

Supply Chain Strategies in Virtually Distributed Supply Chain Project Teams During and Post-COVID-19

¹Goldston, J. L.

¹Academia Worldwide

¹justin.goldston@academiaworldwide.com

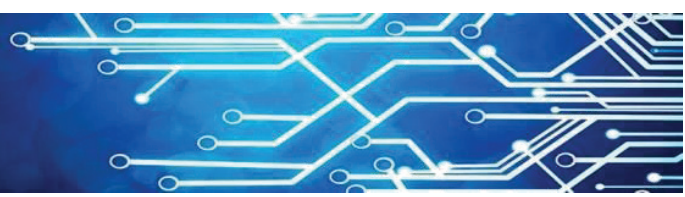
Abstract - Due to the COVID-19 pandemic, a number of employees transitioned into virtually distributed supply chain project team environments for the first time in their careers due to shelter-in-place and social distancing mandates that impacted industries around the world. With project managers implementing processes and procedures remotely to employees fielding calls from home while caring for children, the world entered into an unprecedented time and an unknown unknown. As the pandemic required organizations to implement agile practices, project managers within various industries had to adjust operational processes, while at the same time had to ensure project team needs were addressed. In an effort to mitigate the risk of transitioning back to conventional management approaches, a qualitative survey method was performed in this study to understand supply chain project team member experiences during this transition period. The results of the survey uncovered that the creation of a supply chain uncertainty management plan, demonstrating the benefits of virtual supply chain project teams, and the continuous integration of collaborative

technology tools may contribute positive outcomes from the COVID-19 pandemic.

Keywords – Organizational Change, Supply Chain Management, Project Management, Virtual Teams, Collaboration Tools, Supply Chain Uncertainty Management Plan, Innovation, COVID-19, Post-COVID-19

INTRODUCTION

As the number of COVID-19 cases increased around the world, many project managers and supply chain team members entered a time of unprecedented uncertainty. Because this disruption forced project managers to become improvisational, creative, and innovative in their managerial decision-making, management behaviors and implementation approaches were challenged daily. With governments around the world mandating employees to shelter-in-place and work from home, individuals from various industries entered into environments unfamiliar to them. While management and leadership play an important role in alleviating stress and uncertainty through different communication streams, strengthening the knowledge and ‘intelligence’ of project



managers can have a more lasting positive impact on stakeholders of an organization.

Unfortunately, as it took a pandemic for some project managers to realize the importance of an organization's supply chain teams to the existence of the organization itself, these project managers are taking a closer look at the makeup of the company. With the shift of work environments, change is ongoing whether a project manager is heading a global virtually distributed supply chain team or leading a domestic project with a diverse, multicultural workforce. The reality of this shift has called for the development of project managers to enhance his or her approaches and skills. Managing in an uncertain business environment involves understanding how cultural beliefs affect the behavior and the understanding of organizational goals throughout an organization's diverse workforce to promote inclusion. In essence, sustaining and developing people who can successfully survive a turbulent environment is critical to an organization's operations.

As essential workers in industries such as banking began to move to virtual work environments, project managers within industries that primarily operate in face-to-face environments began evaluating the option as well for both essential and non-essential workers. For some project managers, to understand how to transition to a virtual environment, they reached out to organizations and researchers to identify effective strategies to lead within a virtual

environment. In one study that included employees distributed around the world from various industries as the target population, Goldston [1] found leaders and project managers that demonstrate emotional intelligence (EQ) and servant leadership among virtual workforces experience higher employee morale and increased productivity, resulting in increased customer satisfaction levels. In transferring these attributes to various industries, project managers could begin building stronger, more inclusive current and post-COVID-19 supply chain teams.

With articles and studies highlighting the negative impacts of the pandemic, there may be potential opportunities that were uncovered during this time. As project managers of organizations had to be innovative and flexible to meet internal and external demands, a number of approaches and processes can be integrated into current state and future state processes that may be transferrable across different industries. With this immediate shift in project management, project execution, and monitoring, a research study was conducted among a group of supply chain project team members that had to move from a traditional face-to-face environment to a virtual environment. The objective of this study was to understand the supply chain project team members' perceptions as to processes and procedures that went well, approaches that may need to be improved upon, as well as opportunities uncovered with the shift in how teams communicate and meet internal and external objectives.

METHODOLOGY

After performing an analysis of a range of qualitative approaches, a qualitative survey method was used for this study. The target population for this study was supply chain project team members of organizations around the world that worked in face-to-face office environments before transitioning to virtual environments due to the COVID-19 pandemic of 2020. The data collection instrument in this study consisted of an online survey, and the survey was administered through SurveyMonkey.com, a secure online survey provider. The survey contained three open-ended questions related to supply chain project team members' experiences during the pandemic:

- 1) After moving to a virtual environment, what were some of the challenges you encountered in your project?
- 2) What approaches were successfully implemented after moving to a virtual project environment?
- 3) What approaches not previously implemented in your project(s) should be integrated due to the pandemic?

SURVEY RESULTS

The goal of this study was to identify positive outcomes from the pandemic for virtually distributed supply chain teams around the world. Using the open-ended survey questions outlined in the previous section, data from 89 respondents were

collected, and a thematic analysis was performed to categorize and sort the participants' responses. The results of the analysis are as follows:

A. Survey Question 1: After moving to a virtual environment, what were some of the challenges you encountered in your project?

After analyzing the data as to the project challenges faced when transitioning to a virtual environment, users noted that communication and collaboration were drawbacks during the initial weeks of the switch to a virtual environment. Although a few respondents stated the communication increased with time as leaders of organizations held town hall meetings to communicate the current state of the industry and the organization, others noted they felt the virtual environment might negatively impact project quality. With the immediate change in work environments, there may be resistance among supply chain project team members. With the risks identified by team members in the survey, leaders and project managers can develop innovative ways to increase the collaboration and inclusion of virtually distributed supply chain project teams.

B. Survey Question 2: What approaches were successfully implemented after moving to a virtual project environment?

With project managers and supply chain team members increasing their reliance on technology to operate in the new environment, the consensus in the survey was that the collaboration tools introduced into projects were effective in continuing to

deliver to proposed plans. With tools such as Slack, Zoom, and Microsoft Teams deployed for the first time in some environments, survey respondents noted these tools broke down silos within the organization and organically created cross-functional teams and quality circles throughout the organization. Lozano [2] found that collaboration breaks down knowledge barriers in an organizational environment and can demolish silo mentalities by fostering sustainability through the commitment to positive social change. In one example, one respondent indicated that since they worked on the operational side of the project, moving to a virtual environment allowed the functional team to work with the technical team, harnessing creativity not previously realized on the project.

C. Survey Question 3: What approaches not previously implemented in your project(s) should be integrated due to the pandemic?

As this unprecedented time introduced increased project complexities, the respondents of the survey identified project risk of being a primary concern within projects across a number of different industries. In the survey responses, mitigation strategies such as business continuity plans, risk mitigation plans, disaster recovery plans, and contingency plans were noted as approaches that were implemented during the pandemic. With the various strategies identified, although it was not explicitly mentioned, a supply chain uncertainty management plan may be a strategy that could potentially encompass

the majority of approaches noted by the respondents.

RECOMMENDATIONS

Although a number of approaches could be implemented within a virtual environment, in reviewing the survey responses, combined with empirical experience managing projects within virtual environments, the following recommendations that could lead to positive outcomes from the pandemic:

A. Recommendation 1: Demonstrate the Benefits of Virtually Distributed Supply Chain Project Teams

As project managers in industries such as professional services traditionally operate in virtual environments, the pandemic created new work environments for project managers and employees in other industries. With the opportunity to communicate with coworkers from different locations and parts of the world, individuals that worked in this environment for an extended period of time found this collaboration fostered innovation and creativity by pooling a larger number of subject-matter professionals [3]. By presenting this finding, along with similar studies, project managers and leaders of organizations could demonstrate how the new environment could create professional growth and advancement opportunities for supply chain team members and other employees within the organization.

Although it has been identified that leading and operating in a virtual environment is more complex than leading in a face-to-face environment, there have been many tools and traits project managers can employ to be effective leaders in this type of environment

[4]. Two critical success factors in building and leading virtually distributed supply chain project teams are communication and trust [5]. In discussing trust in virtual environments, trust is the connective tissue that binds strong virtual teams together. As many believe technology may be the primary tool in leading supply chain projects in virtual environments, communication and trust maintain the synergy among the supply chain project team. In addition to communication and trust, additional competencies such as knowledge sharing and collaboration are also essential in this virtual setting.

For organizations that had to move supply chain project team members into a virtual environment, project managers also had to create new knowledge-sharing cultures. The building, managing, and sharing of knowledge should be a primary objective for organizations, regardless of it is in a virtual or face-to-face environment. Given those working in virtual environments pose different obstacles than individuals working in face-to-face settings, knowledge sharing can also be viewed as a critical success factor in virtual environments. To counter the various obstacles which may arise, knowledge sharing both internally and externally will enhance the visibility and collaboration among geographically dispersed employees and clients. With many organizations practicing continuous improvement operationally, these organizations must also practice ongoing collaboration to strengthen the trust aspect further.

In established virtual environments, team members that worked in virtually were 24% more likely to feel happy and more productive, resulting in a 25% reduction in turnover than team members that work in face-to-face environments [6]. As a project team member's resistance to change may stem from people factor resistance, technology resistance, power resistance, or fear of the unknown, project managers should continue to communicate the benefits of operating within a virtual environment [7]. With new virtual environments allowing traditional face-to-face project team members to eliminate commute times and spend more time with their families, further research may be required to understand if operating and collaborating in the new, virtual environment may further reduce turnover rates for organizations.

B. Recommendation 2: The Continued Integration of Collaborative Technology Tools

With the increase in virtually distributed supply chain project teams, traditional project management and leadership practices are transforming. In an approach identified as virtual leadership, technological experiences play a significant role in establishing virtually distributed supply chain project teams [8]. Effective virtual project managers must be engaged in the technological interaction of their project team members, and at the same time, display transformational leadership and transactional leadership competencies in a virtual environment. Project managers are instruments of transformation exerted through the project team members to bring

about change in governance and productivity [9]. As the pandemic changed the business landscape from the aspect of project environments, strategic business partner relationships, and the reliance on technology, project managers must align the organization's operations and processes to those changes.

Although conventional, face-to-face leadership approaches such as transformational leadership and transactional leadership are essential in managing supply chain projects in a virtual environment, another method that could be integrated into virtual environments is shared leadership. Iorio and Taylor [10] pointed out that younger professionals are vital to virtually distributed project teams and that a shared leadership model may be developed to combine the technological experiences of younger professionals with the practical experiences of more senior project team members. This approach of pairing a younger employee as the mentor with a tenured team member as the mentee could transition into a reverse mentoring opportunity [11]. Because Baby Boomers and Generation Xers are often intimidated by technology, pairing these groups with technologically savvy Millennials increases collaboration and cohesiveness within a new virtual project environment.

In addition to technological experiences, continuous training and education of collaboration tools are also necessary for project managers operating in a virtual environment. In providing oversight of the organization's collaborative digital transformation, project managers could

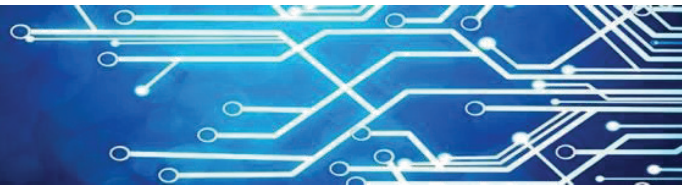
assign change managers to these transformation efforts. To implement a successful organizational change initiative focused on increasing the organization's internal and external collaboration efforts, the organization's leadership team should introduce the project during an all-hands or company meeting. In this meeting, leaders of the organization should address the following questions:

- 1) *Where is the organization going?*
- 2) *How will the organization get there?*
- 3) *What is the role of each employee in the project?*
- 4) *How will the workforce be positively impacted by the project?*

This approach will provide transparency to the project, and will also show leadership buy-in and commitment to the project. By coupling these learning techniques with technological experiences, project managers will position themselves to become effective leaders in this growing virtual environment Post-COVID-19.

C. Recommendation 3: Develop, Implement, and Monitor a Supply Chain Uncertainty Management Plan

Project managers, teams, and stakeholders often combine project risk and project uncertainty. Aucoin [12] noted that while project risk is a future state event that can have an impact on achieving project goals if it occurs, uncertainty is the current state reality, and that the management of the two



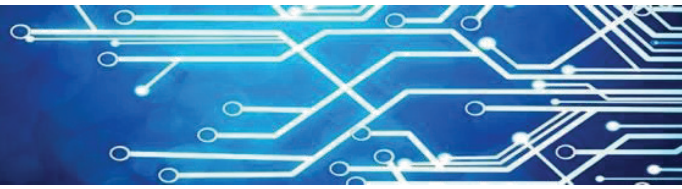
concepts should be handled separately. With uncertainty being characterized as an unknown unknown, coupled with the fact that uncertainty is outside of the scope of project risk management, project managers should consider creating a supply chain uncertainty management plan independent of a project risk management plan [13]. As the return to face-to-face environments and customer sites remain unclear, an uncertainty management plan can be created and continuously monitored until organizations reach the post-COVID-19 phase of the pandemic.

Managing uncertainty encompasses two dimensions: dynamism and complexity [14]. Pre-COVID-19, dynamism was one of the main characteristics in agile-based projects where teams adapted project schedules to specific trends that exist in a particular industry. If project managers incorporate COVID-19 as an enterprise environmental factor, rigid project structures may require more fluidity. With research on hybrid project management methods emerging in recent years, by incorporating an uncertainty management plan, hybrid approaches could be introduced in some virtual project environments to adjust to uncertain complexities and project challenges. In one example of integrating a hybrid project management method, by introducing the agile approach of daily standup meetings into a waterfall project environment, this small adjustment could increase the collaboration and inclusion of supply chain project team members in a virtual environment.

As previously mentioned, when considering project complexity, virtually distributed supply chain project teams encounter more complexities than face-to-face environments [4]. Because internal and external requirements could potentially lack precise definition in a virtual environment, integrating some of the collaboration tools noted as a recommendation in the previous section could also be considered when developing an uncertainty management plan. Although supply chain project teams may work face-to-face internally, the pandemic also impacted client-facing engagements. Aside from using tools such as Zoom for client steering committee calls, some large-scale, high-visibility, high-touch supply chain projects require onsite interaction with clients. Through the use of innovative, creative decision-making, project managers can provide access to documents for clients to become more proactive to project changes. Additionally, as enterprise resource planning (ERP) applications offer the ability to utilize collaboration tools that are easily configurable and intuitive, these tools can be integrated into an organization's uncertainty management plan, potentially reducing future state supply chain risks in a post-COVID-19 era.

CONCLUSION

With the shift to virtual work environments, project managers that traditionally operated in a face-to-face environment had to develop new competencies to effectively lead and influence supply chain project team members. Through continuous communication, collaboration, and training, project managers can continue to build the team's mental models. Several studies have

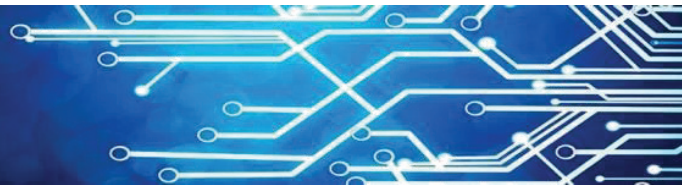


found that constant learning changes mental models and behaviors, as well as harnesses project team collaboration and communication [1]. Shared visions between project managers and supply chain project teams are also critical to effective engagement and inclusion. Given these visions must require buy-in from all parts of an organizational system, project managers must keep the team in mind for strategic plans to be successful, regardless of the project timeline. By demonstrating project team collaboration, engagement, and inclusion, project managers can empower and influence team members and alleviate the fear of functioning in a virtual environment, potentially resulting in a reduction in project risk and uncertainty and a higher probability for project success.

The results of this study are vital to the fields of supply chain management, project management, and organizational change management as the findings build on the body of knowledge for both disciplines. Regardless of the size of the organization, project managers, team members, and leaders of organizations were negatively impacted by the COVID-19 pandemic of 2020. Internal and external supply chain stakeholders within all industries can benefit from this study to applying the new knowledge from this study within their organizations during times of change. Supply chain and project management practitioners can benefit from this study's findings by applying the approaches outlined in large- and small-scale projects to mitigate risk and supply chain uncertainty during these engagements.

REFERENCES

- [1] J. L. Goldston, "Leadership approaches during digital transformations in small and medium enterprises," *IEEE - Science, Engineering, and Management*, vol. 7, no. 12, 89-106, Dec. 2019.
- [2] R. Lozano, "Creativity and organizational learning as means to foster sustainability," *Sustainable Development*, vol. 22, no. 3, pp. 205-216, Mar. 2014.
- [3] S. Bacq, W. Geoghegan, M. Josefy, R. Stevenson, and T. A. Williams, "The COVID-19 virtual idea blitz: Marshaling social entrepreneurship to rapidly respond to urgent grand challenges" *Business Horizons*, vol. 20, no. 5, pp. 1-12, May 2020.
- [4] T. P. Shea, P. D. Sherer, R. D. Quilling, and C. N. Blewett, "Managing global virtual teams across classrooms, students and faculty," *Journal of Teaching in International Business*, vol. 22, no. 4, pp. 300-313, Apr. 2011.
- [5] A. G. Raišienė, V. Rapuano, K. Varkulevičiūtė, and K. Stachová, "Working from home - who is happy? A survey of Lithuania's employees during the COVID-19 quarantine period," *Sustainability*, vol. 12 no. 13, pp. 1-21, Jul. 2020.
- [6] J. V. Hacker, M. Johnson, C. Saunders, and A. L. Thayer, "Trust in virtual teams: A multidisciplinary review and integration," *Australasian Journal of*



Information Systems, vol. 23, no. 1, pp. 1-36, Jan. 2019.

[7] J. L. Goldston, "Pandemically speaking: Sustaining corporate social responsibility during times of uncertainty," *International Research Journal of Engineering and Technology*, vol. 7, no. 6, pp. 5514-5518, Jun. 2020.

[8] C. Liao, "Leadership in virtual teams: A multilevel perspective," *Human Resource Management Review*, vol. 27, no. 4, pp. 648-659, Apr. 2017.

[9] [9] T. E. Dunn, C. L. Lafferty, and K. L. Alford, "Global leadership: A new framework for a changing world," *S.A.M. Advanced Management Journal*, vol. 77, no. 2, pp. 4-14, Feb. 2012.

[10] J. Iorio and J. E. Taylor, "Precursors to engaged leaders in virtual project teams," *International Journal of Project Management*, vol. 33, no. 2, pp. 395-405, Feb. 2015.

[11] C. Hughes, L. Robert, K. Frady, and A. Arroyos, "Managing technology and middle-and low-skilled employees: Advances for economic regeneration," United Kingdom, Emerald Group Publishing, 2019.

[12] B. M. Aucoin, "Right-brain project management: A complementary approach," Vienna, VA, USA, Berrett-Koehler Publishers, 2007.

[13] S.D. Kim, "Characterization of unknown unknowns using separation principles in case study on Deepwater Horizon oil spill," *Journal of Risk Research*, vol. 20, no. 1, pp.151-168, Jan. 2017.

[14] R. B. Duncan, "Characteristics of organizational environments and perceived environmental uncertainty," *Administrative*

Science Quarterly, vol. 17, no. 3, pp. 313-327, Mar. 1972.

