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Maximizing Virtual Team Performance in the Construction Industry

Construction Industry Institute

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Maximizing Virtual Team Performance in the Construction Industry

**Prepared by
Construction Industry Institute
Research Team 326, Maximizing Virtual Team Performance
in the Construction Industry**

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Executive Summary

The construction industry in the twenty-first century is in an era of technological change, with an ever-pressing need to work seamlessly, regardless of location. Rapid changes in the global economy mean that Construction Industry Institute (CII) member companies must adapt their work processes to keep up with the push to work faster, better, and more efficiently. These pressures, combined with the need to reduce costs and balance resources, have increasingly led the construction industry to implement virtual teams to accomplish what was once done by co-located teams. Whenever the work is performed between regional offices, across the country, or on different continents, delivering a successful project depends on the team's ability to maximize its virtual performance.

In recognition of the importance of virtual teams to the construction industry, CII created Research Team 326 (RT-326) to examine: **“What can the construction industry do to maximize the performance of virtual teams?”** The team explored this question by identifying current and emerging virtual team practices, identifying and recommending enhanced work processes, and developing a tool that will help companies improve virtual team performance.

RT-326's research found a correlation between virtual teams that achieve high performance and the implementation of certain key factors. The team identified 21 of these factors, which it termed Virtual Team Key Performance Indicators (VT KPIs), and grouped them into three categories: Technology, Team, and Process. Weighting provided clarity on which VT KPIs have the highest impact on team performance.

The RT-326 research concluded that successfully using VT KPIs can maximize the performance of a virtual team. Validation surveys found that Technology measures, while necessary for virtual teams, did not have strong associations with performance; however, virtual team performance was strongly correlated to having Team and Process VT

KPIs in place. By implementing corresponding KPIs, project teams can overcome barriers characteristic of virtual work, including inadequate hardware, cultural and language differences, uneven participation, and the lack of virtual team procedures.

Project managers can evaluate their virtual teams against the VT KPIs by using Implementation Resource (IR) 326-2, *VIRTUOSO: High Performance Virtual Team Equalizer*. VIRTUOSO, a Microsoft® Excel-based tool, identifies areas that need improvement and offers implementation guidance to enable higher levels of performance. By using this tool, project managers can execute virtual teamwork more effectively. In a business environment where fewer and fewer distributed teams can afford to co-locate or even hold in-person meetings, VIRTUOSO enables the development of adaptive and responsive teams.

Introduction

The engineering and construction (E&C) industry increasingly relies on geographically distributed, or virtual, teams to execute project work. The globalization of E&C services is a component of a much broader trend in the globalization of services, and it largely centers on two main topics: outsourcing and global project scope. The increasing size and complexity of projects requires the participation of engineers, contractors, and suppliers from multiple countries (Research Report (RR) 263-11). To remain competitive, both economically and in terms of talent retention, the industry must adapt to advancements in virtual teamwork. In 2002, a survey of CII member companies indicated that 45 percent had little to no experience with virtual teaming (RR170-11); however, virtual teams are now a norm in the industry, with over 79 percent of RT-326's survey respondents indicating that virtual collaboration technology is encouraged by their management. Even with this shift in work styles, organizations are reporting varying degrees of virtual team success.

CII tasked RT-326 with assessing the industry's use of technology and its virtual team practices as part of the essential question: **“What can the construction industry do to maximize the performance of virtual teams?”** The primary purpose of the team's research was to determine current and developing practices in the industry for virtual teams, identify and recommend enhanced work processes, and develop a tool that would help CII member companies improve virtual team performance.

RT-326 follows and expands on the previous work of RT-134, Identifying Success Factors for High Performance Work Teams (1998), RT-170, Making Virtual Teams Work (2002), and RT-211, Effective Use of the Global Engineering Workforce (2007). By combining past CII research with updated technology, CII Best Practices, and the key performance indicators it identified, RT-326 produced Implementation Resource (IR) 326-2, *VIRTUOSO: High Performance Virtual Team Equalizer*. Webster's

dictionary defines the term virtuoso as “a person who does something in a very skillful way; especially: a very skillful musician,” and VIRTUOSO was inspired by the industry’s need to more skillfully implement virtual teams to achieve high performance.

RT-326 defined virtual collaboration as two or more people meeting a shared work-related goal by collaborating through virtual technology (i.e., not face-to-face). The team defined virtual teams as groups of three or more people, separated by geographic space, who collaborate primarily through virtual technology to accomplish project or organizational goals. While the research may apply to communications between distributed workers at a particular workplace or site, this team focused on site-to-site, location-to-location virtual team communications.

RT-326 first administered a survey to collect data from CII members with virtual team experience. The two-tiered survey helped with understanding the current status of virtual teams in the E&C workforce, including current work processes, practices, and technologies. Subsequent survey analysis and literature review resulted in RT-326’s development of a case study protocol for in-person structured interviews, to continue collecting and codifying the experience of individuals with exemplar virtual teams.

The team analyzed the collected data to identify 21 key indicators associated with high-performing virtual teams, or Virtual Team Key Performance Indicators (VT KPIs). The team then determined the relative importance of the VT KPIs and integrated them with case studies and electronic survey results to develop and validate the implementation resource.

While VIRTUOSO provides guidance regarding technologies that may be used to enhance the performance of virtual teams, RT-326 does not intend to suggest specific products. The rate of change in technology will render specific tools obsolete at future time periods, while the general technology features may still be applicable.