Project Summary

The substantive focus of this applied research project, sponsored by the US National Science Foundation, is international collaboration efforts regarding air quality monitoring and reporting initiatives that involve the United States and Mexico, and the United States and China. An international network of native research partners led by the Center for Technology in Government is exploring the issues in the context of these two bi-lateral collaborations. The goal is to analyze the actual experiences of government and partner organizations as the basis for developing both conceptual models and practical tools for effective transnational knowledge sharing.

Publications & Results

Reports and Working Papers (3)

AIRNow-I Shanghai: Crossing Cultures, Sharing Knowledge
Thu, 11 Aug 2011

AIRNow-International (AIRNow-I) is an initiative led by the US Environmental Protection Agency (EPA) to redesign the US air quality monitoring and public reporting system to be scalable, interoperable, portable, and affordable to any country. Its guiding vision is a readily usable worldwide platform for sharing air quality information to improve public health. This case study assesses the internationalization of AIRNow through the lens of a collaborative project between EPA and the Shanghai Environmental Monitoring Center (SEMC) in China. We trace the history of air quality policy and management in both countries and then explore the structure and dynamics of their joint effort to build AIRNow-I Shanghai. This report describes the influences of the separate Chinese and American contexts on the participants and their interactions, and identifies the ways in which they bridged many types of contextual distances to produce successful results.

AIRNow-International (AIRNow-I) is an initiative led by the US Environmental Protection Agency (EPA) to redesign the US air quality monitoring and public reporting system to be scalable, interoperable, portable, and affordable to any country. Its guiding vision is a readily usable worldwide platform for sharing air quality information to improve public health. This case study assesses the internationalization of AIRNow through the lens of a collaborative project between EPA and the Shanghai Environmental Monitoring Center (SEMC) in China. We trace the history of air quality policy and management in both countries and then explore the structure and dynamics of their joint effort to build AIRNow-I Shanghai. This report describes the influences of the separate Chinese and American contexts on the participants and their interactions, and identifies the ways in which they bridged many types of contextual distances to produce successful results.

Mitigating Cross-Border Air Pollution: The Power of A Network
Thu, 08 Oct 2009

This report describes how a diverse mix of individuals and organizations representing two countries, three states, multiple levels of government, private industry, academia, and the public were able to successfully organize and then respond to improve air quality along the U.S. and Mexican border. The focal point of this study is the Joint Advisory Committee for the Improvement of Air Quality in the Ciudad Juárez, Chihuahua/El Paso, Texas/Doña Ana County, New Mexico Air Basin (the JAC). It was through the JAC that this diverse mix of key actors were able to navigate the complex web of political, cultural, legal, and economic factors that posed challenges to developing a unified response to this shared air quality problem. The JAC's strategies and methods were powerfully shaped by the characteristics of the physical setting and the organizational and political context. Many of these strategies and methods have considerable promise for other air shed regions, but must be tailored to the unique physical and social situations of each one.

This report describes how a diverse mix of individuals and organizations representing two countries, three states, multiple levels of government, private industry, academia, and the public were able to successfully organize and then respond to improve air quality along the U.S. and Mexican border. The focal point of this study is the Joint Advisory Committee for the Improvement of Air Quality in the Ciudad Juárez, Chihuahua/El Paso, Texas/Doña Ana County, New Mexico Air Basin (the JAC). It was through the JAC that this diverse mix of key actors were able to navigate the complex web of political, cultural, legal, and economic factors that posed challenges to developing a unified response to this shared air quality problem. The JAC's strategies and methods were powerfully shaped by the characteristics of the physical setting and the organizational and political context. Many of these strategies and methods have considerable promise for other air shed regions, but must be tailored to the unique physical and social situations of each one.

International Digital Government Research: A Reconnaissance Study (1994 - 2008) UPDATED
Mon, 31 Aug 2009

Today, digital government (DG) research is being conducted all over the world. Most of this work is focused within the geographic and political contexts of individual countries. However, given the growing influence of global economic, social, technical, and political forces, the questions embedded in digital government research are now expanding to international dimensions. A reconnaissance study such as this one focuses on the defining characteristics of a topic rather an in-depth analysis. In this report, we describe the size, scope, variety, and trajectory of the field illustrated with selected studies and organizational profiles. This study is part of a multi-year effort funded by the United States (US) National Science Foundation (NSF) to create a framework for a sustainable global community of digital government researchers and research sponsors.

Download complete EndNotes References File.

Journal Articles and Conference Papers (7)

Exploring the Influence of Contextual Distances on Transnational Public Sector Knowledge Networks: A Comparative Study of AIRNow-I Shanghai and the Hajj-MDSS Initiatives
January 9, 2013

Transnational public sector knowledge networks (TPSKNs) are becoming crucial for addressing global problems in the environment, public health and other areas that require knowledge and information sharing among nations. This paper explores and compares a set of contextual distances that separate network participants and discusses their influence on network success. Based on previous research, we introduce nine contextual distances and compare and discuss their influence on two cases. We conclude with a discussion of the findings and suggestions for future research on knowledge and information sharing across national and cultural boundaries. **[Winner Best Paper Award in eGovernment Track, HICSS46]**

compare and discuss their influence on two cases. We conclude with a discussion of the findings and suggestions for future research on knowledge and information sharing across national and cultural boundaries. **[Winner Best Paper Award in eGovernment Track, HICSS46]**

Transnational Public Sector Knowledge Networks: Knowledge and Information Sharing in a Multi-Dimensional Context
January (special issue) 2012

Sharing of knowledge, information, and practices across cultural and national boundaries has become a means to address critical global problems. As government agencies increasingly collaborate with international counterparts on these issues, transnational knowledge and information sharing networks grow in importance as mechanisms for collaboration. This paper explores the nature of Transnational Public Sector Knowledge Networks (TPSKNs) and identifies critical contextual factors that shape their performance. In these networks, each participating organization operates within complex national, organizational, and information contexts. The contextual differences between participants produce distances in culture, politics, intentions, organizational factors, relationships, knowledge, resources, geography, and technology. These distances influence their ability to engage in the processes and interactions that are essential to network performance. The paper concludes with a conceptual dynamic model that accounts for the relationships among these factors which can guide further research in understanding knowledge and information sharing across national and cultural boundaries.

Knowledge and Information Sharing in Transnational Knowledge Networks: A Contextual Perspective
February 15, 2011

As government agencies increasingly collaborate with international counterparts on critical global issues, transnational knowledge and information sharing grow in importance. This paper explores the nature of Transnational Knowledge Networks (TKNs) and identifies critical contextual factors that hinder or enhance their performance. We explore a set of contextual distances that separate the participating organizations and discuss their potential influence on the success of TKNs. The paper concludes with a conceptual framework and a set of testable hypotheses to guide the next phase of our research in understanding knowledge and information sharing across national and cultural boundaries.

Conceptualizing Knowledge and Information Sharing in Transnational Knowledge Networks
October 25-28, 2010,

In the era of globalization, sharing of knowledge, information, and practices across cultural and national boundaries has been recognized as a key for handling the most critical problems. Consequently, the number of Transnational Knowledge Networks (TKNs) that aim to address critical global issues and problems continue to increase. As exchanging knowledge and information represent core components of these networks, this paper provides the foundations to study knowledge and information sharing in these emerging organizations. The paper

starts by describing the structures, goals, and objectives of TKNs and presents a simplified conceptual model to demonstrate the main characteristics of these networks. Then, we review the pertinent egovernment literature and argue the need to include findings from two additional research areas, cross-boundary information sharing and knowledge transfer. The paper discusses the ways in which contributions from these areas can enhance our understanding of the complexity surrounding the exchange process in these networks. The paper concludes with a summary of the elements of complexity and an overview of future research to empirically test these concepts.

In the era of globalization, sharing of knowledge, information, and practices across cultural and national boundaries has been recognized as a key for handling the most critical problems. Consequently, the number of Transnational Knowledge Networks (TKNs) that aim to address critical global issues and problems continue to increase. As exchanging knowledge and information represent core components of these networks, this paper provides the foundations to study knowledge and information sharing in these emerging organizations. The paper starts by describing the structures, goals, and objectives of TKNs and presents a simplified conceptual model to demonstrate the main characteristics of these networks. Then, we review the pertinent egovernment literature and argue the need to include findings from two additional research areas, cross-boundary information sharing and knowledge transfer. The paper discusses the ways in which contributions from these areas can enhance our understanding of the complexity surrounding the exchange process in these networks. The paper concludes with a summary of the elements of complexity and an overview of future research to empirically test these concepts.

Issues and Strategies for Conducting Cross-National E- Government Comparative Research
November 10-13, 2009

This paper addresses and discusses the central issues that researchers have to deal with when conducting cross-national comparative research within the area of e-government. The issues are classified into two main categories. The first category represents the issues and challenges that may affect the reliability and the quality of data being collected for comparative studies. The second category represents the remaining issues related to the research objective, the selection process of countries and the analytical strategy. The paper discusses the major alternatives of these issues and provides a rationale for the selection process among them. The paper concludes by discussing the interrelations between the identified issues and clarifying the main decisions that researchers have to take when conducting cross-national comparative research.

This paper addresses and discusses the central issues that researchers have to deal with when conducting cross-national comparative research within the area of e-government. The issues are classified into two main categories. The first category represents the issues and challenges that may affect the reliability and the quality of data being collected for comparative studies. The second category represents the remaining issues related to the research objective, the selection process of countries and the analytical strategy. The paper discusses the major alternatives of these issues and provides a rationale for the selection process among them. The paper concludes by discussing the interrelations between the identified issues and clarifying the main decisions that researchers have to take when conducting cross-national comparative research.

Information Sharing at National Borders: Extending the Utility of Border Theory
February 15, 2009

Research has identified the potential and challenges of information sharing in government settings mostly within the context of a single country. The challenges facing inter-governmental information exchanges that take place across national border governments, however, are thought to be different. To date, research has failed to provide theoretical guidance in understanding the complexities that the cross border environment brings to information sharing initiatives. This paper brings together Brunet- Jailly's theory of borders [10] and definitions of crossboundary information sharing from Gil-Garcia et al. [39] to develop a framework that incorporates the information sharing and technology dimension with the economic, political and cultural contextual factors impacting border regions. This study is an initial step toward understanding the challenges that the border environment brings to information sharing initiatives. Future research is necessary to empirically test the utility of the proposed theory as a tool for understanding this new area of both practical and theoretical importance.

Challenges And Strategies for Conducting International Public Management Research
Wed, 01 Nov 2006

Cross-cultural management research is a valuable but complex and error-prone endeavor. The main challenges the authors encountered in conducting a multinational research project included nonequivalence of key concepts, cultural stereotypes, assumptions of universality, and difficulties in comparative analysis. The authors identified

crucial questions that need to be asked at each stage of the research for it to be both reliable and valid. These questions address such pitfalls as the importance of focusing on culture as an independent variable, the cultural dynamics of the research team, and the importance of translation and of finding culturally equivalent definitions of key concepts.

Cross-cultural management research is a valuable but complex and error-prone endeavor. The main challenges the authors encountered in conducting a multinational research project included nonequivalence of key concepts, cultural stereotypes, assumptions of universality, and difficulties in comparative analysis. The authors identified crucial questions that need to be asked at each stage of the research for it to be both reliable and valid. These questions address such pitfalls as the importance of focusing on culture as an independent variable, the cultural dynamics of the research team, and the importance of translation and of finding culturally equivalent definitions of key concepts.

Partners

Government Partners
- United States Environmental Protection Agency

Academic Partners
- Celene Navarrete, Lecturer, School of Business Administration and Public Policy, California State University Dominguez Hillshttp://cbapp.csudh.edu/depts/public/default.htm
- Lei Zheng, Assistant Professor, Department of Public Administration, School of International Relations and Public Affairs, Fudan University, Shanghai, Chinahttp://www.sirpafd.fudan.edu.cn/en/

Funding Sources

This project is funded by a $200,000 grant from the U.S. National Science Foundation.

Original Scope of Work

The project's research questions will be examined in the context of international relationships that are particularly important vis-à-vis the United States as a member of the international community and a leader in the global economy.

The work addresses the following questions:

- How do participants in different countries perceive the dimensions, stakeholders, benefits, and risks of engaging in intergovernmental systems for information and knowledge sharing?
- What are the similarities and differences in these perceptions? What cultural, political, economic, and social factors account for them?
- How do the participants attempt to create shared understanding of technologies, context, terms, processes, and contingencies that generate capabilities for effective action?
- Which strategies, tools, and behaviors are more likely to lead to successful international knowledge networks that benefit individuals, organizations, and communities?
- What preparation, methods, and tools are best suited for research and action on these questions?

We will build on the work of two teams already formed; a multinational team from North America and a team of researchers from the United States and China, to examine such relationships in the form of extended "public sector knowledge networks" (PSKNs). In particular, the work will focus on cross-national knowledge networks in air quality, an area where the United States plays an active role in the international community and where the issues under consideration are significant in terms of both domestic and international impact.

The cases for preliminary study will include one in North America and one in China. The North American case involves the Joint Advisory Committee for the Improvement of Air Quality in the Ciudad Juárez, Chihuahua, El Paso, Texas, and Doña Ana County, New Mexico Air Basin (JAC). This initiative already has a functioning PSKN and a case study about this network has been written and published by members of the project team.

PSKNs are just emerging in relationships involving the United States and China. The US EPA is in the formative stages of building a PSKN with government officials and other interested actors in Shanghai, China. This particular PSKN initiative known as the AIRNow-International Shanghai Initiative involves the US EPA and the Shanghai Environmental Protection Bureau. Because this effort is at an earlier stage than the US and Mexican JAC case, it offers an opportunity to observe and analyze it as it develops.

The US-China case will extend work launched through the collaborative efforts of several members of the project team. In particular, the dissertation research of a former student at the Center for Technology in Government, Dr. Lei Zheng, who is now a faculty member at Fudan University in Shanghai provides the foundation for the connection between NSF-funded research on PSKNs and cross-boundary information sharing and a growing interest on the part of Chinese leaders and scholars for comparable studies in China.

This research effort will focus on these two preliminary case studies as vehicles for exploring the factors that shape transnational PSKNs and for building, testing, and refining a methodology for conducting such work in more depth in the future. This project will run for approximately 21 months.

Key activities

Below is a list of the project's key research activities:

- Project team will develop a research plan and standard methodology for conducting research involving the countries of focus: United States, Mexico, and China.
- Team will then apply the methodology to both case studies that address the country-specific research questions listed above.
- For the United States and Mexico case study, preliminary data already has been collected. Additional interviews will be conducted as needed.
- For the United States and China case study, data will be collected through in-person interviews with key participants in both the United States and China.
- Data from both case studies will be analyzed with a focus on the transnational phenomena occurring and from the point of view of each country and culture.
- Team members involved in developing both of the case studies will then conduct cross-case analysis and build preliminary models of information flow and use across national boundaries, taking into account the cultural contexts involved.
- The individual cases, cross-case analysis, models, and other research results will be reviewed with the government agencies involved in the cases, and published in jointly-authored conference and journal papers.

Related Web Sites

AIRNow
http://airnow.gov/

The Joint Advisory Committee for the Improvement of Air Quality in the Ciudad Juárez, Chihuahua, El Paso, Texas, and Doña Ana County, New Mexico Air Basin (JAC)
http://www.jac-ccc.org/

US-Mexico Border 2012 Program
http://www.epa.gov/Border2012/

Contact Information

Center for Technology in Government
University at Albany, SUNY
187 Wolf Road, Suite 301
Albany, NY 12205
(518) 442-3892 (phone)
(518) 442-3886 (fax)

G. Brian Burke

Program Manager

518-442-3895