

Covenant University  
43<sup>rd</sup> Public Lecture



---

**GLOBAL SOFTWARE DEVELOPMENT:  
CHALLENGES AND OPPORTUNITIES  
IN NIGERIA**

---

**SANJAY MISRAPH.D**

*Professor of Computer Engineering,  
Department of Computer and Information Sciences,  
College of Science & Technology,  
Covenant University, Canaan Land, Ota.*

*Media & Corporate Affairs,  
Covenant University, Km. 10 Idiroko Road, Canaan Land,  
P.M.B. 1023, Ota, Ogun State, Nigeria.  
Tel: +234-8115762473, 08171613173, 07066553463.  
Website: [www.covenantuniversity.edu.ng](http://www.covenantuniversity.edu.ng)*

*Covenant University Press,  
Km. 10 Idiroko Road, Canaan Land, P.M.B. 1023, Ota, Ogun State, Nigeria.*

*ISBN 2006...0327*

*Public Lecture Series. Vol. 4 No. 5, September 2015*



**SANJAY MISRA Ph.D**

*Professor of Computer Engineering  
Department of Computer and Information Sciences,  
College of Science & Technology  
Covenant University, Canaan Land, Ota*

# **Global Software Development: Challenges and Opportunities in Nigeria**

## **PREAMBLE**

To God be all the glory. I am grateful to our Chancellor, Dr. David Oyedepo and the Management Team of this University led by our amiable VC, Professor C. K. Ayo for allowing me to deliver this public lecture today.

Today's lecture investigates the possibilities of sub-Saharan Africa as a sourcing destination in the software field. To find out the reasons why sub-Saharan African countries in general and Nigeria in particular are not considered a destination for global software development projects. In the study that led to this lecture, a set of professionals from Europe and Africa were interviewed. Results indicate that there are many disadvantages and difficulties impeding Nigeria from becoming a preferred sourcing destination. The main ones are the absence of a strong software industry and the concerns about legislative, fiscal and commercial premises. On the other hand, it is observed that there are also relevant added values and competitive advantages in Nigeria (English-speaking country, same time zone and cost) and, therefore, it can become a potential target for software development outsourcing in the medium and long term.

**Keywords:** Global Software Development; Software Offshoring; Sub-Saharan Africa; Nigeria.

## **INTRODUCTION**

Globalization has transformed the information technology industry. Software development offshoring is one of the results of the phenomenon that has gained momentum in the last several years (Colomo-Palacios et al., 2014). The growth of software development

offshoring as a strategic option has transformed what was traditionally an internal firm activity to one driven by external vendors (Carmel & Agarwal, 2002), and in which application development services are totally or partially outsourced (Wiener, Vogel & Amberg, 2010). Driven by continuous advances in information technology, the trend towards offshore software outsourcing has been growing steadily since the 1990s and now offshore software outsourcing has become an attractive strategy for companies that want to reduce costs, concentrate on core competencies, access to specialized resources, and increase the overall competitive advantage (Seng et al., 2008). In the early 1990s, offshoring of software work to development centres in low wage countries pertained to large Western companies such as IBM and SAP who systematically attempted to take advantage of wage differences and resources of a global market (Winkler, Dibbern & Heinzl, 2008). Thus Global Software Development (GSD) involves the development of software through interactions of people, organizations, and technology across nations with different backgrounds, languages, and working styles (Herbsleb & Mockus, 2003). This interaction brings diversity and intrinsic difficulty to an already complex process. GSD has attracted attention from both academics and industry due to the complexity and challenges related to its nature (Smite et al., 2010).

The 1990's saw the emergence of the three I's (Ireland, India and Israel) as the principal locations for significant globally distributed software development (Ashish & Gambardella, 2005). More recently, Eastern Europe, Latin America and the Far East have been pointed out as feasible and successful GSD locations (Geer, 2006). In spite of the literature devoted to GSD, Africa, apart from South Africa and North Africa, plays a discrete role in the phenomenon. The aim of this study is to examine the opportunities and challenges of Sub-Saharan Africa (SSAfrica) in general and Nigeria in particular as a GSD destination. This analysis is performed from two points of view: the outsourcer placed in the developed world and the African perspective.

Given the importance of the MINT countries (Mexico, Indonesia, Nigeria and Turkey) in today's economy and given the perspectives of their economies in the forecasts, this article is valuable for IT professionals and managers alike. It is important, as in Nigeria, the

perspectives of growth can make this economy double in six or seven years. Furthermore, this study provides a better understanding of areas of development in all sectors, including information technology, both from a customer and a provider perspective.

The remainder of this work is structured as follows. The next section provides a literature review in two broad fields. In the first subsection, the main challenges and opportunities in the adoption of GSD are reviewed. The second subsection includes a review on the area of GSD and offshore outsourcing in SSAfrica and, more in depth in Nigeria. In the third section, results and discussion about the opportunities of Sub-Saharan Africa in GSD field are presented. Finally, the fourth presents the main conclusions and recommends future work.

## **LITERATURE REVIEW**

### **Outsourcing and Offshoring Software: challenges and opportunities**

The literature has reported hundreds of articles devoted to the analysis of GSD as a phenomenon and several broad reviews on offshoring and outsourcing (e.g., íno, 2009; Noll, Beecham & Richardson, 2010; Schneider, Torkar & Gorschek, 2013; Smite et al., 2010; Verner et al., 2014), on specific aspects such as contract management (Khan & Khan, 2013), selection of vendors (Khan, Niazi & Ahmad, 2011), process models (Prikladnicki & Audy, 2010), knowledge transfer (Nidhra et al., 2013), tools (Portillo-Rodríguez et al., 2012) agile practices (Jalali & Wohlin, 2012), and information systems offshoring (Wiener, Vogel & Amberg, 2010).

Focusing on purely GSD studies, apart from formal literature reviews, some works are also devoted to illustrating cases, best practices and key success factors (e.g., García Guzmán et al., 2011). As a result of the panoply of works already available, instead of performing a new literature review or systematic mapping study, we summarize the main findings with regard to challenges and opportunities in GSD. With regard to GSD challenges, the literature has reported the following:

Different conceptions on the nature of the software development process (e.g., Noll, Beecham & Richardson, 2010).

Disparities in team members' strategies, behaviour and assumptions about the work at hand and how to work with others (e.g., García-Crespo et al. (2010).

Higher conflict and stress (e.g., Colomo-Palacios et al., 2014).

Intellectual property issues (e.g., Khan, Niazi & Ahmad, 2011).

Issues in communication, coordination, and control (e.g., Colomo-Palacios et al., 2012a)

Knowledge transfer issues (e.g., Nidhra et al., 2013).

Lack of quality (e.g., Cataldo & Nambiar, 2012).

Lack of trust (e.g., Misra et al., 2013).

Less efficiency (e.g., Colomo-Palacios et al., 2014).

Political stability, including aspects like corruption, terrorism threats and uncertainty relating to trade and investment (Niazi et al., 2013).

Socio-cultural distance (e.g., Casado-Lumbreras et al., 2011).

With regard to known opportunities, there are:

Access to a new pool of multi-skilled workforce (e.g., Khan, Niazi & Ahmad, 2011).

Higher creativity due to the mix of cultural backgrounds (e.g., Kommeren & Parviainen, 2007).

Higher efficiency and productivity (e.g., Conchuir et al., 2009).

Lower personnel costs (e.g., Noll, Beecham & Richardson, 2010).

Shorter time-to-market cycles (e.g., Vizcaíno et al., 2013).

Strategic regional presence and knowledge of local needs (e.g., Lamersdorf & Münch, 2010).

As can be observed from the list of challenges and opportunities, several items are in some way contradictory (e.g., less efficiency versus higher efficiency and productivity) and this paradox has been reported widely in the literature. In any case, these topics are somehow general and must be considered carefully once the project and set of partners have been established in the context of geographical and political concerns and cultural differences.

## **Outsourcing and Offshoring Software in Africa. A particularization to SSAfrica**

Software development outsourcing is seen as an economic development tool for transition economies (Vrhovec, 2014) and Africa has been part of the phenomenon. In a nutshell, according to Abbott (2013), South Africa remains a dominant player in this industry in the African continent, while the North African countries are struggling to retain their former popularity due to business uncertainty arising from recent political upheaval in the region.

Most of the works have reported interactions in the GSD environment with South Africa (Abbott, 2004; Carmel & Agarwal, 2001; Carmel, 2003; Tanner, 2009); among other reasons is the fact that this country is placed in the same time zone as EU nations. According to the Global Outsourcing Report, the Rainbow Nation lies among the 20 best countries marked as —global opportunity‖ for IT offshore investment and is predicted to rise to the 15th place by 2015 (Minevich & Richter, 2005).

The second big set of opportunities comes from francophone countries, mainly Morocco, Tunisia and, to a lesser extent, Mauritius and Senegal. The common language, similar time zone, and cultural compatibility make Morocco an attractive destination for French organizations (Bruno et al., 2004). According to St. Amant (2007), French companies, for instance, now rely on employees in Senegal and Morocco for help with different outsourcing projects. In a sense, it can be said that is a form of near shoring for these companies. Carmel and Abbott (2006) have cited Morocco, Algeria, Tunisia and Egypt near-shore nations in the West Europe scope (Spain, France, United Kingdom, etc.).

However, in the case of Morocco, which may be the best placed, according to Bruno et al. (2004), it is necessary to carry out long term development policies (investments in education, infrastructure, etc.) together with short term internal-demand initiatives (incentives to small and medium firms for ICT adoption, promotion of the country image abroad, etc.) to compete in the market.

Mauritius is another good example of outsourcing-oriented country in the Southern African region (Tanner, 2009). The small island nation of Mauritius, located in the Indian Ocean approximately 1200 miles off

the coast of Africa, has recognized information and communication technologies as the key to its long-term development (Rao, 2004). This country is making a concerted effort to progress in the software development field (Sukhoo et al., 2005) and a result of this is attracting GSD projects (Tanner, 2009).

Apart from South Africa, some sub-Saharan continental countries are building their future economies on IT (Lacity, Willcocks & Rottman, 2008). For instance, Rwanda is investing in infrastructures (Mwangi, 2006). Time will tell if Rwanda will be able to compete in the GSD market. Ghana is included in the Global Outsourcing Report (Minevich & Richter, 2005); this work underlines the fact that Ghana's low cost of living, stable democratic government, and literate, English-speaking population make it well-suited as an outsourcing location.

Nigeria and Ghana are good examples of countries attractive for offshore outsourcing but not ready (Adelakun, 2008). These locations have relatively cheap workforce and a fair number of trained IT professionals and are also attractive due to their time-zone bracket with potential client countries.

Strictly speaking, 'Sub-Saharan Africa' refers to all countries in Africa except the five countries of North Africa, which are more socioeconomically similar to the Middle East, and the Republic of South Africa, which, although a part of Sub-Saharan Africa, is very different economically from the rest of SSAfrica (Okoli, Mbarika & McCoy, 2010). Although there are efforts to identify critical success factors for obtaining sourcing projects in sub-Saharan countries (e.g., Van der Linden & Hengeveld, 2009), to the best of authors' knowledge, there is not a study devoted to find out the main factors to enable GSD in SSAfrica in general or Nigeria in particular.

## **THE STUDIES**

### **Problem definition and research questions**

In the previous section, we argued that Sub-Saharan African countries might be feasible outsourcing options for European countries. In particular, this study considers Nigeria, where the official language is English; the time zone is almost the same as that of Europe, and most



importantly, it is the most populated country in Africa. The country is rich in terms of its resources and has a huge human capital potential. Nigeria's higher education system currently has 147 universities - 46 federal universities, 40 state universities and 61 private universities - and about 160 other tertiary institutions - colleges of education, polytechnics, monotechnics. While these factors should be attractive points for outsourcing, in reality, Nigeria is not part of the outsourcing phenomenon, taking into account that this country is not among the top 50 countries in A.T. Kearney Global Services Location Index 2011, unlike, for instance, Ghana, which is number 27. This observation provides the motivation for this study. Thus, the research question is: Why is Nigeria not considered a valid option for GSD projects? This question led to the design of a short interview guide consisting of five generic open questions about motivators and challenges in GSD projects in Nigeria. Through these open-ended questions, the authors expect to obtain broad and valuable information from European and African practitioners about the reasons that lie behind the disregard of Sub-Saharan Africa as an outsourcing destination.

### **Research Methodology**

The overall process consisted of two studies conducted in parallel sessions. The first took place in Africa and the second was conducted in Europe. The final aim is to contrast the conclusions of both studies, thus bringing a bilateral perspective to the research question. Both studies were performed through semi-structured interviews with a sample of professionals.

The semi-structured interviews were developed to systematically explore views on all research questions and sub-questions. The interview guide consisted of a series of open questions to collect qualitative data. The authors designed the script carefully to ensure that there was no bias in the formulation and in the identification of risks, challenges and opportunities. The semi-structured interviews sought to collect qualitative data about the following factors:

1. Main motivators to contract GSD projects in Nigeria.

2. Main disadvantages or preventing factors to contract GSD projects in Nigeria.
3. Main challenges/risks to contract GSD projects in Nigeria.
4. Main competitive advantages of Nigeria with respect to GSD.
5. Social, job, and cultural characteristics that can influence to contract GSD.

The analysis of the interviews was carried out using commercial software for qualitative data analysis (NVIVO 9.0, International QSR Pty Ltd). This tool is used to organize, classify and analyze information, but also to explore and review trends in both studies. Besides, it permits one to establish connections among content as well to extract conclusions from data.

### **Study 1: The African perspective**

#### **PLANNING SAMPLE & DATA COLLECTION**

The authors selected two Nigerian-based companies as a sample for the prospective study. Both have branches in different states in Nigeria. They conducted interviews with several stakeholders. The interviews were face-to-face, with one-on-one meetings where the questions were asked by the authors to get information from the stakeholders.

Subjects were selected from those who answered positively to a personal invitation sent by the authors. The interviewees were selected based on their responsibilities in gathering requirements from clients, who were engaged in interviewing users, and who were observing users' activities, and gathering documents to construct requirements for the development of the system. The main method for collecting data was by taped in-depth interviews. Open-ended questions were used and members of the team had freedom to describe at length their experiences and problems.

The sample consisted of 25 subjects, with an average age of 34.8 and an average working experience of 8.2 years. Twenty percent of the respondents held a professional certificate, while 40% had a bachelor's degree and 20% have an MBA or a master's degree. All respondents had experience in outsourced projects in Nigeria of at least one project.

Sixty percent had experience in more than 10 projects, and 40% had experience in one to ten projects.

## RESULTS

Table 1 shows the arguments provided by the African experts regarding the main factors analyzed. Percentages reflect the number of respondents that mentioned the factor during the interviews.

Table 1. Main factors affecting sourcing decisions in Nigeria according to African respondents

<p><b>Main motivators to contract GSD projects in Nigeria.</b></p>	<ul style="list-style-type: none"> <li>■ Language (88%).</li> <li>■ Time zone (50%).</li> <li>■ Human Capital (increase of young students trained in IT disciplines) (76%).</li> <li>■ Cost reduction (60%).</li> </ul>
<p><b>Main disadvantages to contract GSD projects in Nigeria.</b></p>	<ul style="list-style-type: none"> <li>■ Lack of confidence in administrative and bureaucratic systems (88%).</li> <li>■ Low overall technological development (72%).</li> <li>■ Lack of IT project management experience (72%).</li> </ul>
<p><b>Main challenges/risks to contract GSD projects in Nigeria.</b></p>	<ul style="list-style-type: none"> <li>■ Lack of knowledge on culture and customs (92%).</li> </ul>
<p><b>Main competitive advantages of Nigeria with respect to GSD.</b></p>	<ul style="list-style-type: none"> <li>■ Political stability in recent years (Nigeria is a democracy since 1999) (88%).</li> <li>■ Stronger economy (less reliance on commodities like oil and gas) (84%).</li> <li>■ Increase in young people trained in IT disciplines (80%).</li> <li>■ Young population (workforce of over 48 millions) (72%).</li> </ul>

	<ul style="list-style-type: none"> <li>■ Positive predictions about the economic future of the country (some forecasts estimate that the Nigerian economy could stay ahead of South Africa in the next 15 years) (72%).</li> <li>■ Commitment to technological development by government (64%).</li> <li>■ Intellectual property rights and information security (36%).</li> </ul>
<p><b>Social, job, and cultural characteristics that can influence to contract GSD.</b></p>	<ul style="list-style-type: none"> <li>■ Administrative and social corruption (92%).</li> <li>■ Poor image of the country due to fraud (80%).</li> <li>■ Violence or terrorism (68%).</li> </ul>

## DISCUSSION OF THE AFRICAN STUDY

According to Nigerian respondents, the main attractor of Nigeria is the English language: English is the official language of the country, which facilitates business contacts, thus alleviating to some extent language problems widely detected in the literature (e.g., Colomo-Palacios et al., 2012a; Misra et al, 2013). The second main motivator is the workforce available in the country (76%) that is still growing and will be helpful to countries in which the labor force is shrinking (Khan, Niazi and Ahmad 2011). Cost is seen as an important factor too (60%), consistent with classic GSD arguments of cost savings. Finally, time zone is an important factor in reducing overall cultural distance, in this case the temporal one. Nigeria is placed in the same time zone as Western Europe, which would favour real-time communications.

With respect to the main disadvantages, African professionals reveal that the most important factor is distrust in the administrative and bureaucratic system (88%). The functioning of the administration is slow and not very transparent, which does not facilitate the administrative procedures for establishing companies or outsourcing services. This aspect has been traditionally covered in the literature as

political instability and includes facets like corruption, terrorism threats and uncertainty relating to trade and investment (Niazi et al., 2013). One facet that is somewhat new is the low overall technological development of the country, mentioned by 72% of the subjects. For example, the country still suffers several power supply crises. Furthermore, the respondents underscore the lack of IT project management experience as one of the most important disadvantages.

In regard to the main challenges and risks, African professionals pointed out just one main factor: the lack of knowledge of the social and cultural issues in the country. This is clearly one of the soft factors that are normally affecting GSD in a multicultural setting (Casado-Lumbreras et al., 2011).

Among factors that are competitive advantages, subjects highlight the political stability achieved in recent years (88%) and the interest of the authorities to make a stronger economy, less dependent on oil and gas, and the policy of investing in other sectors, such as technology (84%). Also, the respondents reported as strength the large numbers of young people and workers. Finally, for intellectual property rights (IPR) and Information Security IPR protection, Nigeria's recent progress indicates its commitment to international IPR treaties and its obligations, and protection against this kind of theft is as much a part of the due-diligence process and helps in selecting an outsourcing partner.

With regard to the social, job, and cultural characteristics that can influence the outsourcing of software development projects to Nigeria, the practitioners mentioned social and administrative corruption (92%) as the main influential factor, aligned with one of the disadvantages presented earlier in the study as well as the literature (Verner et al., 2014). Respondents also indicate that Nigeria has achieved notoriety due to fraud (80%) and this is a circumstance that can be negative on the overall perception of the country. Finally, subjects mention social instability due to violence and terrorism (68%) as factors that may hinder the decision to outsource in Nigeria.

## Study 2: European perspective

### PLANNING, SAMPLE & DATA COLLECTION

The objective of Study 2 was to obtain a set of answers to the research questions from a European perspective. To achieve this objective, a group of 13 software practitioners and managers were interviewed using a semi-structured interview. All subjects were professionals with experience in GSD and in performing projects in SSAfrica (Nigeria), and an average of 1.6 years of experience in Africa. The sample consisted of 3 women and 10 men, with an average age of 42.3 and an average working experience of 18.6 years. The subjects were selected from those who answered positively to a personal invitation sent by the authors among Spanish and French IT companies.

The semi-structured interview was assisted by at least one researcher. The average interview lasted approximately 84 minutes and was performed either in the respondent's workplace or research centres. The room guaranteed that no one at work could overhear the responses. Each interview was tape-recorded using a speakerphone. During the interview, the authors took extensive notes, which were compared to interview recordings in order to avoid mistakes during transcription.

### RESULTS

Table 1 shows the arguments provided by the European experts regarding the main factors analyzed.

Table 2. Main factors affecting sourcing decisions in Nigeria according to European respondents.

<b>Main motivators to contract GSD projects in Nigeria.</b>	<ul style="list-style-type: none"> <li>■ Cost cutting (100%).</li> <li>■ Language (92%).</li> <li>■ Time zone proximity (to Europe) (85%).</li> <li>■ Human capital availability (62%).</li> </ul>
<b>Main disadvantages to contract GSD projects in Nigeria.</b>	<ul style="list-style-type: none"> <li>■ Weak software industry (92%):                             <ul style="list-style-type: none"> <li>○ Need to organize development teams directly due to the scarcity of local suppliers.</li> <li>○ Costs of management and organizational procedures</li> </ul> </li> </ul>

	<p>mentioned above (e.g. costs of expatriation, recruitment of local mediators, etc)</p> <ul style="list-style-type: none"> <li>■ Lack and / or concerns about the legislative, local tax and business (78%):             <ul style="list-style-type: none"> <li>○ Poor transparency of the courts.</li> <li>○ High taxes.</li> <li>○ High risk of capital loss.</li> </ul> </li> </ul>
<p><b>Main challenges/risks to contract GSD projects in Nigeria.</b></p>	<ul style="list-style-type: none"> <li>■ Identify the appropriate contacts and partners (100%).</li> <li>■ Adaptability and flexibility in contacts and negotiations (92%).</li> <li>■ Shortage of companies providing software services (85%).</li> <li>■ Differences in professional practice (69%):             <ul style="list-style-type: none"> <li>○ Distance in the conception of:                 <ul style="list-style-type: none"> <li>■ Hierarchy.</li> <li>■ Competitiveness.</li> <li>■ Team.</li> <li>■ Time.</li> <li>■ Norms.</li> </ul> </li> </ul> </li> <li>■ Cultural distance that leads to team management issues in terms of (85%):             <ul style="list-style-type: none"> <li>○ Talent management.</li> <li>○ Leadership.</li> </ul> </li> <li>■ Investment in training and human resource development (85%).</li> <li>■ Traditional social and political instability (38%).</li> </ul>
<p><b>Main competitive advantages of Nigeria with respect to GSD</b></p>	<ul style="list-style-type: none"> <li>■ Alternative to Asia (92%).</li> <li>■ Willingness to learn and adopt technology (85%).</li> <li>■ Economic development 69%).</li> </ul>

	<ul style="list-style-type: none"> <li>■ Employability (62%).</li> <li>■ Youth (46%).</li> </ul>
<p><b>Social, job, and cultural characteristics that can influence to contract GSD.</b></p>	<ul style="list-style-type: none"> <li>■ Corruption (—dashl culture) (100%).</li> <li>■ Sociable, friendly and warm people (100%).</li> <li>■ Frauds or extortions (78%).</li> <li>■ Lack of work discipline (54%).</li> <li>■ Low initiative (38%).</li> <li>■ Violence or terrorism (31%).</li> </ul>

## DISCUSSION ON EUROPEAN STUDY

With respect to main motivators for sourcing projects in Nigeria, the second most important factor is the command of English Language by native workers; in this case, the percentage of respondents reached 92% compared to the previous 88%. However all respondents expressed cost reduction as the main motivator while Nigerians mentioned that only in 60% of the cases. Thus, for foreigners, this classic GSD accelerator is the most important factor above all. As in the previous study, some other factors like time zone proximity (85%) and human capital (62%) are still important but slightly different from the perspective of Europeans. Thus, while time zone is seen as an important factor for 85% of the respondents, it is only so for 50% of the Nigerians. Regarding the availability of human capital, this factor is more important for Nigerians (76%) than for Europeans (62%).

Among the main disadvantages of Nigeria as a sourcing destination, experts highlight the concern and uncertainty with respect to legislative, fiscal and trade systems; in many African countries, high taxes and a hypothetical capital loss may dismiss them as sourcing decisions. In addition, the practitioners consider that while many nations like Nigeria and Ghana, have experienced a remarkable development and modernization in recent years, their tax systems do not favour the decision to outsource or establish business alliances. In any case, the main factor is the insufficiency of a local software industry. Therefore, it is difficult to obtain the cooperation of local partners or suppliers that provide human capital and technical resources. As a result, the



outsourcer is sometimes forced to establish a direct process of recruiting human and technological resources, which is a complex task and leads to an increase in both direct and indirect costs.

With respect to the main challenges and risks to contract GSD projects, respondents indicated several reasons related to cultural differences in regard to relationship building and management activities. In this sense, as in other collectivist cultures (see Hofstede, e.g., 1984, 1991) and particularistic (e.g. Trompenaars & Hampden-Turner, 1997), Nigerians value human relations more than rules or laws. As a result, relations and contacts are essential for any kind of business in Nigeria. Sometimes, as indicated by the informants, the real challenge for a European is to find the right partner (Aramo-Himmonen et al., 2011). Also, over 90% of the respondents mentioned that business in Nigeria requires much adaptation and flexibility. The European must be willing to renegotiate and accept the terms of an agreement that may change the next day. This is an important challenge due to cultural differences and people management becomes a complex task due to differences in the concept of time, teamwork and compliance (García-Crespo et al. 2010). Therefore, unique leadership and talent management is needed: the one that achieves goals without sacrificing the cultural idiosyncrasies. Furthermore, the scarcity of local suppliers (85%) is mentioned as a challenge, similar to findings shown presented earlier. Finally, although to a lesser extent, participants mentioned (38%) the traditional social and political instability as a risk.

Among the main competitive advantages, subjects underlined the need and desire of African societies to learn and acquire technology (85%). The experts believe that African leaders are encouraging the acquisition of technology or business activities that promote human capital formation. These policies will facilitate the training of professionals in technology related areas so as to enable the future development of these nations. In recent years, the economic environment has attracted investment in infrastructure and in the expansion of fiscal policies, although taxation is still a risk factor (United Nations, 2013). The respondents believe that in the future, Africa may become an alternative to the Asian providers. Lastly, the need for jobs and the abundant young workforce are other competitive factors for Nigeria.

Subjects reported about social, job, and cultural characteristics that can influence sourcing. All European informants agree that corruption or the so-called *dash culture* is a key factor that can affect the decisions of foreigners. Dash practice is meant to provide a gratuity or money that these people expect to receive for a service, but the peculiarity is that the "service" can be almost anything. It is considered an entitlement. It is culturally offensive when a foreigner does not make a small donation to these people when they really think they have earned it. It is illegal, but it is a very common practice that the foreign employer has to take into account. Respondents also mentioned the bad image of Nigeria as a result of famous frauds and scams through the Internet.

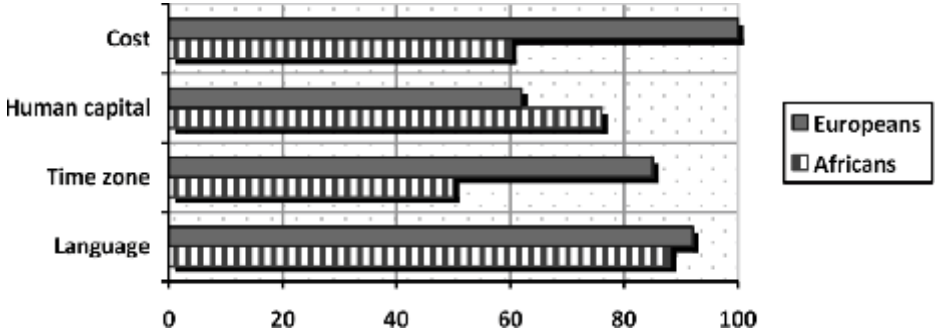
Additionally, experts agree that situations of conflict, violence and terrorism create a climate not conducive to any kind of business. But probably the perception of the lack of work discipline is the most controversial factor. According to the respondents, African workers show less discipline, commitment and responsibility than Europeans. Other attitudinal aspects of African workers are also mentioned, for instance, lack of initiative and violence. In Africa, status differences are more pronounced than in Western countries, and as a result, workers feel less willing to show initiative and independence.

However, there are also positive aspects with regard to the cultural and social characteristics of Nigeria. All respondents mentioned without exception the sociable nature, friendliness and warmth of the Nigerian citizens. Despite the obstacles related to the dash culture and the fear of fraud or embezzlement, the possibility of establishing friendly personal relationships, and even to build strong friendships with the Nigerians, favours trade and business relations.

Finally, a paradox. Low overall technological development is seen as a disadvantage whereas the commitment to technological development by government is seen as an advantage. The explanation lies in the fact that there is low technological development at present; however, the government is adopting policies to change this situation.

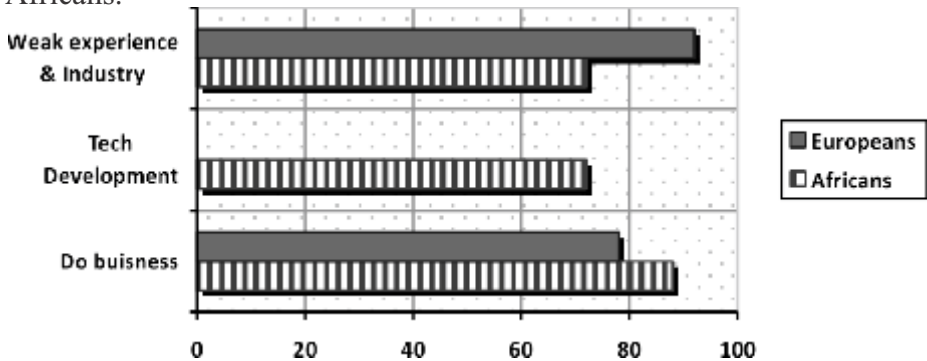
## HIGHLIGHTS OF BOTH STUDIES

In order to provide an integration of the above results, what follows are a set of illustrations to underline the most important aspects of both studies. Figure 1 shows the main motivators to contract GSD in Nigeria.



**Figure 1. Main motivators to contract GSD in Nigeria**

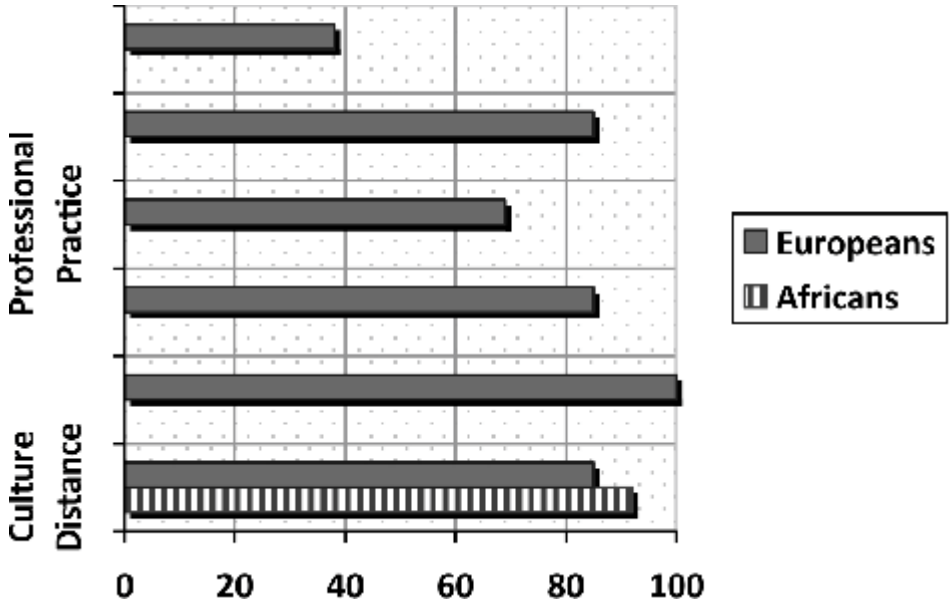
In a nutshell, it can be said that the command of the English language is an important aspect for all subjects while classic aspects in GSD like low cost or time zone are far more important for Europeans than for Africans.



**Figure 2. Main disadvantages to contract GSD in Nigeria**

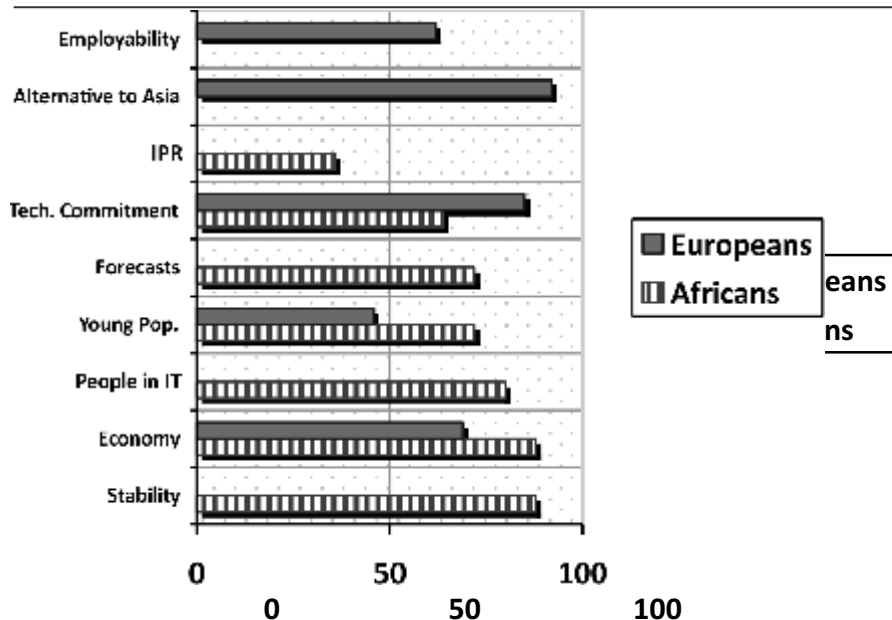
With regard to Figure 2, protection of business and bureaucracy aspects are of vital importance for both collectives, while it is a bigger concern for the Nigerians perhaps due to a greater knowledge of their own country. On the other hand, lack of competence or even the weak presence in the economy is of more concern to Europeans. Surprisingly,

technological development was mentioned only by the natives and not by the Europeans, perhaps due to their lack of knowledge of the topic.



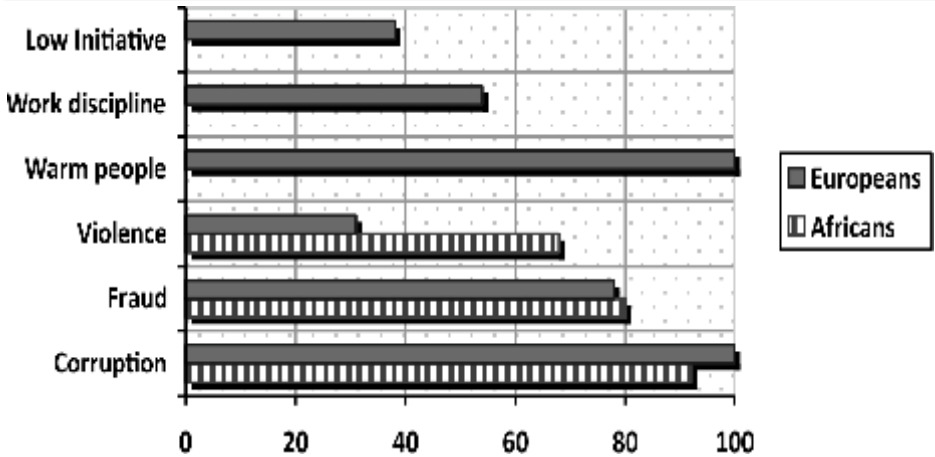
**Figure 3. Main challenges/risks to contract GSD in Nigeria**

As per Figure 3, cultural distance is significant and the only issue stated by all participants; however, there is a significant difference in all other issues between the two groups. Europeans present a wider range of risks than perceived by the locals. These include instability, lack of competence in personnel and scarcity of partners.



**Figure 4. Main competitive advantages of Nigeria**

Figure 4 illustrates the main advantages of Nigeria as stated by the Nigerians and the Europeans. Stability is the most important factor for Nigerians while in Figure 3 it appeared as a major risk. This is one of the paradoxes that this study reports: Europeans and Nigerians view this factor in opposite directions. Participants in both groups agreed that the economy in Nigeria, as part of the MINT region, is one of the positives. Both groups also list commitment of the government and people in information technology. The Europeans mentioned other factors like alternative to Asia and employability. On the other hand, only Nigerians mention intellectual property rights, which is quite surprising factor given the fraudulent activities reported in Figure 5.



**Figure 5. Social, job and cultural characteristics in Nigeria that influence GSD**

Finally, Figure 5 presents the last set of factors regarding social, job and cultural characteristics in Nigeria that influence GSD. Six factors are listed, five of them negative and one positive. Regarding the latter, Europeans recognize that Nigerians are warm, and this can attract companies to outsource to the country. On the opposite end, concerns regarding corruption, fraud and violence appear in both samples while only the Europeans mention the lack of work discipline and low initiative.

### **THE WAY FORWARD FOR NIGERIA**

In order for Nigeria to benefit from the outsourcing revolution, there is the need for a repositioning both at the national level and at the corporate level (Bamigbola and Daramola, 2003).

### **REPOSITIONING AT THE NATIONAL LEVEL**

As a nation, concentrated effort must be made in carrying out our laid-out policies, one of which is giving the same level of priority on power, oil and gas to ICT development. At present, effort is being made to establish necessary infrastructure to facilitate access to the Internet.

This should also lead to better Internet services<sup>1</sup> at affordable prices for software outsourcing providers.

Also, in the area of knowledge, we must move from just emphasizing the need to increase money spent on education (as this will not necessarily improve our situation as observed in a recent study<sup>2</sup>) to ensuring that right from kindergarten, students develop the basic skills required in the 21st century workplace among which are software development skills. Sound knowledge acquisition is a major milestone that has been achieved in countries like India and South East Asia that is presently yielding a lot of dividends.

Furthermore, the establishment of outsourcing services friendly zone in Nigeria similar to the Bangalore model in India can be pursued. This zone can be established in a place like Osogbo - being a town where most of Nigeria's electricity is generated and which is relatively stable in comparison to other parts of the country<sup>3</sup>. Among other things it will be adequately equipped and made conducive for attracting foreign outsourcing services. The proposed plan to set up a technological park in Bauchi State is a welcome idea that, if fully implemented and properly managed, will set the nation on an upward trajectory technologically<sup>4</sup>.

In addition, there is the need to improve the nation's global image by supporting initiatives like those of Ideacentric who proposed the set up of a fabrication laboratory in Yaba, Lagos<sup>5</sup>. The lab is yet to materialize

<sup>1</sup> <http://www.netindex.com/download/2,59/Nigeria/>

<sup>2</sup> <http://www.forbes.com/sites/jamesmarshallcrotty/2014/05/21/why-asian-nations-dominate-global-education-rankings/>

<sup>3</sup> <http://www.nigeria.gov.ng/2012-10-29-11-09-25/news/334-situation-report-of-electricity-supply-in-osogbo-osun-state-capital>

<sup>4</sup> <http://www.dailytimes.com.ng/article/bauchi-govt-establish-science-and-technology-park---commissioner>

<sup>5</sup> <http://techcabal.com/2014/04/15/ideacentric-nerve-fablab-lagos/>

due to insufficient funding. If such an idea gets funded, it has prospects of attracting outsourcing services that can turn the nation into a technology hub and possibly improving our global image positively.

## **REPOSITIONING AT THE CORPORATE LEVEL**

Foreign companies prospecting for an offshore outsource service provider always have a checklist of what to look out for. Some of these include the business profile of the outsource service provider (OSP), which is expected to be made available on the web. Some of the other details mostly sought are: expertise possessed by an OSP; the financial strength of the OSP; and evidences of core competencies of the OSP in the particular project area, which should exist in the form of project case study reports, company technical reports, and research papers which should exist online on the OSP's website. As a result, a number of things are essential as minimum standard for a prospective OSP. Some of these are:

1. A web presence: Every prospective OSP needs to have a proactive presence on the Internet with a rich, dynamic and highly interactive website.
2. Track Record of Ethics and Integrity: Every prospective OSP must be ready to do business in a professional manner (not the Nigerian way), with a display of high degree of moral ethics in business dealings. Foreign companies tend to be strict on keeping to contractual schedules and deadlines and defaults may most likely be considered as contractual violations.
3. Development of Core competencies: OSPs needs to develop special skills and core competencies and certifications in a way that makes them fit to compete favourably with what obtains in the developed countries, as this is the only way to attract foreign patronage. The OSPs should also strive to attain international technical certification such as SEI-CMM Level 3, 4 or 5.

## **CONCLUSIONS AND FUTURE WORK**

This study presents a qualitative exploratory study that analyzes the reasons for considering an African country like Nigeria as a sourcing



country for GSD projects. In order to investigate the reasons behind these sourcing decisions, two samples of European and African practitioners were interviewed using a semi-structured approach. As a result, extensive and valuable information was gained about African realities, difficulties and advantages.

Among the —main motivators, there were many similarities between the two samples. For Africans, the English language and the training in technological disciplines are the main reasons for attracting GSD projects. Europeans agree on the importance of language, but also mentioned cost as the main factor. Also, the fact that Nigeria is in the same time zone is an important factor for most Europeans.

Regarding disadvantages, Europeans point to two main factors: the absence of a strong software industry and concerns about the legislative, fiscal and commercial practices. While the Africans agree with these factors, they also directly mentioned distrust of administrative and bureaucratic system, the lack of transparency, and corruption. Similarly, Africans cited limited technological development and scarce experience in managing technology projects in their country.

There was a marked difference between the two samples in the risk factors. While Africans believe that cultural differences are a major challenge for foreign organizations and workers, European informants mentioned several risk factors that are mainly related to interpersonal and organizational relationships. Among these are the difficulty of identifying appropriate partners, the differences in professional values, cultural differences regarding prioritization, time management and norms. Therefore, while the Africans mentioned the lack of understanding from abroad as the main challenge, Europeans underscored cultural differences as a major challenge. Some subjects indicated that power distance in West Africa is higher than in the European countries. As a result, workers do not feel free to communicate with their supervisors. This situation does not encourage employees to demonstrate individual initiative, for instance. It also translates into difficulties in managing teams, talent management and leadership.

Regarding main competitive advantages, there is a considerable overlap between the two samples. For instance, both samples mention that

Africa and Nigeria are committed to technological development, and they emphasize the large number of youth in the population and in the workforce. Nigerians also mentioned greater political stability in recent years and greater financial strength, and even made positive predictions about the economic future of the country.

With respect to work characteristics, and social and cultural factors that may influence sourcing decisions, Africans mentioned three main points: corruption, fraud and violence. Europeans also mentioned these three. But the Europeans also listed other factors related to professional practices, e.g., “lack of work discipline” was mentioned by more than half of the sample. According to the Europeans, this mode of working results in disarray and is not always efficient.

In general, it can be deduced from this analysis that the factors that affect sourcing decisions in Nigeria and other African regions are significant enough to reduce the probability of competing with Asian countries. However, there are many positive factors to be optimistic about concerning the future of a country like Nigeria. Its relative political stability, economic strength achieved in recent years and increased development of its workforce, make Nigeria a nation to watch in the medium and long term.

One interesting finding of this study is that Europeans do not have sufficient knowledge and understanding of the peculiarities of Africans, and this is even so among those who have professional experience in Africa. Understanding the behaviours, attitudes and values of other cultures is not an easy task. Informed GSD workers and partners are needed who understand these differences and show resilience as employees or contractors. The literature shows that, in general, African societies are quite hierarchical, collectivist and short-term oriented and this cultural background leads to the need for a proper and tailored personnel management approach.

What is perhaps most revealing is that even the Africans themselves are negative about sourcing decisions. <sup>the social and cultural factors potentially influential in</sup> These may be of interest for future research because it is likely that the stereotype about Africa is so ingrained that it determines a pessimistic description.

This study is likely the first approach to African reality from an intercultural perspective. This qualitative approach has provided interesting and useful information on the advantages and difficulties that West Africa presents for Europeans and Africans themselves. However, this first approach would require more advanced work in larger samples participating from both cultures, the application of a more comprehensive questionnaire and in addition, the use of quantitative research methods. Also, cross-cultural understanding will be enhanced by a culture-dimensional analysis (e.g., power distance, uncertainty avoidance, masculinity and individualism) that would help us better understand the differences between Africans and Europeans. Furthermore, in a practical sense, the study can be used to promote the effect of the motivating factors and mitigate the effect of the risk factors in GSD projects in SSAfrica.

## **REFERENCES**

Abbott, P.Y. (2004). Software Export Strategies for Developing Countries: A Caribbean Perspective. *The Electronic Journal of Information Systems in Developing Countries*, 20(1), 1-19.

Abbott. P. (2013). How can African Countries Advance their Outsourcing Industries: An overview of possible approaches. *The African Journal of Information Systems*, 5(1), Article 2.

Adelakun, O. (2008). The maturity of offshore IT outsourcing location readiness and attractiveness. In *Proceedings of the European and Mediterranean Conference on Information Systems*.

Aramo-Immonen, H., Jaakkola, H., & Linna, P. (2011). Trust Building in Globalized Software Engineering: A Cultural Perspective. *Journal of Global Information Technology Management*, 14(4).

Ashish, A., & A. Gambardella (2005). The Globalization of the Software Industry: Perspectives and Opportunities for Developed and Developing Countries. *Innovation Policy and the Economy*, 5, 1 -32.

Bamigbola, O. M., & Daramola, J. O. (2003). Outsourcing of Software Components—Opportunities for developing Countries.

Bosch, J., & Bosch-Sijtsema, P. (2010). From integration to composition: On the impact of software product lines, global development and ecosystems. *Journal of Systems and Software*, 83(1), 67-76.

Bruno, G., Esposito, G., Iandoli, L., & Raffa, M. (2004). The ICT service industry in North Africa and role of partnerships in Morocco. *Journal of Global Information Technology Management*, 7(3), 5-26.

Carmel, E. (2003). The New Software Exporting Nations: Success Factors. *The Electronic Journal of Information Systems in Developing Countries*, 13(4), 1-12.

Carmel, E., & Abbott, P. (2006). Configurations of Global Software Development: Offshore versus Nearshore. In *Proceedings of the 2006 international workshop on Global software development for the practitioner*, 3—7.

Carmel, E., & Agarwal, R. (2001). Tactical approaches for alleviating distance in global software development. *IEEE Software*, 18(2), 22 – 29.

Carmel, E., & Agarwal, R. (2002). The maturation of offshore sourcing of information technology work. *MIS Quarterly Executive*, 1(2), 65–78.

Casado-Lumbreras, C., Colomo-Palacios, R., Soto-Acosta, P., & Misra, S. (2011). Culture dimensions in software development industry: The effects of mentoring. *Scientific Research and Essays*, 6(11), 2403-2412.

Cataldo, M., & Nambiar, S. (2012). The impact of geographic distribution and the nature of technical coupling on the quality of global software development projects. *Journal of Software: Evolution and*

Process, 24(2), 153-168.

Colomo-Palacios, R., Casado-Lumbreras, C., Soto-Acosta, P., García-Peñalvo, F.J., & Tovar-Caro, E. (2014). Project managers in global software development teams: a study of the effects on productivity and performance. *Software Quality Journal*, 22(1), 3-19.

Colomo-Palacios, R., Casado-Lumbreras, C., Soto-Acosta, P., Misra, S., & García-Peñalvo, F.J. (2012a). Analyzing human resource management practices within the GSD context. *Journal of Global Information Technology Management*, 15(3), 30-54.

Colomo-Palacios, R., Soto-Acosta, P., García-Peñalvo, F.J., & García-Crespo, A. (2012b). A study of the impact of global software development in packaged software release planning. *Journal of Universal Computer Science*, 18(19), 2646-2668.

Conchuir, E.O., Holmstrom-Olson, H., Agerfalk, P.J., & Fitzgerald, B. (2009). Benefits of Global Software Development: Exploring the Unexplored. *Software Process Improvement and Practice*, 14(4), 201–212.

Damian, D., & Moitra, D. (2006). Global software development: How far have we come? *IEEE Software*, 23 (5), 17–19.

Garcia Guzmán, J., Saldaña Ramos, J., Amescua Seco, A., & Sanz Esteban, A. (2011). Success Factors for the Management of Global Virtual Teams for Software Development. *International Journal of Human Capital and Information Technology Professionals*, 2(2), 48-59.

García-Crespo, A., Colomo-Palacios, R., Soto-Acosta, P., & Ruano-Mayoral, M. (2010). A Qualitative Study of Hard Decision Making in Managing Global Software Development Teams. *Information Systems Management*, 27(3), 247-252.

Geer, D. (2006). Software Developer Profession Expanding. *IEEE Software*, 23(2), 112- 115.

Herbsleb, J.D., & Mockus, A. (2003). An empirical study of speed and communication in globally distributed software development. *IEEE Transactions on Software Engineering*, 29(9), 481-494.

Hofstede, G. (1984). *Culture's consequences: international differences in work-related*. Beverly Hills, CA: Sage Publications.

Hofstede, G. (1991). *Cultures and organizations: software of the mind*. McGraw-Hill.

Jacobs, J., van Moll, J., Kusters, R., Trienekens, J., & Brombacher, A. (2007). Identification of factors that influence defect injection and detection in development of software intensive products. *Information and Software Technology*, 49(7), 774-789.

Jiménez, M., Piattini, M., & Vizcaíno, A. (2009). Challenges and improvements in distributed software development: A systematic review. *Advances in Software Engineering*, 2009, 3.

Jalali, S., & Wohlin, C. (2012). Global software engineering and agile practices: a systematic review. *Journal of Software: Evolution and Process*, 24(6), 643-659.

Khan, A. W., & Khan, S. U. (2013). Critical success factors for offshore software outsourcing contract management from vendors' perspective: an exploratory study using a systematic literature review. *IET Software*, 7(6), 327-338.

Khan, S.U., Niazi, M., & Ahmad, R. (2011). Factors influencing clients in the selection of offshore software outsourcing vendors: An exploratory study using a systematic literature review. *Journal of Systems and Software*, 84(4), 686-699.

Kommeren, R., & Parviainen, P. (2007). Philips experiences in global distributed software development, *Empirical Software Engineering*, 12 (6), 647-660.

Lacity, M.C., Willcocks, L.P., & Rottman, J.W. (2008). Global outsourcing of back office services: lessons, trends, and enduring challenges. *Strategic Outsourcing: An International Journal*, 1(1), 13-34.

Lamersdorf, A., & Münch, J. (2010). A multi-criteria distribution model for global software development projects. *Journal of the Brazilian Computer Society*, 16(2), 1–19.

Lee, G., DeLone, W., & Espinosa, J.A. (2006). Ambidextrous coping strategies in globally distributed software development projects. *Communications of the ACM*, 49(10), 35—40.

Minevich, M. & Richter, F.J. (2005). Global outsourcing report. Retrieved online from <http://globalequations.com/Global%20Outsourcing%20Report.pdf>

Misra, S., Colomo-Palacios, R., Soto-Acosta, P., & Pusatli, T. (2013). A discussion on the role of people in global software development. *Technical Gazette*, 20(3), 525-531.

Mwangi, W. (2006). The social relations of e-government diffusion in developing countries: the case of Rwanda. In *Proceedings of the 2006 international conference on Digital government research*, pp.199-208.

Niazi, M., Ikram, N., Bano, M., Imtiaz, S., & Khan, S. U. (2013). Establishing trust in offshore software outsourcing relationships: an exploratory study using a systematic literature review. *IET software*, 7(5), 283-293.

Nidhra, S., Yanamadala, M., Afzal, W., & Torkar, R. (2013). Knowledge transfer challenges and mitigation strategies in global software development—A systematic literature review and industrial validation. *International journal of information management*, 33(2), 333-355.

Noll, J., Beecham, S., & Richardson, I. (2010). Global software development and collaboration: barriers and solutions. *ACM Inroads*, 1(3), 66-78.

Okoli, C., Mbarika, V.W.A., & McCoy, S. (2010). The effects of infrastructure and policy on e-business in Latin America and Sub-Saharan Africa. *European Journal of Information Systems* 19 (1), 5–20

Portillo-Rodríguez, J., Vizcaíno, A., Piattini, M., & Beecham, S. (2012). Tools used in Global Software Engineering: A systematic mapping review. *Information and Software Technology*, 54(7), 663-685.

Prikladnicki, R., & Audy, J. L. N. (2010). Process models in the practice of distributed software development: A systematic review of the literature. *Information and Software Technology*, 52(8), 779-791.

Rao, M.T. (2004). Key issues for global IT sourcing: Country and individual factors. *EDPACS*, 32(4), 1-11.

Schneider, S., Torkar, R., & Gorschek, T. (2013). Solutions in global software engineering: A systematic literature review. *International Journal of Information Management*, 33(1), 119-132.

Seng, Z., Nakano, M., Kubo, S., & Tsuji, H. (2008). Experimental risk estimation for offshore software outsourcing. *IEEJ Transactions on Electrical and Electronic Engineering*, 3(3), 338-344.

Smite, D., Wohlin, C., Gorschek, T., & Feldt, R. (2010). Empirical



evidence in global software engineering: a systematic review. *Empirical Software Engineering*, 15(1), 91-118.

St. Amant, K. (2007). Introduction to the Special Section on Examining International Outsourcing: Perspectives, Practices, and Projections. *IEEE Transactions on Professional Communication*, 50(2), 81—84.

Sukhoo, A. and Barnard, A. and Eloff, M.M. and Van der Poll, J.A. (2005). An assessment of software project management maturity in Mauritius. *Informing Science: International Journal of an Emerging Transdiscipline*, 2, 671—690.

Tanner, M. (2009). Communication and Culture in Global Software Development: The Case of Mauritius and South Africa. *Journal of Information, Information Technology, and Organizations*, 4, 57-85.

Trompenaars, F. & Hampden-Turner, C. (1997). *Riding the waves of culture: understanding diversity in global business*. McGraw-Hill.

United Nations (2011). Trade and development report 2013, Overview. United Nations, UNCTAD/TDR/2013. Geneva. [http://unctad.org/en/PublicationsLibrary/tdr2013overview\\_en.pdf](http://unctad.org/en/PublicationsLibrary/tdr2013overview_en.pdf)

Van der Linden, B., & Hengeveld, S. (2009). Critical Success Factors for obtaining outsourcing projects for Uganda. In *Proceedings of the IST-Africa 2009 Conference*.

Verner, J. M., Brereton, O. P., Kitchenham, B. A., Turner, M., & Niazi, M. (2014). Risks and risk mitigation in global software development: A tertiary study. *Information and Software Technology*, 56(1), 54-78.

Vizcaíno, A., García, F., Villar, J. C., Piattini, M., & Portillo, J. (2013). Applying Q-methodology to analyse the success factors in GSD. *Information and Software Technology*, 55(7), 1200-1211.

Vrhovec, S. L., Trkman, M., Kumer, A., Krisper, M., & Vavpotič, D. (2014). Outsourcing as an Economic Development Tool in Transition Economies: Scattered Global Software Development. *Information Technology for Development*, in press.

Wiener, M., Vogel, B., & Amberg, M. (2010). Information Systems Offshoring--A Literature Review and Analysis. *Communications of the Association for Information Systems*, 27, Article 27.