

# Exploring the role of national culture in the management of large-scale international science projects <sup>☆</sup>

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## Abstract

Collaborative projects extending across national boundaries introduce their own set of project management challenges. These challenges begin when individuals from different organizations, from different countries, and from different value systems must share authority, responsibility, and decision-making. But national culture and its influence on the project management process have received little emphasis in the literature. Using evidence from two case studies, this paper explores the role of national culture in the management of large-scale science projects. It raises questions about the relevance of this topic, proposes a method for studying the role of culture in the management process, and concludes with recommendations for those who manage these projects.

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## 1. Introduction

The management of collaborative international projects is similar in many respects to the management of more conventional business projects [1]. Plans must be made, financing negotiated, resources organized, schedules created, and activities controlled. But these projects are more complex because they often require cooperation from organizations or groups whose managers come from countries where management processes and decision-making behavior are very different [1]. One underlying factor that helps to explain and understand these differences is the national culture in which these managers have been raised, educated, and trained. This paper explores the role of national culture in the man-

agement of large-scale science projects through two case studies. Large-scale science projects were chosen as the subject for this study because there has been a long history of these projects in Europe, Japan, Russia, and the United States, because these studies involve significant sums of money, because they address significant societal issues, and because they are public projects facilitating the collection of data and access to management staff [2–4]. Both projects, using Shenhar's [5] topology, can be classified as Super Tech Projects; key technologies do not exist when the project is initiated. The first project studied is the Joint European Torus, JET, and the second, the International Thermonuclear Experimental Reactor, ITER. Each project includes multiple national cultures and provides a rich environment for studying the role of culture in project management.

The paper begins by raising the relevance of this topic, proposes a method for studying the role of culture in the management process, explores culture's role in JET and ITER, and concludes with recommendations for those who manage international collaborative projects.

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## 2. Is culture relevant?

The topic of national culture has received considerable attention in the general management literature. In a landmark study, Hofstede [6,7] argued that managers are influenced not only by the job that needs to be done but also by the cultural values they bring to an organization. His work has been influential in many studies that range from marketing [8] to information systems design [9].

Driving the interest in national culture is the increase in strategic alliances across the globe. Businesses collaborate more closely with their global suppliers and governments collaborate more closely with other governments on such science projects as space stations, alternative energy sources, and particle accelerators. As these alliances increase, the significance of cultural differences also increases [10].

While there have been many studies that address culture's role in management, there is very little literature addressing culture's role in the project management process [1,11]. Yet people skills, of which national culture is one component, represent a significant concern to those who manage engineering projects [12]. Thamhain [13] contends that one of the roles taken by project managers is that of a 'social architect' who must understand the role that behavioral variables play in project success. When the role of national culture is mentioned in the project management literature, it is not explored in any depth. In a report to the United States Congress, International Partnerships in Large Science Projects [14] 'sociocultural' challenges are described as 'complicating' collaboration. In an OECD report, national culture is also suggested as a problem in collaborative projects [15]. Neither source, however, explores the cultural dimensions that might affect behavior.

This interest in national culture, but the apparent lack of research in this area, raises several questions.

- Is the study of culture relevant to the project management process?
- Which cultural dimensions are likely to affect the management process?
- Which management issues are linked to the influence of culture?
- Does culture affect project outcomes?
- How can knowledge of these issues be helpful to project managers?

These questions will be addressed here and summarized at the end of the paper.

Underscoring the importance of raising the issue of culture's role in project management is the increase in collaborative projects that cross national boundaries. In the private sector, strategic partnerships continue to expand from the globalization of manufacturing and marketing to the globalization of research and development [1]. In the public sector, the size of the collab-

orations from the International Space Station to the discovery of the SARS virus continues to expand. Consequently, what we can learn about the role of national culture in large-scale science project management may be very useful as businesses and governments engage in an increasing number of international projects.

## 3. Methodology

While no study has specifically identified and linked cultural dimensions with project management issues, there have been a few studies that have addressed the cultural issue. Kruglianskas and Thamhain [11] conducted a field study in which they compared the importance given to eight performance factors by project leaders in Brazil and the United States. They observed differences in behavior between these two groups, which they attributed to culture; more uniform agreement was observed among Brazilian managers and less uniform agreement among US managers.

Eriksson et al. [1] conducted a case study of a project in a globally dispersed organization. They addressed geographical, cultural, and organizational issues and concluded that culture affected management processes and outcomes. One cultural issue explored was authoritarian control. The avoidance of authoritarian control was credited as contributing to the success of the project. Each local facility maintained its own approach to project management, influenced by the working 'culture' of that organization. Cultural differences became most visible during joint meetings. The Swedish members of the team preferred to analyze a problem thoroughly while the US members preferred to quickly focus on a method that might work. The authors concluded that the Swedish approach led to delays and the American approach led to rework and additional costs.

The study presented in this paper attempts to go beyond the identification of those factors or issues treated differently among countries and attempts to explore why these differences occur. It is a study that can be classified as exploratory field research through semi-structured interviews [13]. In the first stage, the literature on culture and its affect on the management process was reviewed. This was followed, in the second stage, by the identification of those cultural variables that may help understand the link between culture, human behavior, and project decision-making. In the third stage, semi-structured interviews were conducted with managers from two large-scale collaborative projects. Those interviewed included managers from Culham, UK; managers and scientists at the European Union headquarters in Brussels, Belgium; officials at the Department of Energy in Washington, DC, USA; and research staff at the Organization for Economic Co-Operation and Development, OECD, in Paris, France. All interviews were

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