INTRODUCTION
The goal of this study is to identify a set of comprehensive yet concise critical risk factors for virtual software projects, by conducting a survey of industry practitioners. “Virtual teams are groups of geographically, organizationally and/or time dispersed workers brought together by information and telecommunication technologies to accomplish one or more organizational tasks (Powell et al., 2004)”. Several driving forces are causing increased dependence on these teams including offshoring, outsourcing, reduced business travel due to security concerns, and improvements in collaborative tools.

The 2000 CHAOS report indicated 23% of projects failed while 49% were challenged (Standish Group International, 2001). The 2004 CHAOS report for the third quarter, conducted by the Standish Group, indicated 18% of projects failed and 53% of projects were challenged. The report also indicated companies in the United States and Europe spent $255 billion on software projects while the alarming cost of failed projects was $55 billion (Standish Group International, 2004). These results reinforce a need to investigate causes of project failure.

The critical risk factors identified by this study will be essential to developing effective risk management for virtual software projects. Boehm indicates critical risks should be the main focus of a project manager, instead of the entire pool of identified risks (Boehm, 1991). Thus, the importance of this study lies in its ability to enable virtual software project managers to avoid major risks and achieve greater rates of project success.

RESEARCH QUESTION
The research question is: Which risks are critical to the successful completion of virtual software projects? Prior research on project risk has been performed predominately on different types of traditional software projects (Barki et al., 1993; Boehm, 1991; Keil et al., 1998; Wallace, 1999). A review of literature, face-to-face interviews and focus groups has revealed several major categories of risk factors; resources, technology, environment, requirements, planning & control, end-user, quality, and communication. To enable a comparison of the seminal literature research, I have assembled a table that includes these major risk categories and their related risk factors.

LITERATURE REVIEW
Several researchers have identified the important risks in traditional software projects. Boehm (1991), conducted a survey of experienced IT project managers who worked with him at TRW in the early 1990’s. The result was his “Top ten software risk items” (Boehm, 1991). Limitations of this study were the sample size and the narrow composition of the sample which consisted of a small number of project managers from the same company.

Barki, Rivard et al. (1993) sent their 144 item questionnaire to the largest 100 companies across a variety of industries in Quebec and surveyed 120 software development projects. The result was a list of software project risks grouped in five categories of risk factors/risk dimensions: technological newness, application size, lack of expertise, application complexity and organizational environment. The purpose of the survey was to improve management of software development projects by measuring their risk (Barki et al., 1993). A limitation of this study was the extraction of initial risk factors from literature only, without review by practitioners.

Wallace (1999), in her dissertation, conducted interviews with software project managers to identify risks and conducted the mass distribution of a survey to the Project Management Institute Information Systems Special Interest Group (ISSIG). The result was six risk categories or dimensions: team, organizational environment,
requirements, planning and control, user, and project complexity. The purpose of her study was to improve risk
management by determining the specific types of risks encountered on different types of software projects.
Limitations of this study was the sample consisting of members from one group which were very likely to have
knowledge of standard risk management practices (Wallace, 1999). The three seminal studies conducted to date on
the subject of project risk factors have yielded overlapping and not entirely consistent results.

METHODOLOGY
First, a literature review of seminal work was conducted to create an initial list of project risk factors. A survey
instrument was created and approved by the university Internal Review Board (IRB), then tested in face-to-face
interviews with project managers, to add risk factors from a practitioner’s point of view to the list. This was
followed by an electronic focus group session to validate and enrich the existing risk factor list. A large volume of
rich data was collected then sorted and categorized several times. This data was compared to the seminal literature
to create a comprehensive yet concise list of risk factors for ranking in the questionnaire: The survey instrument is
currently being tested in a pilot distribution. A purchased mailing list of 5,000 names from a project management
magazine will provide for mass distribution of the questionnaire to IT project leaders, managers and analysts.

OUTCOMES AND EXPECTED SIGNIFICANCE
The occurrence of virtual software projects will continue to increase as society becomes more global. Virtual
software projects will not escape risk; therefore, project failures will occur. Researching and identifying those risk
factors most critical to virtual software projects can improve risk management in this new arena. This research
seeks to create a validated list of critical risks for virtual software projects that can be used by project leaders to
reduce or eliminate project risks.

References
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