School of Management Publications   College of Management and Technology

2015

Building Productivity in Virtual Project Teams

William Hamersly
Walden University, william.hamersly@waldenu.edu

Denise Land
Walden University, drdlland@gmail.com

BUILDING PRODUCTIVITY IN VIRTUAL PROJECT TEAMS

ABSTRACT

The steady increase in project failure rates is leaving businesses searching for better integration techniques to virtualize their project environments. Through virtualization, organizations may have positive impacts on communities across geographical boundaries and resource constraints. The focus of this phenomenological study was to explore, via the experiences of successful project management practitioners, best practice strategies for integrating virtual project teams through data analysis. The conceptual framework included von Bertalanffy's general systems theory, decomposition model of business process and project management frameworks, and the recomposition approach. Twenty-two senior project managers with more than 5 years of experience managing virtual project environments participated in semistructured telephone interviews. The van Kaam process employing normalization and bracketing approaches in data analysis resulted in the emergence of 34 thematic categories. The 10 most common themes culminated in the identification of strategies relevant for virtual project teams. The major themes pertained to 3 broad areas: (a) structure that accommodates skills and technology for virtual team success, (b) governance leading to efficient virtual project team management, and (c) collaboration practices across diverse environments. This study involved the exploration of the experiences of the participants. Using the van Kaam method for normalization of the data and clustering like experiences into thematic statements, the study provided a plethora of new information concentrated on 10 themes that emerged.

Keywords: Project, Project Management; Governance; Communication; Strategy; Diversity; Structure; Virtual; Virtuality; Virtual Project Teams.

Bill Hamersly[1]
Denise Land[2]

_____

[1] Doctor of Business Administration (IT Project Management), Walden University. United States of America. E-mail: **Bill.Hamersly@verizon.ne**t

[2] Doctorate of Management (DM) in Organizational Leadership. Professor of Walden University. United States of America. E-mail: **drdlland@gmail.com**

_____

1 INTRODUCTION

The benefits of virtual project teams (VPTs) include dynamic work environments that enable cross-synthesis of cultures, values, and work ethics (Richards & Bilgin, 2012). Project management (PM) and business governance (BG), linked to corporate frameworks, have repeatedly contributed to the fluctuations in project success (Harding, 2014; Ofori, 2013). Moreover, the lack of governance and business knowledge in PM organizations has led to project failure rates as high as 80% (Kovach & Mariani, 2012). Hence, the overwhelming statistics to failure rates globally, the lack of business acumen with respect to the governance of the incorporation of new technology relative to virtual project team integration continues to change. Thus, project management practitioners recognize the important of virtualization and are searching for comprehensive strategies effect for implementing best practices for virtual project team governance.

The heightened complexities of integration of new technologies into standardized business frameworks lead the requirements for comprehensive solutions to advance the aspects of program governance (Devos, Hendrik, & Deschoolmeester, 2012). This integration of advanced technology within the virtual community may help solve complex problems that involve cost-savings efforts, reductions in excessive workforces, and adaptations to changes in global markets (Martinic, Fertalj, & Kalpic, 2012). The intended research broadens the perspectives of project team members and primary stakeholders regarding issues surrounding the integration of virtual project management (VPM) (Andersen, 2012). The strategic and tactical advantages for organizations that virtualize PM frameworks include improved integration of technology to advance and optimize business dynamics (Riemer & Vehring, 2012).

Strategies for best practices involving modern technology stem from a combination of VIT project governance and business best practices that continue to evolve (Martinic et al., 2012). At the same time, less than adequate governance practices involving modern technology undermine efforts to solve complex problems (Ofori, 2013). Hence, a collaborative organizational structure facilitates the flow of information, rational decision-making, clarification of responsibilities, and coordination between departments (Wesner & Hobgood, 2012). Building such a governance system requires intense planning with the support of relevant stakeholders throughout the organization (Smet & Mention, 2012). Furthermore, integration of advanced virtual technology into legacy environments requires the stakeholder understanding about the issues that are important parts of an innovation strategy (Coughlan, 2014). The identification of those issues as they relate to successful strategies with VITPM practices is a critical aspect of stakeholders' project governance responsibilities (PMI, 2014).

2 PURPOSE

There was a significant lack of literature on virtual project team integration (Bullen & Love, 2011; Kornfeld & Kara, 2011). VPM is a new technology, without documented best practices in contemporary literature, especially for integration models (Kornfeld & Kara, 2011). A lack of literature on virtual project innovation and strategies, coupled with the significance of each topic associated for implementing best practices was the deciding factor for sselection of six research topics. These topics were structure, operations, strategy, communications, PM concepts, and diversity. The two overarching topics (BG and project management) and (collaboration) were additions to the six subtopics. They added to the qualitative, conceptualized, research framework to provide further information to answer the research question (Mathur, Jugdev, & Tak, 2013; Yu, Chen, Klein, & James, 2013). Appropriately, the seven interview questions were open-ended, and using the semistructured interview approach allowed for slight deviation and flexibility throughout the interview process (Allen & Geller, 2012; Mathur et al., 2013; Yu et al., 2013).

3 NATURE OF THE STUDY

The nature of this phenomenological study encompassed an exploratory understanding of the information was necessary to establish comprehensive, conceptual, fact-finding, research questions (Bulley, Baku, & Allan, 2014; Jarratt & Thompson, 2012; Maylor, Turner, & Murray-Webster, 2013). Brandt, England, and Ward (2011) stated VIT PM is a new technology with undiscovered best practices in business. Requirements for virtual teams (VTs) represent a business necessity. Accordingly, a paradox emerged between the need for best practices and the lack of knowledge about optimal strategies for technology management (Madsen, 2013; Martinic et al., 2012). The research involved an exploration of business strategies for the implementation of virtual information technology (VIT) project teams into standardized project management (PM) methods. The combination of virtualization and VIT project

_____

teams provides an alternative to older, technologically-structured metrics, that significantly impacts an organization's overall cost savings and ability to invest (Gaan, 2012).

4 FOUNDATION AND CONCEPTUAL FRAMEWORK

The specific business problem was that *some senior project management practitioners lack business and project management strategies relevant to virtual project team governance.*

The purpose of this qualitative phenomenological study *was to explore the business and project management strategies relevant to virtual project team governance.*

The overall research question was: What are the business and project management strategies relevant to best practices in virtual, project management, team governance?

General systems theory grounded the conceptual framework of this study. The focus was operating with enterprise governance best practices using a general systems approach (systems thinking) to business governance (Medvedeva, 2012; Stephens, 2013; von Bertalanffy, 1968; White & Fortune, 2012). The structure of the literature review formed a hierarchical configuration approach to building an understanding of the project governance topic through a system theory lens (Mostafavi, Abraham, & Lee, 2012). Sheffield, Sankaran, and Haslett (2012) stated the systems approach represents a strategy defining the overall organization's support, segregated by operational entities, and defined by particular characteristics. Additionally, each system is defined as a whole, and all systems have a feedback loop for self-communications (von Bertalanffy, 1968). The systemic approach to innovation identifies operational elements to determine the internal and external dependencies of innovation (Mulej et al., 2004; Stephens, 2013). Furthermore, adaptability to new technology needed a basic structure with an open-source technological approach to innovation (Allen & Geller, 2012). Thus, integration of an open-source management system accounts for the adaptability of the business processes with futuristic technology (MacKenzie, Buckby, & Irvine, 2013; Rahmansyah & Ford, 2013). Furthermore, segregating the internal processes of a governance system provides accurate focus on a subsystem (subtopic) within the governance super system (Söderlund, 2012). Additionally, boundaries define, support, and control the operations of the subsystem, that also influence objectives, structures, and operations in a standalone mode.

5 A REVIEW OF THE LITERATURE

The general systems theory and systems approach, grounded in the literature review, pertained to the fragmenting of the enterprise model into different technology parts and processes involved in business and project management governance. This fragmentation process then led to a comprehensive understanding of the elements of the technology (Mostafavi et al., 2012). The alignment of the system's dynamics of conventional organizational development with the strategies for the VPM best practices occured after the recognition of thematic elements in the data (Moustakas, 1994). The use of a systems approach for the literature review led to the organization of segregated modules or subtopics present in business and PM frameworks (Kruger & Mavis, 2012). Therefore, the literature review encompassed PM business topics to provide a foundational understanding of PM strategies.

The literature review consisted of peer-reviewed articles, published (2011-2014). Sources included seminal resources of PM books, dissertations, and publications for grounding the theories and approaches. The contents of the literature review provided a solid baseline understanding of project management and business governance best practices broken down into six main themes (Gressgård, 2011). Resources also included literature about implementing governance practices that support standard business operations (Hanson, Balmer, & Giardino, 2011; Morris, 2012). A balance between operational capability and pioneering technology integration is an important business concept. Acting on theories and research-driven recommendations leads to competitive advantages that can positively affect organizational and stakeholder objectives (Yasir & Majid, 2013).

6 FINDINGS

Table 1 depicts the saturation elements and percentages obtained from the raw data analysis of three levels of analysis. Redundancy of information indicator in the far right column depicts the thematic saturation levels of the data. The communications subtopic split into two subtopics (communications and collaboration) due to their size and discussion impacts, and the general subtopic divided into two subtopics (governance and PM and virtual) to provide a greater scope and definition of the interview questions and relevance to the research topic. Direct references percentages indicated the overall direct representation of the category discussion statements with direct representation to the IQ and Subtopic.

_____

_____

Table 1 - Thematic References with Subtopics (Overall)

Subtopic	IQ	References	Avg.	Theme reference	Direct reference	Redundancy variance
Structure	IQ1	248	16.53	20.84%	35.94%	34.66%
Operations	IQ2	133	11.08	11.17%	35.29%	52.00%
Strategy	IQ3	79	7.9	6.64%	29.41%	55.38%
Communications	IQ4	138	11.5	11.60%	35.29%	56.95%
PM concepts	IQ5	116	10.55	9.75%	32.35%	58.83%
Diversity	IQ6	142	10.92	11.93%	38.25%	61.05%
PM and virtual	IQ7	156	14.18	13.11%	23.53%	46.21%
governance	IQ7	82	8.2	6.89%	35.29%	45.63%
Collaboration	IQ4	96	7.39	8 .07%	38.25%	65.86%

Note. Participant reference counts for each subtopic, average of subtopic participation to total, thematic reference percentage, direct reference to the subtopic for all references, and redundancy factor when comparing direct reference participation to the total participation.

Table 2 depicts the level of participation for each subtopic after completion of the final analysis. The subtopics represented by columns 3 through 8 and columns 9 and 10 represent BG and PM. Column 11 represents collaboration

.

Table 2 - Theme Significance Cross Reference Table

SUBTOPIC CATEGORY									
Reference Category	Total	R	O	S	Com	P	D	V	G	Col
Accountability	22	4						6	12	
Collaboration	66	9	12	10	10	4		9	6	6
Communications	68	14	7	5	17		6	12		7
Consistency	8									8
Contribution	8									8
Culture	12						12			
Diversity	31		4		11		9	7		
Efficiency	66	6	13	9	10	16		12		
Environment	122	18	13	12	7	21	15	23		13
Expectations	18	14								4
Governance	31	10		7		6			8	
Infrastructure	18	18								
Language	19						19			
Location	12						12			
Manage	147	17	27	9	16	21	13	33	16	10
Methodology	5					5				
Metrics	13							13		
Mindset	24					13	6			5
Objective	6			6						
Operations	31	16	7		8					
Personnel	13						13			
Policy	11							11		
Preparation	8									8
Procedure	25	17						8		
Productivity	31		14				10			7
Professional	14							14		

_____

_____

Proficiency	10				10				
Risk	4					4				
Skills	77	17	7	6		12	19	16		
Standards	38	21			11					6
Strategy	9			9						
Structure	89	37	5	6	13	7		9	12	
Technology	36		18		11		3			4
Understanding	83	30	6		14	7	5	7	4	10

Note: Subtopic categories: R = Structure; O = Operations; S = Strategy; Com = Communications; P = PM concepts; D = Diversity; V = PM & virtual; G = Governance; Col = Collaboration.

The emerging themes of this qualitative phenomenological study represent responses identified with a 40% or greater contribution level to the major thematic development. The remainder of the significant statements discovered in the data analysis included significant textual categories directly relevant to BG and PM frameworks. Figure 1depicts the total relative statements after Level 2 analysis. All 34 subtopics represented in this graph (at the bottom of the Figure), shown in combination with the percentage of statements relative to the total 1,190 references during the interview process that qualified as direct references. The remaining 24 ideas that emerged in this research, discussed in this section, included 17 of the most significant categories that had relevance and characteristic elements essential to BG and PM.
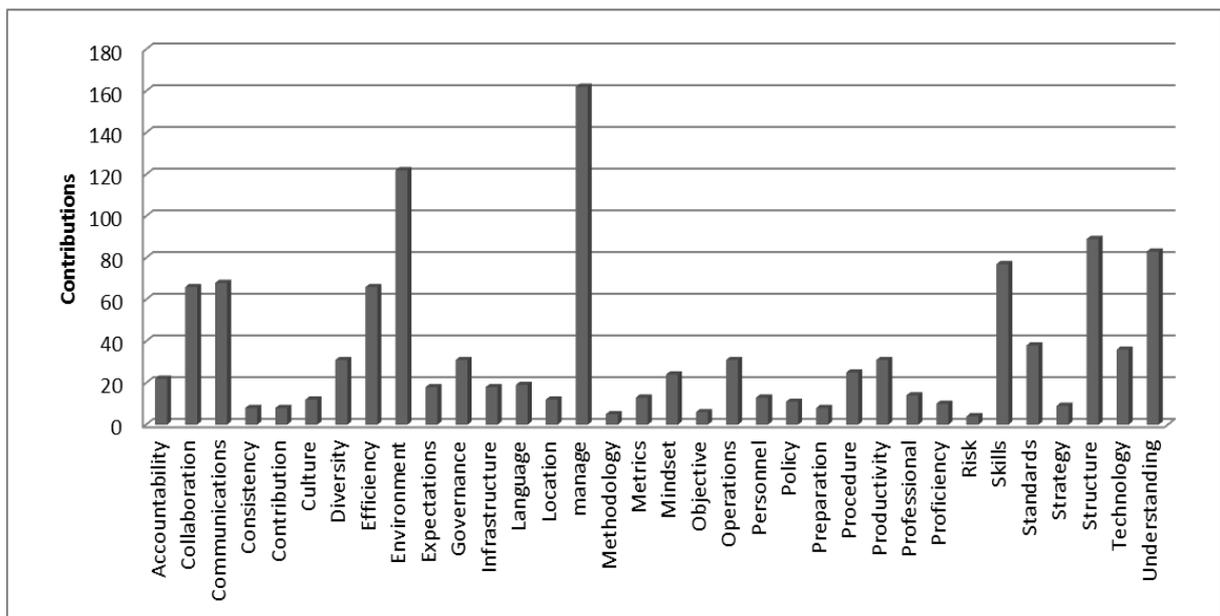

Figure 1 - Summary of subtopic percentage of overall statements.

7 EMERGENT THEMES

This research resulted in the identification of 10 emergent themes leading to the strategies for implementing the best practices of integration of virtual project teams. Data revealed undocumented thematic references for integrating innovative strategies when businesses are trying to implement virtuality in their PM frameworks. Consequently, the concepts of BG and PM were the overarching focus that controlled the subcategories for the research and thematic statements relevant to each subcategory.

The emergent themes are as follows:

Theme 1: Management is the primary component of successful virtual project teams.

Theme 2: Environments are diverse for virtual project teams.

Theme 3: Collaboration is mandatory for the success of virtuality.

Theme 4: Understanding the elements of virtual project management provides clarity to the environment.

Theme 5: Structure of virtual project teams is essential.

Theme 6: Efficiency is the key to prolonged

_____

virtual project team success.

Theme 7: Skills are requirements to integrate team members into virtual project teams.

Theme 8: Diversity is inherent in geographically dispersed virtual project teams.

Theme 9: Governance is a major part of business and project management structure.

Theme 10: Technology is a requirement for virtual team collaboration.

8 DISCUSSION

Governance is an integrated part of the business. Without governance, there would be chaos. Organizations grow by using governance. They use metrics that are part of governance, to make the primary decision about what to invest in, where to expand, or why a product is no longer useful. Policy helps to govern businesses; when a company wishes to expand into the virtual community, they need to look at their plans and policies as well as their governance process that support them. The governance references emerged with respect to theme nine about new technologies. Making changes to monitoring processes, efficiency processes, and productivity are all parts of the virtual project integration process.

Management (prominent in the first theme) is an integrated subsystem within business frameworks used to implement the governance to monitor the various processes. The elements of leadership, management style, perceptions, aggressiveness, and understanding are all tools that are part of the management infrastructure. Many factors identified in the theme discussion indicated the primary items that had a significant presence in the interviews of the study. Regardless, the statements in this study would require prioritization when implemented and represent the higher levels of concern as perceived by the participants.

The environment (prominent in the second theme) of a virtual project teams is much different from localized project teams. Each member details his or her workspace to a level of liking because normally the individual is in his or her home. The virtual environment encapsulates many facets of PM and directly relates to the efficiency of the organization. Whether the team meets face-to-face or telephonically, the environmental conditions add value, or deter from, the efficiency; those environmental attributes need comprehensive thought, governed and idealized for the optimal situation of the project team.

Collaboration (prominent in the third theme) of the organization is the cornerstone of success. People collaborate about all components of the PM framework, resources, management decisions, and essential resources required for the projects. Employing the collaborative efforts of a virtual team requires added effort on many fronts and requires diverse abilities applied to governance and management. Decision makers will use the elements prominent in the third thematic statement to train, mold, and communicate with their staff. Collaboration is much more than working together. It is a way of being, a way of thinking, and a way of operating in disparate environments.

Understanding (prominent in the fourth theme) is such an important factor in BG and PM. It provides the basis of how people work and conduct business. The virtual team may understand concepts in local organizations but may not understand the essential nuances of the business for optimal virtual team success. Variety is almost mandatory in business; having an infrastructure built to allow this to happen may be considerations for an infrastructure that provides high-performance teams. The participants' statements that led to the fourth theme relate an understanding and point out the more important elements of the business and PM communities.

Structure (prominent in the fifth theme) is one of the most valuable assets to a virtual team. The fifth theme encompasses the idealization of some of the structure components that are relevant to the best practices of business systems. Integrating virtuality into those conventional systems leads to many organizational infrastructure changes to accommodate the new environments. The more structure that is available, the stronger the virtual team will be. Findings related to the fifth theme indicated 248 different elements of structure requiring some consideration when trying to integrate virtual project teams into business frameworks. An understanding of the characteristics of structure, capabilities, assets, and virtuality, and what makes them work improve the confidence in decisions that are important to businesses that want to engage in virtual project teams.

With virtual project teams being a new technology, becoming more prevalent during the 21st century, to operate successfully, the metrics of businesses that govern those processes must incorporate efficiency as part of the decision-based metrics. Companies cannot succeed if they fixate on the loss columns of financial reports. The efficiency theme (prominent in the sixth theme) indicates the many components of effectiveness, as seen by senior practitioners of the BG and PM fields. Applying those efficiency factors to the business frameworks will enhance the application of the virtual project teams, thus ratifying their efficiency by increasing

_____

the bottom line of profit margins.

A virtual team, or any team, requires the necessary skill sets from human resources to operate efficiently. The seventh theme related a number of messages that directly pertained to the selection processes of skilled individuals, how the proper strengths provide the essential foundation for virtual project team operations, and the importance of adaptability skills. There are a number of assets identified in association with the theme that, when applied to a business infrastructure will heighten the abilities of the organization and broaden the niche perspective of the entire business. Skills are so diverse, complex, and simple at the same time, but remain at the top of the list of essentials for the successful integration of virtual project teams.

When an organization wants to go beyond the usual in business, they need to consider the effects of diversity. Diversity (prominent in the eighth theme) is significant to virtual team development in many ways. The related discussions represented by the interview data included 142 major statements relative to diversity. This level of contributions to the data from the 22 participants elevates diversity well above an average consideration. Diversity of language, diversity of location and customs, diversity of thought processing, and diversity of business acumen are just a very few of the necessary considerations that deserve thought when designing a virtual environment. Organizations cannot get away from diversity if they want to grow; globalization of the trade industry almost mandates the use of diversity. Without embracing diversity, organizations severely limit their resources, narrow negatively the business niche, and cripple their infrastructure. Research results indicated that diversity needs embracement, acceptance, and must be incorporated effectively into virtual communities.

Technology (prominent in the tenth theme) is what businesses use to operate their companies. Virtual integration will require expanded technology adaptable to changing environments; leaders must be able to provide the essentials for operations. Theme 10 emerged from discussions of the many conditions where the virtual design process would require management consideration and decisions to align the virtual community to collective business infrastructures. Virtualizing brings new requirements for technology, like increasing bandwidth, collaboration and communications tools, engagement protocols, and consideration for the stability of the virtual technology and environment. Management must consider the expense of virtualization and must be willing to accept the associated expenses for their increasing business forums.

9 BENEFITS OF THE STUDY

The perceived benefits of this study are to provide businesses a list of best practices for the integration of virtual project teams. Research findings stemming from the inquiry into the nine subtopics include 10 major themes resulting from the data analysis. VPM is a new technology, leaving documented best practices in contemporary literature scarce for integration models (Kornfeld & Kara, 2011). The lack of literature defining the business concepts and best practices for VPT integration drove the study from a governance perspective (Bullen & Love, 2011; Kornfeld & Kara, 2011). Application of VPM and the strategies for implementing best practices that emerged from the data derived from a combination of VIT project governance and business experts. Practices continue to evolve while less than adequate governance practices involving modern technology could undermine the process of solving complex problems (Cavaleri, Firestone, & Reed, 2012). Furthermore, the requirements for comprehensive solutions to advance program governance become more demanding with the integration of new technologies into complex business frameworks (Devos et al., 2012).

With the increasing failure rate of projects, business communities need to recognize alternatives to conventional business practices, and upgrade to cost-effective business strategy models (Kovach & Mariani, 2012). The business world needs options, pre-empting best practices to avoid failures when attempting integration of virtual project teams. Brandt et al. (2011) stated VIT PM was a new technology, and associated undiscovered practices in the age of globalization increased the need for relevant best practices of business. Furthermore, requirements for VTs have become more of a business necessity developing under a paradox of unknown territory in technology management (Martinic et al., 2012).

Businesses can use the research information to manage business processes that are relative to the virtual concept and implement best practices that seamlessly transform standard organizations into virtual organizations (Gallego-Álvarez, Prado-Lorenzo, & García-Sánchez, 2011). The combination of virtualization and VIT project teams provides an alternative to older technologically-structured metrics previously defining business strategy. Moreover, the combination can have a significant impact on an organization's overall cost savings and ability to invest (Gaan, 2012). VTs provide increased social impact on companies requiring additional business acumen to build high-performance teams for operation on a global scale (Riemer & Vehring,

_____

_____

2012). Furthermore, discovering best practice information from within the organizational hierarchy can lead to the application of research-driven, substantial information. This information can serve to conceptualize policy and procedures that enhance the integration processes of virtual project governance (Lundberg, 2011; Richards & Bilgin, 2012; Staadt, 2012).

Organizations may use the findings from this study to integrate practices to reduce the costs of innovation by learning what the senior practitioners think is most valuable for the research topic. A clear and comprehensive understanding of best business practices requires the consideration of the surrounding issues. Development of mitigation methods to potential problems is essential. The process involves the acknowledgement of advancing research on best practice evolution that parallels advancing technology (Brandt et al., 2011). The revelation of professional experiences of PM practitioners working in a virtual environment is critical to identifying foundational structure and best practice strategies for the new virtual technology (Lohle & Terrell, 2014). Participants revealed a plethora of information, culminating in 10 major themes that emerged through the research study data analyzes processes.

10 BUSINESS IMPLICATIONS

All of the recognized themes provide insight into how PM businesses can understand in order to address better the phenomenon. The study contributes to positive social change by increasing the practical knowledge base of information to integrate VTs into structured BG practices. With a clear understanding of multiple perspectives on business concepts, leadership has the ability to provide smoother transitions throughout a company. These transitions apply to changing human relations, communications, diversity, ethics codes, and practices relative to their own personal leadership characteristics (Crespo, Pedamallu, Özdamar, & Weber, 2012). Consequently, these business processes directly relate to job retention with respect to business expansion of virtual operations. They are essential for increasing the availability of suitable jobs and addressing skills necessities among job types, thus possibly reducing the level of unemployment during virtual development in an age of globalization.

Businesses that are trying to increase their standard of business engage with distant organizations and use resources that are available throughout the world. Accordingly, the themes, derived from real-world experiences, can help with the formulation of strategic decisions and prepare

models for business operations. Leadership can screen candidates and implement best practices by placing personnel based on their characteristically similar strengths. These strengths-based placements can align with projects and staff members' professional traits, enhancing the success rate of projects (Kapoor & Sherif, 2012; Vinayan, Jayashree, & Marthandan, 2012). Political and technological knowledge exchange shows social influence of diverse project teams adds a benefit linked to adaptable, progressive, innovative techniques (Andersen & Dag, 2013). International competition, fragmented and challenging markets and various rapidly changing technologies indicate the necessity of expansion outside traditional PM boundaries. Virtual collaboration, regarded as an essential futuristic technology in modern organizations, requires social skills as a primary prerequisite for effective teamwork within virtual team environments (Iverson & Drake, 2014). The indication is that the personal and social skills of business individuals will become more dynamic in nature and more diverse when challenged with international business clients. Core competencies training will enhance the collective capabilities of the company that will enhance the local community through associated education about key adaptations to new business tactics. Social collaboration and understanding among members of VTs are critical in this respect; a network of external contacts will increase the social capital of the organization (MacKenzie et al., 2013). Additionally, open collaboration involves participants with different motivations and interests, thereby enhancing social dynamics within the collaboration process of diverse workforces (Jang, 2013; Madsen, 2013; Pacuraru, 2012).

11 SUMMARY AND STUDY CONCLUSIONS

Historically, the hierarchical structure allowed for integrations at many levels. For example, larger organizations could integrate governance committees into their project governance infrastructure to manage the rapid-paced sets of operational compliance requirements (Oktavera & Saraswati, 2012). The operational acumen of a control position depends on the veracity of relationships and dependencies between other business concepts of the organization. The objective of a control office is to structure and support the execution of projects to gain a competitive advantage in the marketplace. Additionally, the organizational plan provides a conceptual approach to the administrative, political, and operational aspects of the organization (Cavaleri et al., 2012). Project governance is one of the most essential

_____

elements of management that controls all facets of business operations (Cooper & Edgett, 2012). Building a governance structure to manage projects involves a variety of levels, and the size of the company and task workload determines the levels of involved governance (Espinosa & Porter, 2011). Consistency in program management is attributable to the concept of governance (Macnaghten & Owen, 2011).

Well-defined enterprise designs enable modular type systems to operate as an individual entity while governed by the larger corporate organization (Janssen & Klievink, 2012). The internal governance of a project or program include the organization's operational capabilities, value systems, objectives, and decision support systems required to sustain the organizational goals and vision (Demirag & Khadaroo, 2011). Multiple levels of PM have different characteristics and objectives but commonly consider decentralized subsystems within the control hierarchy (Gunnarsson & Wallin, 2011). In conventional business and PM architectures, program level will be immediately superior to the project level, and portfolio level superior to the program level. Leveling business strategy with project governance and decision support systems becomes a high priority requirement for organizational leaders who decide on and control their investments (Wang & Moon, 2013). Constant technology environment change created the need for a centralized control vector in the organizational hierarchy (Moutinho & Kniess, 2012).

Strategy is the cornerstone of innovation and is one of the foundational system infrastructure elements that depict the organization's prioritization and execution of project implementation (Yeow & Edler, 2012). It methodically links to general systems theory as it provides a model of operations controlling the implementation of business processes in a systemic relational or aggressive nature (Kruger & Mavis, 2012). Strategy is visible at all levels of project, portfolio, and enterprise PM (Smith & Sonnenblick, 2013). It relates to organizational, foundational, and business processes; then a competitive advantage in a market-based, service-oriented architecture (SOA; Schoemaker, Krupp, & Howland, 2013). Project practitioners align their project and portfolio management systems with corporate values and goals, and short and long-range strategic plans focus on the selection of the best projects to meet the strategic objectives (Kruger & Mavis, 2012). Organizational strategy from a systems approach includes all systems and subsystems within the enterprise's technical, operational, and business models (Mostafavi et al., 2012). Furthermore, strategic plans that include global scales of innovation significantly affect all communities associated with the operations (Hauc,

Vrecko, & Barilovic, 2011).

Businesses struggle with technology adaptation and their niche in a focused area of business. Globalization of markets has opened up many doors for progress; with this newfound application in business comes many issues when dealing with other people. Project management has been around for millennia and became a more formalized concept in the last 60 years. With this formalization is a requirement for governance to provide structure to new business processes and using those processes for the integration of PM frameworks; combining into a single structure are operational, personnel, policy, and process changes that take on entirely new meanings.

Organizations have been failing with projects for many reasons. With this failing rate is a decrease in the bottom line or returns on investment; therefore, businesses are scrambling to find new and innovative ways to do business. Components, or subsystems, must operate within their area of consideration, but also integrate with other subsystems, to provide the total business the framework to support virtuality. The benefits of virtual project teams (VPTs) include the creation of dynamic work environments that enable cross-synthesis of cultures (Richards & Bilgin, 2012). Virtual technology provides communications infrastructure. This infrastructure allows businesses to thrive in remote areas, thereby integrating cultures, ethics, collaboration theories, and techniques to form prominent, innovative, business portfolios (Lohle & Terrell, 2014).

Operational stability of project management demands clear direction and consistency of communication (Reed & Knight, 2013). A 2011 survey by Datsenko and Schenk (2013) aimed at identifying the most important personal characteristics of ideal project leaders. Participants reported the critical elements of project governance with (a) 44% communication, (b) 38% personal characteristics of leaders, and (c) 34% having clear goals (Datsenko & Schenk, 2013). However, statistics from a global survey of 10,000 projects at 35 Fortune 500 companies found 70% of projects were unsuccessful due to lack of communication (Hulya, 2011). The increased level of project failures was reportedly because of the lack of ideal communication about the risks and related issues leading to such failures (Hulya, 2011).

Diversity is an essential part of the organizational strategy. Senior managers effectively managing their organizations embrace diversity in all its forms: organizational environment, business processes, managerial tools, and most importantly, the people in the organization (Hans, 2011). Both strategic and planned evolution of the organization involves dynamic approaches to standardized

processes to sustain itself (Anantatmula & Shrivastav, 2012). Conversely, a significant knowledge-sharing approach requires a diverse array of custom elements to overcome the technical difficulties of informal communication (Marabelli, Rajola, Frigerio, & Newell, 2013).

With the integration of agile, extreme design styles and rapid development methods into product development, software development projects have significantly increased in complexity. Traditional functionalist and instrumental project management methods failed to provide sufficient insight into the cultural differences in global IT projects. According to Hahn, Bredillett, Gyeung-Min, and Taloc (2012), an increase in one's capacity to collect, consider, and respond to information will help the project manager reposition as the environment continues to evolve unpredictably. Globalization of the economy provides additional opportunities for businesses (Ziemba, 2013). Project managers can use creativeness in their business acumen for managing projects and communicating with project team members to gain a competitive edge to increase the likelihood of global project success (Ziemba, 2013).

REFERENCES

Allen, J. P., & Geller, D. (2012). Open source deployment in local government. *Information Technology & People, 25*, 136-155. doi:10.1108/09593841211232631

Anantatmula, V. S., & Shrivastav, B. (2012). Evolution of project teams for Generation Y workforce. *International Journal of Managing Projects in Business, 5*(1), 9-26. doi:10.1108/17538371211192874

Andersen, E. S. (2012). Illuminating the role of the project owner. *International Journal of Managing Projects in Business, 5*(1), 67-85. doi:10.1108/17538371211192900

Andersen, S. S., & Dag, V. H. (2013). Knowledge development and transfer in a mindful project-organization. *International Journal of Managing Projects in Business, 6*, 236-250. doi:10.1108/17538371311319007

Brandt, V., England, W., & Ward, S. (2011). Virtual teams. *Research Technology Management, 54*(6), 62-63. Retrieved from http://www.iriweb.org

Bullen, P., & Love, P. (2011). A new future for the past: A model for adaptive reuse decision-making. *Built Environment Project and Asset Management, 1*(1), 32-44. doi:10.1108/20441241111143768

Bulley, C. A., Baku, K. F., & Allan, M. M. (2014). Competitive intelligence information: A key business success factor. *Journal of Management and Sustainability, 4*(2), 82-91. Retrieved from http://www.ccsenet.org/journal/index.php/jms

Cavaleri, S., Firestone, J., & Reed, F. (2012). Managing project problem-solving patterns. *International Journal of Managing Projects in Business, 5*(1), 125-145. doi:10.1108/17538371211192937

Cooper, R. G., & Edgett, S. J. (2012). Best practices in the idea-to-launch process and its governance. *Research Technology Management, 55*(2), 43-54. doi:10.5437/08956308X5502022

Coughlan, T. (2014). Enhancing innovation through virtual proximity. *Technology Innovation Management Review, 4*(2), 17-22. Retrieved from http://timreview.ca/

Crespo, F. A., Pedamallu, C. S., Özdamar, L., & Weber, G. W. (2012). Contribution to the collaborative work in virtual organization - a case study. *Organizacija, 45*(5), 228. doi:10.2478/v10051-012-0023-3

Datsenko, Y., & Schenk, J. (2013). Leading clinical projects. *Applied Clinical Trials, 22*(1), 24-28. Retrieved from http://www.appliedclinicaltrialsonline.com/

Demirag, I., & Khadaroo, I. (2011). Accountability and value for money: A theoretical framework for the relationship in public-private partnerships. *Journal of Management & Governance, 15*, 271-296. doi:10.1007/s10997-009-9109-6

Devos, J., Hendrik, V. L., & Deschoolmeester, D. (2012). Rethinking IT governance for SMEs. *Industrial Management + Data Systems, 112*, 206-223. doi:10.1108/02635571211204263\

Espinosa, A., & Porter, T. (2011). Sustainability, complexity, and learning: Insights from complex systems approaches. *The Learning Organization, 18*(1), 54-72. doi:10.1108/09696471111096000

Gaan, N. (2012). Collaborative tools and virtual team effectiveness: An inductively derived approach in India's software sector. *Decision,*

39(1), 5-27. Retrieved from http://billygraham.org/decision-magazine/

Gallego-Álvarez, I., Prado-Lorenzo, J. M., & García-Sánchez, I-M. (2011). Corporate social responsibility and innovation: A resource-based theory. *Management Decision, 49*, 1709-1727. doi:10.1108/00251741111183843

Gressgård, L. J. (2011). Virtual team collaboration and innovation in organizations. *Team Performance Management, 17*(1), 102-119. doi:10.1108/13527591111114738

Gunnarsson, J., & Wallin, T. (2011). An evolutionary approach to regional systems of innovation. *Journal of Evolutionary Economics, 21*, 321-340. doi:10.1007/s00191-010-0208-y

Hahn, I., Bredillett, C., Gyeung-Min, K., & Taloc, M. (2012). Agility of a project manager in a global is project. *The Journal of Computer Information Systems, 53*(2), 31-38. Retrieved from http://www.iacis.org/jcis/jcis.php

Hans, J. T. (2011). Critical success factors for managing technology-intensive teams in the global enterprise. *Engineering Management Journal, 23*(3), 30-36. Retrieved from http://asem.org/asemweb-emj.html

Hanson, J. L., Balmer, D. F., & Giardino, A. P. (2011). Qualitative research methods for medical educators. *Academic Pediatric Association, 11*, 375-386. doi:10.1016/j.acap.2011.05.001

Harding, J. S. (2014). Seven tools for project success. *Chemical Engineering, 121*(1), 36-41. Retrieved from http://www.che.com/

Hauc, A., Vrecko, I., & Barilovic, Z. (2011). A holistic project – Knowledge society as a condition for solving global strategic crisis. *Drustvena Istrazivanja, 20*, 1039-1060. Retrieved from http://hrcak.srce.hr/drustvena-istrazivanja

Hulya, J. Y. (2011). Significance of organizational culture in perceived project and business performance. *Engineering Management Journal, 23*(2), 20-29. Retrieved from http://asem.org/asemweb-emj.html

Iverson, S. V., & Drake, J. (2014). The handbook of high-performance virtual teams: A toolkit for collaborating across boundaries. *New Horizons in Adult Education & Human Resource Development, 26*(2), 63-66. Retrieved from http://www.editlib.org/j/ISSN-1939-4225/

Jang, C,-Y. (2013). Facilitating trust in virtual teams: The role of awareness. *Advances in Competitiveness Research, 21*(1), 61-77. Retrieved from http://www.eberly.iup.edu/ASCWeb/journals_acr.html

Janssen, M., & Klievink, B. (2012). Can enterprise architectures reduce failure in development projects? *Transforming Government: People, Process and Policy, 6*(1), 27-40. doi:10.1108/17506161211214804

Jarratt, D., & Thompson, J. (2012). Virtual business models to address real world strategic challenges. *Emergence: Complexity and Organization, 14*(2), 1-24. Retrieved from http://emergentpublications.com/

Kapoor, B., & Sherif, J. (2012). Human resources in an enriched environment of business intelligence. *Kybernetes, 41*(10), 1625-1637. doi:10.1108/03684921211276792

Kornfeld, B. J., & Kara, S. (2011). Project portfolio selection in continuous improvement. *International Journal of Operations & Production Management, 31*, 1071-1088. doi:10.1108/01443571111172435

Kovach, J. V., & Mariani, J. (2012). Exploring quality initiatives' success and failure. *The Journal for Quality and Participation, 35*(3), 24-28. Retrieved from http://asq.org/pub/jqp/

Kruger, C. J., & Mavis, N. M. (2012). Incorporating business strategy formulation with identity management strategy formulation. *Information Management & Computer Security, 20*, 152-169. doi:10.1108/09685221211247271

Lohle, M. F., & Terrell, S. R. (2014). Real projects, virtual worlds: Coworkers, their avatars, and the trust conundrum. *The Qualitative Report, 19*(8), 1-35. Retrieved from http://www.nova.edu/ssss/QR/

Lundberg, K. (2011). A systems thinking approach to environmental follow-up in a Swedish central public authority: Hindrances and possibilities for learning from experience. *Environmental Management, 48*(1), 123-133. doi:10.1007/s00267-010-9600-5

_____

MacKenzie, K., Buckby, S., & Irvine, H. (2013). Business research in virtual worlds: Possibilities and practicalities. *Accounting, Auditing & Accountability Journal, 26*(3), 352-373. doi:10.1108/09513571311311856

Macnaghten, P., & Owen, R. (2011). Good governance for geoengineering. *Nature, 479*(73), 293. Retrieved from http://www.nature.com/

Madsen, A. K. (2013). Virtual acts of balance: Virtual technologies of knowledge-management as co-produced by social intentions and technical limitations. *Electronic Journal of E-Government, 11*(2), 183-197. Retrieved from http://www.ejeg.com/main.html

Marabelli, M., Rajola, F., Frigerio, C., & Newell, S. (2013). Managing knowledge in large-scale virtual projects: A community-based approach. *International Journal of Managing Projects in Business, 6,* 310-331. doi:10.1108/17538371311319043

Martinic, A., Fertalj, K., & Kalpic, D. (2012). Methodological framework for virtual team project management. *International Journal of Innovation, Management and Technology, 3*, 702. Retrieved from http//www.ijimt.org/

Mathur, G., Jugdev, K., & Tak, S. F. (2013). Project management assets and project management performance outcomes. *Management Research Review, 36,* 112-135. doi:10.1108/01409171311292234

Maylor, H. R., Turner, N. W., & Murray-Webster, R. (2013). How hard can it be? *Research Technology Management, 56*(4), 45-51. Retrieved from http://www.scimagojr.com/journalsearch.php?q=22949&tip=sid

Medvedeva, T. A. (2012). Developing an innovative style of thinking and innovative behavior. *Systemic Practice and Action Research, 25*(3), 261-272. doi:10.1007/s11213-011-9221-9

Morris, P. W. G. (2012). Cleland and king: Project management and the systems approach. *International Journal of Managing Projects in Business, 5,* 634-642. doi:10.1108/17538371211268951

Mostafavi, A., Abraham, D. M., & Lee, J. (2012). System-of-systems approach for assessment of financial innovations in infrastructure. *Built Environment Project and Asset Management, 2*, 250-265. doi:10.1108/20441241211280927

Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage Publications, Inc.

Moutinho, J. A., & Kniess, C. T. (2012). Contributions of a project management office in a laboratory of R&D of a public university. *Revista De Gestão e Projetos, 3*(2), 282. Retrieved from http://www.revistagep.org/ojs/index.php/gep

Mulej M., Potocan, V., Zenko, Z., Kajzer, S., Ursic, D., & Knez-Riedl, J. (2004). How to restore bertalanffian systems thinking. *Kybernetes, 33*(1), 48-61. Retrieved from http://www.emeraldinsight.com/loi/k

Ofori, D. F. (2013). Project management practices and critical success factors-A developing country perspective. *International Journal of Business and Management, 8*(21), 14-31. Retrieved from http://www.theijbm.com/

Oktavera, R., & Saraswati, R. (2012). Framework for implementation project portfolio selection decision in a shipping company. *Academic Research International, 3*(3), 163-174. Retrieved from http://www.journals.savap.org.pk/

Pacuraru, R. (2012). Virtual organizations. *Economics, Management and Financial Markets, 7*(4), 695-702. Retrieved from http://www.addletonacademicpublishers.com/economics-management-and-financial-markets

PMI. (2014). *PMI's pulse of the profession: The high cost of low performance.* Retrieved from http://www.pmi.org/Pulse

Rahmansyah, R., & Ford, L. G. (2013). Service oriented architecture governance implementation in a software development project as an enterprise solution. *Journal of Computer Science, 9*(12), 1638-1647. Retrieved from http://thescipub.com/journals/jcs

Reed, A. H., & Knight, L. V. (2013). Project duration and risk factors on virtual projects. *The Journal of Computer Information Systems, 54*, 75-83. Retrieved from http://www.iacis.org/jcis/jcis.php

Richards, D., & Bilgin, A. (2012). Cross-cultural study into ICT student attitudes and behaviours concerning teams and project work.

_____

_____

Multicultural Education & Technology Journal, 6(1), 18-35. doi:10.1108/17504971211216292

Riemer, K., & Vehring, N. (2012). Virtual or vague? a literature review exposing conceptual differences in defining virtual organizations in is research. *Electronic Markets, 22*, 267-282. doi:10.1007/s12525-012-0094-2

Schoemaker, P. J., Krupp, S., & Howland, S. (2013). Strategic leadership: The essential skills. *Harvard Business Review*, *91*(1), 131-134. Retrieved from www.harvardbusiness.org

Sheffield, J., Sankaran, S., & Haslett, T. (2012). Systems thinking: Taming complexity in project management. *On the Horizon, 20*(2), 126-136. doi:10.1108/10748121211235787

Smet, D. D., & Mention, A. (2012). Inducing service innovations through the governance of IT-enabled projects. *Journal of Management Research, 4*(4), 1-16. Retrieved from http://www.macrothink.org/journal/index.php/jmr

Smith, D., & Sonnenblick, R. (2013). From budget-based to strategy-based portfolio management. *Research Technology Management, 56*(5), 45-51. Retrieved from www.iriweb.org/Main/Library/RTM_Journal/

Söderlund, J. (2012). Project management, interdependencies, and time. *International Journal of Managing Projects in Business, 5*, 617-633. doi:10.1108/17538371211268924

Staadt, J. (2012). Redesigning a project-oriented organization in a complex system. *International Journal of Managing Projects in Business, 5*(1), 51-66. doi:10.1108/17538371211192892

Stephens, A. (2013). Principled success. *International Journal of Managing Projects in Business*, *6*(1), 199-209. doi:10.1108/17538371311291099

Vinayan, G., Jayashree, S., & Marthandan, G. (2012). Critical success factors of sustainable competitive advantage: A study in Malaysian manufacturing industries. *International Journal*

of Business and Management, 7(22), 29-45. Retrieved from http://www.theijbm.com/

von Bertalanffy, L. (1968). *General systems theory: Foundations, developments, applications* (Revised edition). New York, NY: George Braziller, Inc.

Wang, B., & Moon, Y. B. (2013). Hybrid modeling and simulation for innovation deployment strategies. *Industrial Management + Data Systems, 113*(1), 136-154. doi:10.1108/02635571311289719

Wesner, M. S., & Hobgood, A. S. (2012). Virtual collaboration: Exploring the process and technology in a graduate course. *Organization Development Journal, 30*(3), 29-39. Retrieved from http://www.scimagojr.com/journalsearch.php?q=3900148507&tip=sid

White, D., & Fortune, J. (2012). Using systems thinking to evaluate a major project. *Engineering, Construction and Architectural Management, 19*(2), 205-228. doi:10.1108/09699981211206124

Yasir, M., & Majid, A. (2013). A methodical study of the role of trust at various development stages of virtual organizations. *Journal of Information Systems & Operations Management,* 1-10. Retrieved from http://jisom.rau.ro/forward.html

Yeow, J., & Edler, J. (2012). Innovation procurement as projects. *Journal of Public Procurement, 12*, 472-504. Retrieved from http://www.fau.edu/pprc/research/jopp.php

Yu, C-I., Chen, H-G., Klein, G., & James, J. J. (2013). Risk dynamics throughout the system development life cycle. *The Journal of Computer Information Systems, 53*(3), 28-37. Retrieved from http://www.iacis.org/jcis/jcis.php

Ziemba, E. (2013). The holistic and systems approach to the sustainable information society. *The Journal of Computer Information Systems, 54*, 106-116. Retrieved from http://www.iacis.org/jcis/jcis.php

_____