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The World IT Project: History, Trials, Tribulations, Lessons, and Recommendations

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Abstract:

We conceived The World IT Project, the largest study of its kind in the IS field, more than a decade ago. This ambitious mega project with an enormous global scale was formally launched in 2013 and is expected to finish by 2017. Major publications on the project should appear through 2019. The project responded to the pervasive bias in IS research towards American and Western views. What IS research glaringly lacks is a global view that tries to understand the major IS issues in the world in the context of unique cultural, economic, political, religious, and societal environments. The World IT Project captures the organizational, technological, and individual issues of IT employees across the world and relates them to cultural and organizational factors. This first major paper provides the project's objectives and history, its general framework, governance, important decision points, and recommendations for future researchers based on lessons learned. Ultimately, we hope to provide a world view of IT issues that will be relevant to stakeholders at the firm, national, and international levels. We also invite scholars to send their recommendations for analyzing and writing papers using our vast database.

Keywords: Global Information Technology, World IT View, Organizational Issues, Technological Issues, Individual Issues, National Culture, IT Occupational Culture, Organizational Factors.

1   Objectives of the World IT Project

This first major paper from the World IT Project provides the project's objectives and history, its theoretical framework, governance, important decision points, and recommendations for future researchers based on lessons learned. After the project's core team deliberated in early 2013, we settled on the following charter and goals for the World IT Project.

> *The World IT Project is designed to examine important issues confronting IT employees, both staff and management, in many countries of the world. The proposed project requires survey data collection from different countries, representing different cultures, levels of economic growth, societal and religious beliefs, and political systems. More than forty countries from all parts of the globe will be targeted for this research. In terms of scope, the project is akin to Hofstede's research on national culture and the GLOBE project on culture and leadership, and builds on their research.*

> *Specifically, the project will examine various IT employee issues, such as organizational IT issues, technology issues, and individual issues. Among organizational IT issues are the roles of IT strategic planning, IT-business alignment, business process reengineering, security and privacy, and IT reliability and efficiency, to name a few, in the nature and experience of IT employment. Technology issues include how cloud computing, social media, mobility, ERP systems, business intelligence, and big data, again to name just a few, are perceived by IT workers to influence their jobs. Some of the factors concerning individuals include job satisfaction, efficacy, and role ambiguity. For a deeper understanding of these, the context is important. Also examined will be contextual factors such as organizational variables (including structure and strategy), organizational culture, IT occupational culture, and national culture.*

2   Beginnings and Early History

2.1   Motivation

In 2003, at the GITMA World Conference[1] (www.gitma.org) in picturesque Calgary, Canada, and then again in 2004 in San Diego, California, several IS colleagues shared their concerns about IS research in general and especially the key IS management issue studies published in the top IS journals. We soon realized that a U.S.-centric or a Western-centric view had dominated much of the research in information systems and information technology. We realized that research paradigms and models developed in the US and Western Europe were just that: applicable primarily to the Western context. In published research on global IS/IT[2], many scholars took the same models used in Western research and applied them to other nations (e.g., developing countries, emerging economies, transitional economies, and Middle-Eastern countries). The results were often misguided, spurious, and misleading.

Thus, we began the long and arduous journey to conduct the World IT Project. While researchers have conducted piecemeal and limited attempts to address particular issues in specific countries or regions of the world (e.g., Ifinedo, 2006; Luftman et al., 2012; Watson, Kelly, Galliers, & Brancheau, 1997), no one has looked at much of the world's IT issues in any systematic or comprehensive manner. We lack a global view that focuses on understanding the major IS issues in the world in the context of each country's or region's unique cultural, economic, political, religious, and societal environments.

We took our inspiration from Hofstede's (1980) work on national culture and the GLOBE project on culture and leadership (House, Hanges, Javidan, Dorfman, & Gupta, 2004). Hofstede (1980) conducted one of the most comprehensive studies on national culture between 1967 and 1973 based on data collected from IBM employees that covered more than 70 countries (Hofstede & Hofstede, 2004). We sought to build on their work by using their popular five dimensions of national culture because they pervade the literature but apply the framework to the IT profession across different cultures, different organizations, and different industries instead of in a single organization. Because the original data is fairly old, we decided to include

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[1] GITMA is acronym for Global Information Technology Management Association (www.gitma.org). It was founded in the year 2000 by Prashant Palvia and close associates, and it runs a global IT conference annually. It focuses exclusively on attracting IS researchers from all over the world to discuss emerging research topics. The first conference was held in 2000 in Memphis, Tennessee. The 2016 conference was held in San Diego, California in August, 2016. The next conference will be held in Mexico City on 24-26 June, 2018.

[2] As is often the case, we use the terms IS and IT interchangeably in this paper.

his items in our survey and re-measure cultural dimensions instead of assuming that the index numbers for each country were still current and applicable in the IT context.

Starting in 1994, House et al. (2004) engaged in a 10-year project, called the GLOBE study, that studied societal culture, organizational culture, and attributes of effective leadership in 62 cultures across different industries. We focused on achieving this scale with the World IT Project, but we looked specifically at IT, not business. The GLOBE study created a framework of nine dimensions of culture, though these dimensions have not gained as much traction in the literature as Hofstede's (1980) five dimensions. Nevertheless, the GLOBE study successfully conducted a global mega-project with a rigorously consistent methodology.

We wanted to do the same for the IT field. Clearly, we had our work cut out for us. The project would be an ambitious and a massive undertaking. If we were to accomplish this rather expansive goal, it would require enormous effort but would potentially effect significant academic advances and have vast implications for the practice of global IT. We followed the following ends in our pursuit::

> *A good understanding of the critical IT issues facing firms and their employees within their surrounding contexts will be important from the firm, national, and international points of view. At the firm level, it would help management and staff in formulating business and IT policies and strategies. At the national level, it would allow stakeholders, such as policymakers, governments and vendors, to address the pressing issues of the times. In international business, it would help firms and governments respond to the needs of partners and stakeholders in other countries. A comparative examination across countries and world regions would help facilitate global understanding, cooperation, and knowledge transfer among many nationalities. At the academic level, it would provide researchers with a grounded understanding of the international IT environment, and offer a validated framework to launch many international IT studies and foster a more global academic perspective.*

2.2 Timeline

The project's scope and size posed serious challenges. First, we needed a champion for the project who would guide and sustain it through its entire lifecycle and had the necessary resources and expertise. Prashant Palvia at the University of North Carolina at Greensboro, the founder and the President of GITMA organization, was enthusiastic about the project and provided this leadership. He is regarded as one of the founders of the "Global IT" subfield in the IS field, has published four co-edited books in global IT, and has been editor of two prominent journals in global IT. He currently serves as the editor-in-chief of one of the most respected journals in the field: *Journal of Global Information Technology Management*. We refer to Palvia as the PI (principal investigator) in this paper.

The project took a careful and deliberate path, which meant it progressed slowly at times. In 2004-2005, the PI and three other investigators (Choton Basu at the University of Wisconsin-Whitewater, Mary Lind at North Carolina A&T University, and Carol Pollard at the University of Tasmania and visiting faculty at the University of North Carolina at Greensboro), wrote a National Science Foundation (NSF) grant proposal. The proposal, titled "GRASP—A Community Resource to Support Global Collaboration in IS Research", had an ambitious agenda to collect worldwide IS/IT data and an elaborate system to facilitate data collection and analysis. Although the NSF did not fund the grant, it provided many of the building blocks and the initial ideas for the ultimate project.

The PI started informally discussing the concept of the project with several likeminded researchers at the annual GITMA conferences beginning in 2009 in Mexico City and 2010 in Washington, DC. He then organized a workshop about the project at the 2011 conference in Las Vegas and then again at the 2012 conference in Bangalore, India. These workshops focused on developing and refining ideas for the project and on forming a research team once we embarked on the project. Participants at these workshops, among others, included Dolphy Abraham from India, Naveed Baqir at the University of Delaware, Jaideep Ghosh from India, Tim Jacks at the University of North Carolina at Greensboro, Paul Licker at Oakland University, Celia Romm Livermore at Wayne State University, and Aykut H. Turan from Sakarya University, Turkey.

Tim Jacks received his PhD from the University of North Carolina at Greensboro in 2012 and made his full commitment to the project soon after. He took a faculty position at the Southern Illinois University Edwardsville in the August 2012. He came to visit Greensboro in December 2012. The PI and Tim had a long working session in which they called the project "The World IT Project" and decided to officially

launch it in early 2013. They invited their close collaborators to join the project as part of the "core team", and they all accepted.

Given the project's size and scope, we expected it to take at least five years to complete. We still expect to complete all analyses and major writing by the end of 2017. However, we may not complete books and journal papers on the project until 2018 or even 2019. Figure 1 presents the overall timeline.
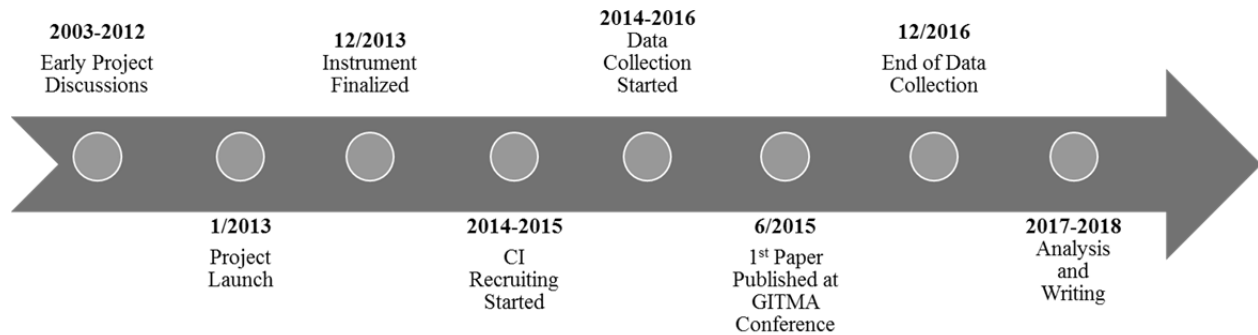

Figure 1. The World IT Project Timeline

The core team has changed members due to retirements and some members' shifting priorities. Therefore, we invited another member to join the core team. Table 1 shows the current composition of the core team. We may possibly further change or expand the core team given the project's enormity and long duration.

Table 1. The World IT Project Core Team as of February 2017

Current members
• Jaideep Ghosh, Shiv Nadar University, India
• Tim Jacks, Southern Illinois University Edwardsville, USA
• Prashant Palvia, The University of North Carolina at Greensboro, USA (Team Leader)
• Alexander Serenko, Lakehead University, Canada
• Aykut H. Turan, Sakarya University, Turkey
Past members
• *Naveed* Baqir, University of Delware, USA
• Paul Licker, Oakland University, USA
• Celia Romm Livermore*, Wayne State University, USA.*

3   Literature Review

3.1   Prior Research

Truly global-scale research projects are rare due to the complexities of carrying them out. Two noteworthy academic projects include Hofstede's (1980) values survey and House et al.'s (2004) GLOBE study. Hofstede conducted a large-scale global survey of IBM employees between 1967 and 1973. He collected data from 66 countries and used data from 40 in the ultimate analysis. Due to replication studies conducted over the years, over 100 countries have participated in the survey. The study originally focused on evaluating employee morale in IBM because the company's leadership saw a positive work environment as one of the pillars of their corporate culture. It has since morphed into studying differences in values between national cultures. National culture is a part of the mental programming that people carry with them, and they express it through the values that dominate their culture. Hofstede defines culture as the collective programming of the mind. The core of any culture is its values that represent what is forbidden versus what is permitted. Cultural values, in turn, drive human behavior. Hofstede originally identified four value dimensions: uncertainty avoidance, individuality, masculine orientation, and power distance. A follow-up study identified a fifth dimension, long-term orientation, to account for important differences in Asian cultures (Hofstede & Bond, 1988). More recently, Hofstede, Hofstede, and Minkov (2014) added a sixth dimension: indulgence versus self-restraint. Hofstede's values survey has dominated

the research landscape on culture, especially in IS research (e.g., Hoehle, Zhang, & Venkatesk, 2015; Zhang, De Pablos, & Xu, 2014).

House et al.'s (2004) GLOBE study on leadership sought to build on Hofstede's (1980) framework while changing the scope of the target audience to middle managers and executives (rather than all level employees) and adding more rigor to the data-collection and analysis process. They collected data from 1995 to 1997 from 61 different countries. The conducted the study to identify the cultural variables that impact leadership characteristics and which leadership characteristics lead to greater organizational success. Similar to Hofstede's work, the GLOBE study focused on values in national culture. The value dimensions measured in the GLOBE study included nine values: uncertainty avoidance, power distance, societal collectivism, in-group collectivism, gender egalitarianism, assertiveness, future orientation, performance orientation, and humane orientation. They found that almost all countries viewed a charismatic leadership style as highly favorable. All countries valued future orientation, performance orientation, humane orientation, and bureaucratic-collective orientation, while they all devalued power-oriented leadership. Gender inequality, assertiveness, and uncertainty avoidance varied by culture. IS research has begun to use the GLOBE dimensions more, but they have not gained the same traction as Hofstede's dimensions (based on citation count; see Appendix A).

Unlike academic research studies, industry-sponsored projects are more visible since they can typically bring more resources to bear in conducting a global survey, in bringing the research to fruition, and in disseminating the results to a business audience. Some examples include the World Economic Forum's (WEF) Global IT Report, IBM's Global C-Suite Study, Deloitte's CIO Survey, McKinsey's Global Survey, and the International Telecom Union (ITU) Report. All of these are global surveys except for the ITU Report, which uses secondary data.

The WEF has conducted its Global IT Report annually since 2001. The 2015 report gathered its survey data from business executives and secondary data in 2014 from 140 different countries and provided a rank-ordering of countries based on their networked readiness index. It found increasing pressures for businesses to innovate in order to meet the needs of a rapidly growing digital population around the world. Networked readiness is highly correlated with per capita income. In a similar vein, the ITU 2014 Report has identified key information and communication technology (ICT) development initiatives and tracked the cost and affordability of ICT services globally, and it has done so annually since 2009. Like the WEF Report, the ITU Report saw an increase in ICT usage with almost three billion people using the Internet at the end of 2014 based on secondary data from 166 different countries. It has also identified important digital divides, such that 90 percent of the people that were not online lived in poor and rural areas.

Other industry research projects focus on cultural perceptions and behaviors in the workplace rather than ICT adoption. IBM's 2015 Global C-Suite Study on CIOs' perspectives examines what CIOs think the future holds and how they plan to position their organizations to address disruption and environmental turbulence. IBM has conducted the study annually since 2003 based on CIO surveys in 70 countries. IBM's analysis found significant differences in the way torchbearer CIOs and market follower CIOs behave, such that the torchbearer CIOs actively seek to create more intelligent, agile cultures in their organizations. Deloitte's 2015 CIO Survey gathered data from CIOs in 43 countries in order to examine the impact and legacy of the CIO role. CIOs around the globe were nearly unanimous in identifying their top five business priorities: performance, cost, customers, innovation, and growth. These top priorities were consistent across industry, geography, and organization size. Only CIOs involved in the public sector selected "cybersecurity" over "growth" as a top business priority. Finally, McKinsey's 2014 Global Survey, conducted annually since 2010, gathers survey data from executives worldwide. The report does not list its purpose or number of countries it represents, but the findings indicate that, while executives at all levels see an important business role for sustainability, they do not focus enough on the reputation, execution, and accountability of their sustainability programs.

These global research projects have both similarities and differences. Survey research and quantitative analysis are common. They commonly consider "global" research to involve 40 or more countries, although studies such as the ITU and the WEF reports that use secondary data can cover a higher number of countries. Industry surveys conducted annually have a big advantage in that they can report on trends over time unlike academic research that is typically cross-sectional. However, global surveys tend to have a high percentage of data collected in the USA, which skews the results towards a Western perspective.

Appendix A summarizes the characteristics of the global research projects we discuss above. We may later use many of these characteristics, such as citation count, number of countries, key variables, and major findings, to judge the contribution and uniqueness of the World IT Project.

We highlight some of the important methodological differences between academic and industry research. Academic research typically translates surveys into the local language, whereas industry research typically uses English. Academic research also conducts pilot tests and uses country investigators that understand the local context. Industry research tends to focus on only the views of high-level executives in an organization.

These projects have different purposes, and they are all successful in achieving their stated objectives. Further, if one measures success by the number of responses, the number of countries, or significance of the findings, they are all successful. But one area where industry research lags is in citation count. Citation count is only one measure of success, but the differences are stark. Based on a Google Scholar citation count, industry studies typically see very low numbers—anywhere from zero to 35. Academic global studies have much higher numbers: 6,502 for the GLOBE study and 46,719 for Hofstede's (1980) study. However, citation count is only one measure of academic success, and it is possible that industry reports reach a much wider audience outside of academia. That said, one may determine Hofstede's survey the most successful in terms of citation count alone.

The greatest difference between academic and industry research projects is whether they include or do not include a theoretical foundation. Both Hofstede (1980) and House et al. (2014) firmly grounded their studies in cultural theory. IBM's C-Suite study, Deloitte CIO Survey, and McKinsey's Global Survey do not identify any theoretical foundation to their work. Thus, these studies are descriptive but may not have as much predictive or explanatory power. The WEF report has a networked readiness framework that identifies its variables of interest, and the ITU has its ICT development framework, but these frameworks are based on practical measurements rather than theoretical development. In order to make a true contribution to both theory and practice, one needs to clearly lay out a theoretical framework.

3.2   Theoretical Framework and Key Constructs

The World IT Project focuses on providing a globally balanced view of various IT employee issues that research has typically tracked only in the US. Past research has generally tracked two types of issues—organizational IT issues and technology issues—annually in the US for over a decade from the perspective of IT managers. For example, Kappelman, McLean, Johnson, and Torres (2016) recently released the 2015 results recently. We evaluate organizational IT issues and technology issues worldwide from the perspective of IT employees who are closer to the IT profession and, thus, not heavily influenced by general management or other stakeholders. Additional studies have examined specific IT personnel issues, such as job satisfaction (McMurtrey, Grover, Teng, & Lightner, 2002), technostress (Ayyagari, Grover, & Purvis, 2011), and turnover intention (Shih, Jiang, Klein, & Wang, 2013). We group these and other issues under "individual issues", and we include them in the World IT Project.

We adapted organizational IT issues from key issue studies published annually, such as Luftman and Ben-Zvi (2010) and Luftman et al. (2012). We added, deleted, and changed more issues based on various international studies and existing literature. The final list included business productivity and cost reduction, alignment between IT and business, business agility and speed to market, revenue-generating IT innovations, IT cost reduction, IT strategic planning, business process reengineering, enterprise architecture, security and privacy, IT reliability and efficiency, IT service management (e.g., ITIL), globalization, outsourcing, attracting and retaining IT professionals, bring your own device (BYOD), continuity planning and disaster recovery, project management, and knowledge management.

Technology issues get to the heart of what IT personnel do for a living. In many ways, technology (computer hardware, software, and services) defines the entire occupation (Guzman, Stam, & Stanton, 2008; Jacks, 2012). Because using an all-inclusive list of specific technologies would not be feasible, we selected broad technologies based on their appearance in the IS literature (e.g., the annual key issue studies we cite above) and the industry experience of the core team members. We selected the following technology issues: business intelligence/analytics, cloud computing, enterprise resource planning (ERP) systems, collaborative and workflow tools, customer relationship management (CRM) systems, mobile and wireless applications, enterprise application integration, business process management systems, big data systems, mobile apps development, networks/telecommunications, social networking/media,

virtualization (desktop or server), software as a service, data mining, and service-oriented architecture (SOA).

Individual issues for IT employees describe the attitudes and behaviors that research has previously shown to be critically important in the workplace. These issues include job satisfaction (Moore, 1997), perceived work overload (Kirmeyer & Dougherty, 1988), perceived work/home conflict (Kreiner, 2006), strain (Moore, 2000), professional self-efficacy (Moore, 1997), job insecurity (Ashford, Lee, & Bobko, 1989), turnover intention in the organization (Moore, 1997), turnover intention in the IS profession (Moore, 1997), and friendship networks (Mouw, 2006; Lin & Erickson, 2008).

To more deeply understand all three categories of issues, one needs to thoroughly examine the underlying context. Palvia, Palvia, and Whitworth (2002) have identified the following contextual factors for global IT issues: cultural, economic, political, and organizational. Of these, we could extract political and economic data for each country from secondary sources, but we needed to capture the others from our own data-collection effort.

The cultural context is of paramount importance to the World IT Project. Previous IS cultural studies have examined culture at either the national or organizational level (Gallivan & Srite, 2005). The World IT Project includes both levels. In addition, it includes the relatively new paradigm of IT occupational culture (Guzman et al., 2008, Jacks, 2012), so that it focuses on three distinct levels of cultural analysis, an important and rare accomplishment that previous IS research has not attempted.

While researchers have developed many frameworks to measure national cultural differences, Hofstede's (1980) framework is arguably the most widely used in IS research despite its drawbacks. Besides its popularity, an additional advantage is the parsimony of the framework with five dimensions and a small number of survey items (compared to House et al.'s (2004) nine dimensions). Keeping the list of items in the survey short was important to our success. Thus, we chose Hofstede's uncertainty avoidance index, power distance index, masculinity index, individualism index, and long-term orientation to measure national culture (Hofstede & Hofstede, 2004). We debated a lot about independently measuring national culture versus simply using the index values previously assigned to a country. In the end, we opted for more precision and accuracy over efficiency and expediency and included all of Hofstede's original items in the instrument.

For organizational culture, the organizational behavior literature widely uses Quinn and Rohrbaugh's (1981) competing values framework, a mature and parsimonious framework. Based on two dimensions (i.e., control and focus), organizations tend to fall into one of four possible archetypes (i.e., hierarchical, entrepreneurial, team, rational) in terms of their overall orientation. White, Varadarajan, and Dacin (2003) used an abbreviated version of this scale, which we adopted for our instrument due to its brevity.

Occupational culture refers to the beliefs, attitudes, and values of people who share the same occupation. Research has shown IT employees to have their own culture that differs starkly from traditional business management culture. Recent research has identified six dimensions that are important for IT employees: autonomy in decision making, structure in the work environment, precision in communication, innovation in technology, reverence for technical knowledge, and enjoyment in the workplace (Jacks, 2012). We thought it important to include these values to see if they held together as strongly across different countries.

In addition to culture, individual psychology and gender (Sumner & Neiderman, 2004) can also affect employee behavior. Not every person from the same country, the same organization, and the same occupation will behave exactly the same way. Therefore, we needed to be able to capture these psychological differences to test for their influence on attitudes towards work. Many instruments are available to capture psychology traits. However, to keep our already expanding survey from being too long, we needed to find a short and simple instrument. Rammstedt and John's (2007) instrument fit the bill. This validated instrument tests for the "Big Five" personality traits (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism), uses only ten items, and has extremely strong psychometric properties.

The final contextual factors concern the context of the organization itself. Organizational IT maturity is an important organizational-level construct (Ragowsky, Licker, & Gefen, 2012) that we added to the list. The CIO reporting relationship itself is an important factor that can influence an organization's strategy and success (Luftman & Ben-Zwi, 2010). We also included elements of organizational strategy (Miles, Snow, Meyer, & Coleman, 1978), competitive strategy (Porter, 1985), and environmental turbulence

(Johannesson & Palona, 2010) due to their significant role. Other variables included were age, industry, firm size, and IT department size. Together, including all these factors creates a comprehensive profile of the organizational context of all the individuals participating in the study.

Figure 2 presents a general research framework, and Table 2 (see several pages on) lists the theoretical constructs and variables we used in the World IT Project. Note that one can generate numerous specific research questions and models from the general framework, which we show later.
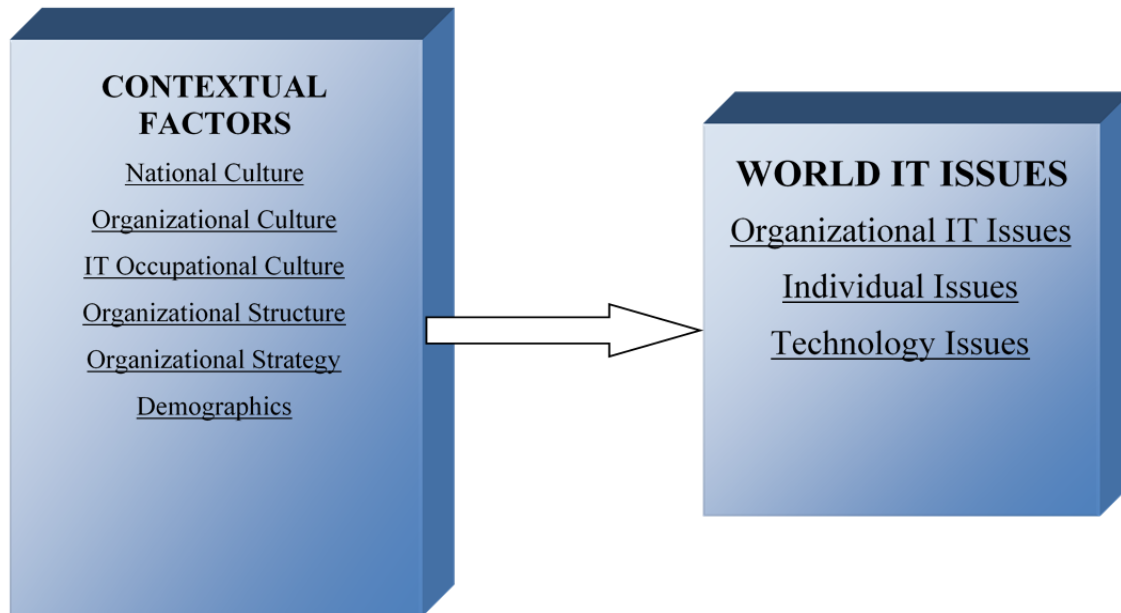

CONTEXTUAL FACTORS

National Culture

Organizational Culture

IT Occupational Culture

Organizational Structure

Organizational Strategy

Demographics

WORLD IT ISSUES

Organizational IT Issues

Individual Issues

Technology Issues

Figure 2. General Framework for the World IT Project

4   Project Governance

As we state in Section 2, the core research team began to form in early 2013. The core team members guided the overall project, and they served as liaisons to individual country investigators (CIs) and provided them with support. Each country also had its own team. Each country team could have one to three CIs, although, in rare cases, we approved four members. Figure 3 (see next page) summarizes the project governance.

The survey instrument constituted the core team's first critical deliverable. The process of refining the list of potential items took over a year. We thought it important to use previously validated items for the constructs so the instrument had good psychometric properties. We soon realized that gathering data on so many independent and dependent variables meant that a long survey. At the same time, we needed to shorten the instrument as much as possible to encourage participants to complete it. We did our best on both ends. Ultimately, the instrument contained 160 items, and the pilot tests reported that one could complete it in about 25 minutes. Pilot tests also helped us in refining the instrument. We froze the instrument (i.e., no further changes) at the end of 2013 with one exception. In special cases, CIs could add a few of their own questions, but in no case could they replace, modify, or eliminate any of the questions so that data collection would be uniform across all countries. The Institutional Review Board at the University of North Carolina at Greensboro reviewed and subsequently approved and exempted the instrument from further review.

After we finalized the instrument, the core team created templates for recruiting country teams and country investigators. These templates included a memorandum of understanding (MOU) that outlined the roles and responsibilities of the CIs and the core team and a request for survey administration plan (RSAP) so that CIs could submit their data-collection plan to the core team for approval. Once the core team approved the RSAP and both parties signed the MOU, we shared the instrument with the CIs. We also instructed the CIs to receive their own institutional review board clearance if necessary.

We solicited CIs organically through professional contacts and conferences, requests on the AISWorld listserv, and direct emails to faculty listed on the AIS faculty directory. We also organized information sessions at the GITMA and AMCIS conferences in 2013 and 2014. In each communication, we described the benefits to the CIs and their roles and responsibilities (see Table 3 two pages on). The response was slow and steady but, at the same time, encouraging. It also meant patience and perseverance on our part.
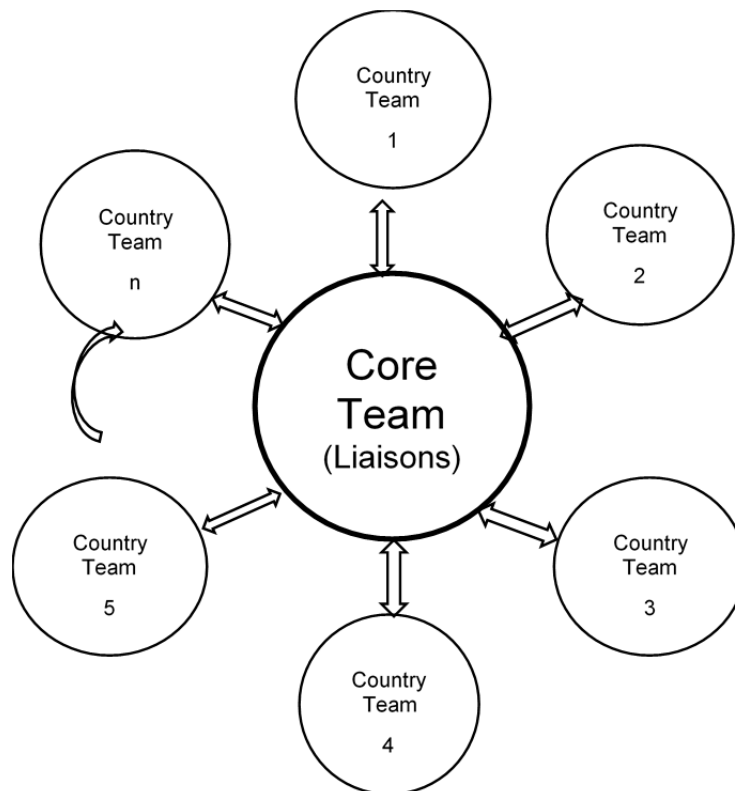

Figure 3. Project Organization

We sought to obtain data from countries that represented every major region of the world. The project required data collection from countries that represent different cultures, levels of economic growth, religious beliefs, and political systems. We recruited and selected CIs after a careful screening process. We needed local country investigators because they understand the local culture and how to best approach local businesses to participate. We also charged them with translation/back-translation[3] of the instrument (if translation to the local language was necessary) in order to ensure that wording and meaning were appropriate for the local culture. Given the wide disparity in population sizes and development levels among the countries in the world, we could not feasibly achieve true representative sampling in total; however, we sought a large database that would be respected for its breadth of cultures and countries.

We gave the CIs discretion in what method they used to collect data and how to approach organizations in their country. All respondents needed to be in the IT profession. We instructed the CIs to provide us with a minimum usable sample size of 300 IT employees in their country. We suggested they collect responses from 10 to 15 IT employees from 20 to 30 companies in a variety of industries. The CIs used multiple data-collection methods: mail surveys, face-to-face surveys, email surveys, and Web-administered surveys. We assured and observed complete anonymity in collecting data. We also recommended to the CIs that they go through the CEO/CIO or another senior executive to recruit multiple IT employees from the same organization, and most CIs followed this practice. It resulted in both a higher response rate and higher data quality.

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[3] The instrument has been translated into many languages including Chinese, French, Italian, Japanese, Polish, Portuguese, Russian, Spanish, and Turkish.

As of this writing, over 100 CIs have collected or are collecting data in 46 countries around the world. Thirty countries have completed their data collection. Our deadline was the end of 2016, but we have allowed several extra weeks to get data from the remaining countries. Table 4 (see next page) shows the list of countries participating in the World IT Project.

Table 2. Theoretical Constructs

Construct	Variables	Source
National culture	Uncertainty avoidance, power distance, masculinity, long-term orientation, individualism	Hofstede & Hofstede (2004)
Organizational culture	Hierarchical, entrepreneurial, team, rational	White et al. (2003)
IT occupational culture	Autonomy, structure, precision, innovation, reverence for knowledge, enjoyment	Jacks (2012)
Personality (Big Five)	Openness, conscientiousness, extraversion, agreeableness, neuroticism	Rammstedt & John (2007)
Organizational structure	Firm age, firm size, IT department size, industry	Various
Organizational strategy	Organizational strategy	Miles et al. (1978)
	Competitive strategy	Porter (1985)
	Environmental turbulence	Johannesson & Palona (2010)
Organizational IT issues	Business productivity and cost reduction, alignment between IT and business, business agility and speed to market, revenue-generating IT innovations, IT cost reduction, IT strategic planning, business process reengineering, enterprise architecture, security and privacy, IT reliability and efficiency, IT service management (e.g., ITIL), globalization, Outsourcing, attracting and retaining IT professionals, BYOD, continuity planning and disaster recovery, project management, knowledge management	Luftman et al. (2012), Luftman & Ben-Zvi (2010, 2011)
	Organizational IT Maturity	Ragowsky et al. (2012)
	CIO Reporting Relationship	Luftman et al. (2012), Luftman & Ben-Zvi (2010, 2011)
Individual issues	Job Satisfaction	Moore (1997)
	Work overload	Kirmeyer & Dougherty (1988)
	Work home conflict	Kreiner (2006)
	Strain	Moore (2000)
	Professional self-efficacy	Moore (1997)
	Job Insecurity	Ashford et al. (1989)
	Turnover intention—organization	Moore (1997)
	Turnover intention—IS profession	Moore (1997)
	Friendship networks	Mouw (2006), Lin & Erickson (2008)
technology issues	Business intelligence/analytics, cloud computing, enterprise resource planning (ERP) systems, collaborative and workflow tools, customer relationship management (CRM) systems, mobile and wireless applications, enterprise application integration, business process management systems, big data systems, mobile apps development, Networks/telecommunications, social networking/ media, virtualization (desktop or server), software as a service, data mining, service-oriented architecture (SOA)	Luftman et al. (2012), Luftman & Ben-Zvi (2010, 2011)

Table 3. CI Benefits and Responsibilities

The direct benefits to you from joining The World IT Project are the following:
- You get ready-made instrument and procedures. Your main effort is in data collection.
- You have access to the best expertise.
- You will have co-authorship in several publications. This will include co-authorship using data from your country and co-authorship in comparative studies that include your country.
- You will have international colleagues to collaborate with.
- There will be tremendous opportunities for growth.

Your roles and responsibilities will include the following:
- Commit to the project and collect quality data in a timely manner.
- Assist in writing.
- Be responsive to project requests and deadlines.
- Attend an annual meeting of the group to discuss project progress and results.

Table 4. Participating Countries

No.	Country	# of CIs	No.	Country	# of CIs
1	Argentina	3	24	Malaysia	2
2	Australia	2	25	Mexico	3
3	Bangladesh	3	26	Morocco	3
4	Brazil	2	27	New Zealand	3
5	Canada	2	28	Nigeria	2
6	China	2	29	Oman	2
7	Egypt	3	30	Pakistan	3
8	Finland	4	31	Peru	2
9	France	3	32	Poland	2
10	Germany	1	33	Portugal	3
11	Ghana	1	34	Romania	4
12	Greece	2	35	Russia	1
13	Hungary	2	36	Rwanda	3
14	India	2	37	Saudi Arabia	3
15	Indonesia	3	38	South Africa	3
16	Iran	1	39	South Korea	2
17	Israel	1	40	Taiwan	1
18	Italy	4	41	Tanzania	1
19	Japan	2	42	Thailand	3
20	Jordan	4	43	Turkey	1
21	Kenya	4	44	U.K.	3
22	Lithuania	3	45	USA	2
23	Macedonia	1	46	Vietnam	1
				Total	**108**

Note: we may modify the final list of countries based on our data-collection efforts.

5   Anticipated Contributions

The World IT Project provides a rich repository of data that will allow a variety of analyses on the state of information technology and its practice in virtually all regions of the world. In general, we plan to conduct three types of studies: single country studies, multiple country studies, and global studies. The multiple country and global studies will provide a comparative examination among countries and regions. Furthermore, we would be able to provide theoretically grounded explanations of various phenomena and relate them to a variety of antecedents and contextual factors. The possibilities are endless. We plan to present our findings in many international conferences and to prepare papers for publication in journals. Concurrently, we will also write several books on the subject.

Broadly speaking, one can classify the results and analyses from the World IT Project into two types of publications: descriptive and theoretical/relationship. We provide examples of each in Sections 5.1 and 5.2.

5.1   Potential Descriptive Studies

While numerous possibilities exists, some of the more promising initial descriptive studies include identifying differences across various countries and regions of the world in:

- Organizational IT issues
- Technology issues
- Individual IT employee issues
- IT occupational culture, and
- National culture values of IT employees versus the general population

One can further divide the dataset for each of these topics by industry, IT role, and gender. As an example, the first two studies listed above will be similar to the "key issue" studies published annually in the US (Kappelman et al., 2016) in *MIS Quarterly Executive*. However, we will be able to report results from many countries in the world, group results by various regions, point to similarities and differences between countries and regions, and offer explanations and underlying reasons.

5.2   Potential Theoretical/Relationship Studies

In addition to the descriptive studies, additional studies will focus on the relationships between various constructs and, in many cases, be guided by existing theory. We have come up with some preliminary ideas, but these may be just the tip of the iceberg. We group some examples by theme.

Impact of culture:

- How do espoused national cultural values impact IT occupational culture (ITOC) values (i.e., is ITOC heterogeneous or relatively homogenous across countries)?
- Are there clusters of IT roles that have important differences in ITOC values (developers vs. system administrators vs. others)? Do they vary by country?
- Does personality affect attitudes more than organizational culture? Or vice versa? Does it affect more than espoused national culture?
- How do organizational culture and national culture impact the perceived importance of security and privacy?
- Do certain national cultures place more importance on disaster recovery planning than others?

Impact of business environment:

- How does competitive strategy impact IT organizational structure and/or CIO reporting structure?
- How does competitive environment impact the perceived importance of business agility and speed to market?
- Does IT organizational structure and/or CIO reporting relationship impact the perceived importance of IT/Business alignment? Does IT organizational maturity have an influence?

- What are the economic and political influences on organizational, technology, and individual issues?

Impact in the IT profession:

- Does the level of IT job satisfaction differ by IT role and by country?
- Does competitive environment moderate the relationship between organizational culture and job turnover?
- Does intention to leave the IT profession differ by country, urban/rural location of the firm, gender, age, industry, and organizational maturity?
- Does the level of technostress differ by country, by industry, and by environmental competitiveness?
- How do friendship circles impact job satisfaction and/or organizational commitment? Are there differences by gender?
- What is the relationship between personality, self-efficacy, and work-life balance across countries?

Currently, we have the following works in progress:

- What are the relationships between job insecurity, job satisfaction, organizational turnover intention, and IT occupation turnover intentions? How are these factors affected if the IT worker was previously laid off from the job? Serenko, Bontis, and Palvia, 2015) have presented a preliminary paper in a conference on this topic.
- What are the antecedents of turnover and turnaway among IT workers in the context of a national crisis, and how are they affected by age differences? Bellini, Graeml, Moreno, Palvia, and Jacks (2016) have already published a preliminary paper in a conference on this topic.

Of course, we are still formulating more questions and have started working on only a few. We would encourage our readers to suggest their thoughts on additional theoretical contributions. On occasion, we may even invite others to join in writing research papers.

5.3   Sample Study

We provide an example to illustrate[4] the power and scope of the World IT Project. Serenko et al. (2015) conducted a preliminary study based on the World IT Project data from Canada where they explored the interplay among four individual-level IT constructs: job insecurity, job satisfaction, organizational turnover intentions, and IT occupation turnover intentions. They developed a parsimonious theory-based model exploring these relationships (see Figure 4). Furthermore, they explored whether an IT employee's previous exposure to involuntary IT job termination (i.e., lay-off) moderated the structural relationships in their proposed model. The authors articulated the hypothesized relationships and their signs (positive or negative) based on theory and prior literature, which their model shows.

They validated and analyzed their model using partial least squares (PLS) software. They found support for all hypotheses at the $p < 0.05$ level. Job insecurity had a negative effect on job satisfaction $(β = 0.34)$ and a positive effect on organizational ($β = 0.27$) and occupational turnover intentions ($β = 0.29$). When IT employees feel that their present job may be threatened, they become less satisfied with their job, reduce their loyalty to their current employer, and start seeking alternate positions in the IT sector and even beyond. Job satisfaction had a negative impact on organizational turnover intentions ($β = 0.48$) and a slightly weaker yet significant negative effect on occupational turnover intentions ($β = 0.35$). This finding reveals that unsatisfied IT employees may find it easier and less stressful to seek a new job in the same (i.e., IT) industry rather than to completely change their occupation. The study confirmed that the well-established organizational behavior concepts also apply in the IT context. In addition, the study took a step further and tested whether an employee's previous exposure to involuntary IT job termination (i.e., lay-off) moderated the structural relationships in their proposed model. When the authors conducted a moderation analysis, they found that individuals who had never been laid off from an IT position exhibited a positive relationship between job insecurity and intentions to leave their occupation ($β = 0.31$, $p < 0.05$). In contrast, this relationship did not exist for those who had already experienced this event but managed

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[4] We provide this example solely for illustration. Complete and definitive empirical papers will be written and published in the future.

to secure another IT position (β = 0.04, not significant). It is possible that those who had never involuntarily lost their IT job feel their IT job is threatened and are, therefore, ready to look for positions outside the IT sector. In contrast, after having been laid off from an IT job, some people made a conscious decision to stay in their chosen profession and secured another IT position. In this case, they wanted to stay in the industry of their choice (i.e., the IT sector) regardless of the probability of losing their current IT job, and other factors (e.g., personal interests, family, etc.) may have drove their occupational turnover decisions. Thus, the authors recommend that future IT and organizational behavior researchers focus their attention on the role of previous involuntary job termination on employee behavior. Overall, Serenko et al.'s (2015) study demonstrates that the World IT Project may result in various studies that have implications for the IT sector and beyond.
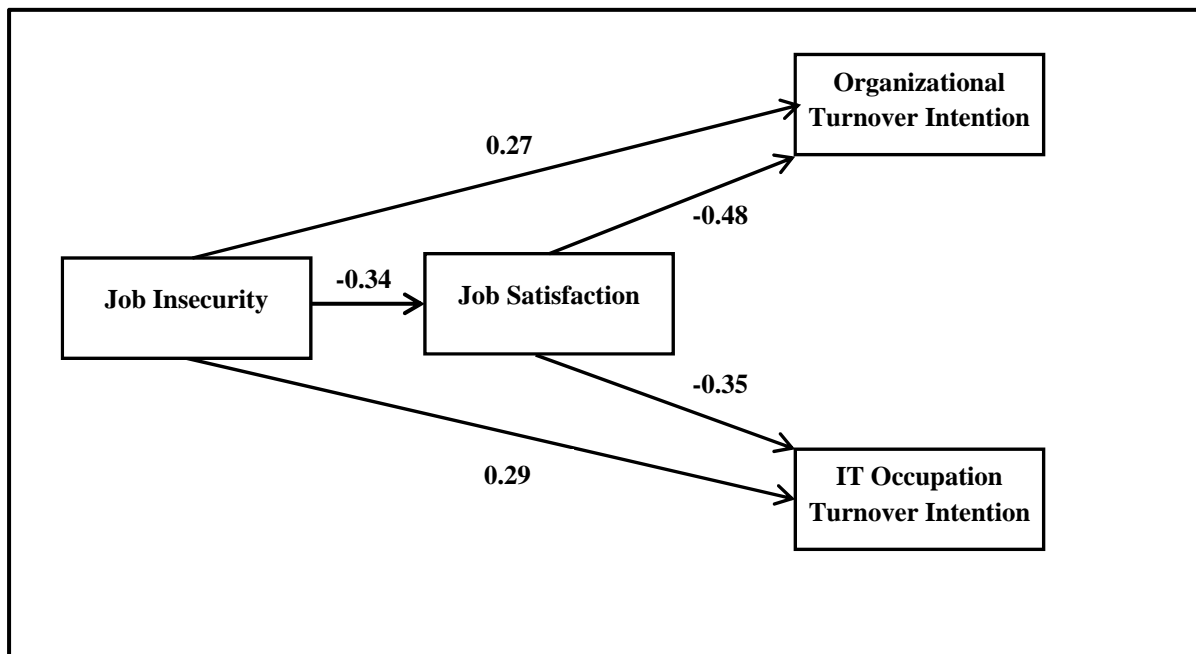

Figure 4. Research Model for Turnover Intention—Results (All Relationships Significant at p < 0.05)

Note that the above findings are unique and applicable to Canada, an advanced country. But one can only whether they apply to other countries that exhibit different contextual characteristics is a matter of belief or conjecture. Fortunately, the World IT Project has the same data from many other countries to be able to evaluate the model from a global perspective.

6   Lessons Learned

Finally, we share some valuable lessons we have learned from managing a mega-project of this scope. We experienced many challenges and no doubt we will continue to face more. Yet, we have been able to overcome nearly every challenge we have experienced. House (1998) reported many of the challenges and lessons learned that they experienced in conducting the GLOBE study. Some of the challenges in the World IT Project correspond with those that House (1998) reports and some are new. Therefore, we present our recommendations to future researchers to aid in the success rate of future mega-project research in IS. We present the consolidated information in Table 5. We group it into four themes: 1) core team management, 2) CI management, 3) data collection, and 4) writing.

Table 5. Lessons Learned and Recommendations

#	Area	Problem	Solutions/recommendations
1		Working with core team members across multiple countries and three continents is a huge challenge in and of itself.	We adopted a three-pronged strategy. First, we (the core team) had a monthly Skype meeting to discuss objectives, progress, and problem areas. Second, we used email and phone calls on a regular basis. Third, we had an annual meeting at the GITMA conference where we meet face-to-face and discuss all issues, challenges, and solutions. On the Skype meetings, we soon found out that video meetings were slow and unreliable due to bandwidth issues in some countries. However, after a few months of video meetings and after we got to know each other, we reverted to "audio only" Skype meetings, and they worked perfectly well.
2	**Core team mngmt**	A project of this magnitude requires a long-term commitment from all project members. However, "life happens" for everyone, and many members with high levels of interest felt it necessary to withdraw from the project due to professional, personal, and family priorities. On the core team itself, we experienced changes over the course of four years due to retirements and changing priorities.	Planning for attrition is critical. We had to carefully select CIs as replacements for different countries whenever possible, but, in some cases, we simply could not collect data in those countries after we lost the CI. On the core team, we have always sought to keep a balance of senior and junior researchers, which has worked well. Additions to the core team required unanimous consent from all the members. Succession planning has become a priority for the core team. We have named a second person in line to the PI in case such need arises.
3		The core team comprised only academic researchers. Despite the industry experience of many of the core team members, the project would have benefited from adding industry partners.	We encourage future global researchers to add industry partners to the core research team in order to assist with both data collection and funding opportunities.
4		CIs did not initially see "what was in it for them". The problem was, in part, that the core team insisted on owning the data per the terms of the MOU even though the CIs did the data collection.	To resolve this issue, we had to actively sell the benefits of participating in a global research project. Benefits to the CIs included being able to co-author future research papers if they assisted with the writing and analysis and leveraging a ready-made instrument. The opportunity to network with academic colleagues around the world was also seen as a benefit.
5	**CI mngmt**	Recruiting high-quality CIs takes a long time. While many researchers said they were extremely interested in the project, the number of people who were actually willing to commit was initially very low.	Persistence pays off. Our recruitment snowballed in the last year to hit our target of at least 40 participating countries. We recruited continuously using a variety of channels. Some of the best channels for recruitment were doing presentations on the project at conferences such as AMCIS and GITMA every year. Also useful were the AIS faculty directory and personal relationships with colleagues.
6		Coordinating the efforts of a large group of international researchers in different time zones is difficult. The initial communication plan of using email and Yahoo groups for document sharing was not optimal. It takes people several days and even weeks to respond to their email messages.	Even though email is the lowest common denominator channel for communication, we made true progress on the project when project members could communicate live. We could have made faster progress sooner if we had used Skype or other desktop videoconferencing technology with the local CIs from the beginning. But better late than never. Email is effective for one-way communication, but Skype has been much more useful for creating real dialogue among team members.

Table 5. Lessons Learned and Recommendations

7		Obtaining funding is always difficult. Some CIs requested funding from the core team in order to do their data collection or to pay for their travel expenses in order to attend planning meetings at conferences.	The core team continues to apply for funding, but we have encouraged CIs to obtain their own funding if necessary from international, national, and regional agencies and foundations. Despite this obstacle, most CIs have been able to obtain their data without additional funding. Furthermore, there are at least three countries that have secured external funding. The core team has provided them with the necessary support.
8		Survey participants expect a survey to be in their native language. Therefore, global research has the additional burden of translating the survey instrument into many languages.	Because the core team does not speak every language and understand every culture, we needed local CIs to avoid these problems. The survey was translated into the local language and then back-translated again into English to verify that the meaning stayed the same. For example, we narrowly avoided translating "I am concerned that my job may be outsourced soon" to "I am aware my job will be outsourced soon" in Portuguese, which would have been disastrous. Having the role of a CI liaison on the core team was useful in preventing such problems.
9		CIs frequently ran into problems collecting enough responses.	Part of the support that the core research team provided for the CIs included suggestions for how to increase response rates when the CIs got stuck. Some of these suggestions included how to obtain executive buy-in for the project, appropriate use of incentives and deadlines, and types of companies to approach. The most innovative solution we have seen so far was with the Mexico team that hosted a party at each business in order to motivate all the IT employees to complete the survey. While such an approach requires more effort on the part of the CIs, it was extremely successful, and we recommend it highly.
10	**Data collection**	CIs did not understand what the target sample frame was for data collection. Many CIs started collecting data from only IT-related companies.	We did not do a good job in the beginning of making it clear that, even though we wanted responses from IT employees, we wanted IT employees from many different industries. We had to update our documentation to make the sample frame explicit when we explained the project to new CIs.
11		We did experience isolated incidents in which researchers faked data. Unscrupulous and opportunistic researchers did try to send us artificial data that they simply created themselves.	Fortunately, it has been easy to spot so far. The core team has been diligent in reviewing all the data as it is turned in to look for obvious patterns (or lack of patterns) and ensure that the data is legitimate. Another strategy that helped was to recruit CIs who are senior, well-published researchers (e.g., department heads) from respected institutions because these individuals are unlikely to engage in unethical research practices.
12		Survey length has probably been our largest obstacle, but we knew it would be from the beginning.	Managing expectations and explaining the importance and scope of the project have been the key. But, most importantly, we have made sure to inform all participants that the survey takes up to 30 minutes to complete. Most can complete it in under 20 or 25 minutes. Despite the length, the online format of the survey facilitates quick responses to each question with check boxes and dropdown selections. Even so, the survey is still long, and there is no getting around this issue.
13	**Writing**	Even though the writing does not take place until almost the end of the data collection, many participants had questions about authorship policies and even author order.	We needed to create a policy early on so that we could send a consistent message. We created the policy to incentivize the CIs so that they would have co-authorships in several papers and lead authorships in at least one paper provided they assisted in writing and data analysis.

Table 5. Lessons Learned and Recommendations

14		CIs initially had many concerns about "who will own the data" after the data collection for their country finished.	We easily resolved this problem. We set clear guidelines in the MOU from the start that all data is the core team's intellectual property. That said, we encouraged CIs to use the data from their own country for their own papers as long as they submitted a proposal to the core team. The core team has yet to turn down a submission. Data for cross-cultural studies requires more rigorous scrutiny by the core team in order to fit into our overall publication strategy.
15		Paper publication is what we would call a good problem to have. Nevertheless, it is a serious challenge given the massive amount of data and endless possibilities for analyses and writing.	The core team addressed this issue and came up with a plan. We have to approve every paper idea or proposal. We also have to evaluate each completed paper for its quality and appropriateness before submission to a conference or a journal. Our first major publication is this paper that introduces the World IT Project to the IS audience and provides a general background. The initiative for single country or multiple countries that involve only two-to-three countries would come from CIs, and we have encouraged them to do so. We will initiate multiple country studies with more countries and global studies later. At this time, we have developed a list of fifteen papers that we will develop: each core team member will lead the effort on three papers.

7   Conclusion

In summary, in this paper, we present the objectives and history of the World IT Project, its general framework, governance, important decision points, and recommendations for future researchers based on lessons we have learned. This project will have several deliverables that should significantly enhance our understanding of the global IT environment. It should have direct benefits for private and public organizations at the national and international level by providing them a systematic assessment of the needs and issues of IT employees in organizations across the globe, which will enable them to carefully address the problems and opportunities associated with such needs. Equally as important, this research effort should act as an example of and encourage diversity in research and the use of multiple paradigms beyond the current U.S.-centric and Western-centric views. It will promote research in regions of the world currently under-represented in the IT literature. Most of all, we expect it to encourage research collaboration among scholars across the world and, thus, lead to higher synergy, relevance, and quality. It should also greatly enhance research efficiency by providing a central repository of reliable worldwide data. In this light, we invite scholars from all parts of the world to send their recommendations for analyzing and writing papers using our vast database.

Please stay tuned for more publications from The World IT Project.

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Appendix A: Comparison of Global Research Projects

Table A1. Academic Projects

	Academic projects		
	World IT Project	**GLOBE Project**	**Hofstede Values Survey**
No. of respondents	10,000+	17,000	117,000
Targeted respondents	IT employees	Middle managers and executives	IBM employees
Data-collection period	2014-present	1995-1997	1967-1973 (continuous replication studies to the present)
No. of core researchers	5-7	11	6
Citation count based on Google Scholar	n/a	6,502	46,719
No. of countries	40+	61	66 (40 in original analysis, 100+ on web)
Language translation	Yes	Yes	Yes
Purpose	To better understand important issues for IT workers in their unique societal contexts and to counter-balance the U.S-centric or Western-centric view.	To develop empirically based theory to describe, understand, and predict the impact of cultural variables on leadership and organizational processes.	To evaluate employee morale within IBM.
Type of analysis	Frequency distributions, factor/cluster analysis, regression, structural equation modelling	Frequency distributions, factor/cluster analysis, regression, structural equation modelling	Frequency distributions, ANOVA, factor analysis
Pilot test conducted	Yes	Yes	Yes
No. of survey items	160	112 for leadership survey, 194 for cultural survey	60 (originally 160)
Key variables	Cultural and personality dimensions; organizational structure and strategy; organizational, individual, and technology IT issues	Uncertainty avoidance, power distance, societal collectivism, in-group collectivism, gender egalitarianism, assertiveness, future orientation, performance orientation, humane orientation, leadership attributes and behaviors	Uncertainty avoidance, power distance, individualism, masculinity
Data source	Primary	Primary	Primary
% of data collected in USA	< 5%	Not reported	Not reported

Table A1. Academic Projects

Key findings	TBD	Charismatic leadership style is highly favorable in almost all countries. Future orientation, performance orientation, humane orientation, and bureaucratic-collective orientation are universally valued. Power oriented leadership is universally devalued while gender inequality, assertiveness, and uncertainty avoidance vary by culture.	Four dimensions (later 5 and 6) - significant differences between national cultures. People carry mental programs that contain a component of national culture expressed in values that predominate important consequences for policy makers.
Methodology	Survey	Survey	Survey
No. of country investigators	100+	150+	0
Theoretical framework	National, organization, and occupational culture theory, organizational strategy, key issues	Hofstede's (1980) cultural theory, implicit leadership theory, implicit motivation theory, structural contingency theory of organizational form and effectiveness	Culture theory
Source	http://www.worlditproject.com/	http://www-old.thunderbird.edu/wwwfiles/sites/globe/pdf/appliedpsychology_1.pdf	https://geert-hofstede.com/national-culture.html

Table A2. Industry Projects (A)

	Industry projects	
	World Economic Forum Global IT Report 2015	**IBM's Global C-Suite Study—CIO Perspective**
No. of respondents	14,000	1,805
Targeted respondents	Business executives	CIOs
Data-collection period	2014 (annually since 2001)	2015 (annually since 2003)
No. of core researchers	7	Not reported
Citation count based on Google Scholar	35	0 (7 from the 2010 study)
No. of countries	140	70
Language translation	No	No
Purpose	To report the yearly networked readiness index (NRI), which assesses countries' preparedness to reap the benefits of emerging technologies.	To find out what CIOs think the future holds and how they are positioning their organizations to prosper in the "age of disruption" and environmental turbulence.
Type of analysis	Index creation and rank ordering of countries	Descriptive statistics and ranking of issues
Pilot test conducted	Not reported	Not reported
No. of survey items	53	Not reported
Key variables	Four categories of indicators: 1) the overall environment for technology use and creation; 2) networked readiness in terms of ICT infrastructure, affordability, and skills; 3) technology adoption/usage by stakeholders; 4) the economic and social impact of new technologies.	Value creation, environmental turbulence and disruption
Data source	Half primary, half secondary	Primary
% of data collected in USA	Not reported	21%
Key findings	Firms face increasing pressure to innovate continuously. Businesses and governments are missing a rapidly growing digital population. A new economy is requiring urgent innovations in governance and regulation. The group of top 10 performers is unchanged from prior year. Networked readiness remains highly correlated with per capita income.	There are significant differences in the way Torchbearer CIOs and Market Follower CIOs behave. Torchbearer CIOs are creating intelligent, agile cultures; wising up to the needs of customers; and rewiring the way their organizations reason.
Methodology	Survey	Survey
No. of country investigators	0	0
Theoretical framework	Networked readiness framework	None
Source	https://www.pwc.com/kr/ko/publications/industry/wef_gitr_full_report.pdf	https://public.dhe.ibm.com/common/ssi/ecm/gb/en/gbe03729usen/GBE03729USEN.PDF

Table A3. Industry Projects (B)

	Industry projects		
	Deloitte 2015 CIO Survey	**International Telecom Union 2014 Information Society Report**	**McKinsey Global Survey 2014**
No. of respondents	1,271	N/A	3,344
Targeted respondents	CIOs	N/A	Executives
Data-collection period	2015 (first year)	2014 (annually since 2009)	2014 (annually since 2010)
No. of core researchers	6	6	2
Citation count based on Google Scholar	0	0 (6 from the 2006 report)	18
No. of countries	43	166	Not reported
Language translation	No	No	No
Purpose	To better understand the impact and the legacy of the CIO role globally.	To identify key information and communication technology (ICT) development and to track the cost and affordability of ICT services globally.	Not reported
Type of analysis	Cluster analysis and descriptive statistics	Index creation, regression analysis, descriptive statistics, principal component analysis	Descriptive statistics
Pilot test conducted	Not reported	Not reported	Not reported
No. of survey items	26	N/A	Not reported
Key variables	Technology priorities, business priorities, leadership style	ICT access, ICT use, ICT skills, ICT price	Alignment, cost cutting, reputation, sustainability
Data source	primary	secondary	primary
% of data collected in USA	27%	N/A	not reported
Key findings	CIOs around the globe were nearly unanimous in identifying the top five business priorities: performance, cost, customers, innovation, and growth. These were consistent across industry, geography, and size of organization. Only CIOs involved in the public sector selected "cybersecurity" over "growth" as a top business priority.	The world witnessed continued growth in the uptake of ICT and, by end of 2014, almost 3 billion people will be using the Internet, up from 2.7 billion at end of 2013. There are important digital divides that need to be addressed: 4.3 billion people are still not online, and 90% of them live in the developing world. It is precisely in poor and rural areas where ICTs can make a particularly significant impact.	Executives at all levels see an important business role for sustainability. But when it comes to mastering the reputation, execution, and accountability of their sustainability programs, many companies have far to go.
Methodology	Survey	Survey	Survey
No. of country investigators	19	0	0
Theoretical framework	None	ICT development framework	None
Source	https://goo.gl/kSUzpg	https://goo.gl/yWLfTa	https://goo.gl/hG2h7q

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