consequently, cannot be fully explained by extant theories. Moreover, there is a need to improve multilevel analysis since GSKSI implies understanding a level related to populations and people (education); firms (strategy); institutions (government policies) and market dynamics. The co-evolutionary perspective attempts to reconcile GSKSI with internationalization theories suggesting that environmental forces and managerial practices co-evolve in influencing the adoption of innovation, new organizational forms, and new practices by firms.

Finally, the limitations of this integrative literature review include sample limitations due to the features of the database used in this study, the fact that the chosen categories may change since some academic areas overlap with others, and that books, executive

[6] Personal communication to one of the authors of this paper.

magazines and consulting reports were not included in this study and could offer additional insights to the comments here. However, despite these limitations, we expect this integrative literature review will contribute to researchers interested in GSKSI by identifying new avenues for research.

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Suprimento Global de Serviços de Conhecimento e Inovação: uma revisão integrativa da literatura

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RESUMO

O suprimento global de serviços de conhecimento e inovação (GSKSI) tem sido objeto de vários estudos em uma ampla gama de áreas, incluindo a estratégia e gestão internacional, geografia econômica, comportamento organizacional, gestão de operações, entre outros. Os objetivos deste trabalho são dois: a) produzir um resumo de estudos GSKSI e b) fornecer uma agenda de pesquisa para GSKSI. Foi realizada uma revisão sistemática da literatura acadêmica e descobriu que, além de ensaios, relatórios e trabalhos teóricos, estudos empíricos sobre GSKSI são distribuídos em quatro categorias principais: gestão estratégica e internacional; tecnologia e gestão da inovação; trabalho, comportamento organizacional e recursos humanos; e gestão de operações. Nosso artigo contribui de duas maneiras únicas: ao fornecer uma análise quantitativa da literatura e uma avaliação qualitativa dos resultados de estudos anteriores.