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The Impact of Effective Leadership in Cross-functional New Product Development Virtual Teams

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The Impact of Effective Leadership in Cross- functional New Product Development Virtual Teams

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Abstract

The emergence of covid-19 has forced a lot of companies to move to virtual remote work. New product development cross-functional teams who meet often or few times in a year are now compelled to transition fully into virtual remote workplace. The question is how they can function effectively with maximum performance as they did in the traditional environment. This paper's main objective of this paper is to investigate and understand how effective leadership management can influence performance, conflict, and knowledge sharing while enhancing cross-functional new product development virtual teams. An in-depth analysis of literature has been conducted in this to determine the successful leadership management elements that facilitate knowledge sharing in cross-functional virtual teams. Three interviews were conducted to understand and fill in the gap in limited research on this topic. The findings highlighted the correlation between knowledge sharing and conflict and how they can affect the performance of a cross-functional virtual team. Democratic leadership style used by all the interviewees is a mediator and positively impacts communication within the team. Further research is required to address the findings from these interviews by sampling a large audience from engineering, pharmaceuticals, and construction. Industries that are saturated with new product development cross-functional team to see if the process of effective leadership is the same or different for industries.

Introduction

The existence of COVID-19 pandemic has forced majority of the world to operate virtually. This has caused many firms and organizations around the world to stay in business by operating remotely through virtual mediums. Meanwhile, some organizations have taken this as an advantage to save on cost by shutting down their physical presence and transitioning into the virtual remote world [18] in order to retain their employees. Although virtual remote work for organization has been in effect for a very long time [1], it has not been often practiced within cross functional new product development teams without physical meetings. International and national cross functional teams that seldomly travel in a year to collaborate with their teams at different locations are now compelled to work virtually throughout the timeline of their projects due to the emergence of this novel virus. The stress caused by demands of virtual global work is real; many employees are experiencing long hours to accommodate time zones and performance challenges in less-than-ideal remote working conditions [19]. In addition, the virtual nature of these teams creates challenges to effective performance, collaboration and knowledge sharing within the teams. Jobs are shutting down because of covid-19 and taking weeks off [18]; unpreparedness of alternative effective management skills for virtual remote work has made companies weary of how efficacious their teams will maintain and exceed the same performance while they were in the office setting.

For a project team, high performance is the ability to figure out the very best level of effectiveness for an extended period. Team members and the team grow and learn. The team manages change. Members enter and leave quickly without disrupting a performance or making new members feel like aliens. However, working in virtual teams

is challenging because people working on multiple projects need to coordinate and communicate across time zones, distances, languages, and cultures. Challenges include ensuring; Common understanding, given language, expertise, and cultural differences; Coordination so that everyone is where they need to be, when they need to be there, with the correct information, materials, and skills. The management of virtual team requires a disciplined yet a flexible approach. There is no cookbook. Virtual team issues must be addressed to adapt to the requirements of a project. This paper's main objective of this paper is to investigate and understand how effective leadership management can influence performance, conflict, and knowledge sharing while enhancing cross-functional new product development virtual teams. An in-depth analysis of literature has been conducted in this paper to determine the successful management elements that facilitate knowledge sharing in cross-functional virtual teams. This literature review focuses on different factors like culture, leadership, ICT, competition, Trust, and communication as essential elements that can impact performance, knowledge sharing, and conflict in virtual teams.

Literature Review

The evolution of the world has brought about innovations both complex and straightforward. Due to innovation development, many companies have seen positive outcomes with cross-functional teams when it comes to flexibility and changing market needs. These cross-functional teams may consist of team members from marketing, engineering, manufacturing, finance, etc. that work interdependently with a common goal. Cross-functional teams are critical in advancing new product development because of their high-performing capabilities and taking up significant challenges. Sometimes,

cross-functional team members can be from the exact location or various locations when working on a project. Effective leadership management needs to be in place. For cross-functional teams to function properly and become a success in the remote virtual work environment, [20] Management, knowledge sharing, workplace culture, choosing the right teams, and technologies are critical factors that can facilitate a virtual team.

Due to the lack of team members' ability to meet physically and have access to ask essential questions, leadership management needs to help facilitate and make sure that the team is working jointly with no lag in communication so that there will be no negative outcome in performance. However, a team leader needs to establish joint goals around which team members can collaborate with others despite diverse personalities, drivers, and motivators. The leader needs to be systematic in thinking, resourceful, and possess listening skills to help cross-functional team members function together. Leaders also manage team members and projects by creating the condition for team effectiveness, an enabling structure. An enabling system is designed to promote core norms of conduct, and team composition is organized. However, the lack of effective management can negatively affect knowledge sharing, learning, and the performance of a well-established virtual cross-functional team. [16] Leadership inclusiveness captures leaders' attempts to include others in discussions and contributions in which their voices and perspectives might otherwise be absent. Especially today, it is easier for people to hide behind their cameras in the virtual world and be absent-minded throughout project meetings.

This paper will focus on knowledge on sharing, conflict, and performance in cross-functional virtual teams and how it can impact new product development. The following methodology section will present the research method, interview questions

applied in this literature review. The discussion section will address inconsistencies, omissions, and errors to identify accuracy, depth, and relevance. Finally, the conclusion will summarize this paper by summarizing the key findings and commonalities between the literature and offering directions for future research.

Knowledge Sharing

Knowledge sharing is an act of exchanging, transferring, or disseminating knowledge from one person to another. Shared understanding enhances process performance as well as downstream strategic imperatives. There is also a relationship between knowledge, trust, collaboration, and team effectiveness in a virtual team setting. Hong et.al., (2008), mentioned the two main kinds of problems and challenges with knowledge sharing in virtual teams. The first being to overcome the team member's reluctance to participate in shared knowledge works. Sarin & McDermott, C. (2003), believes that democratic and participatory leadership style makes communication more effective within the cross-functional team and can bridge the gap in knowledge sharing within virtual team members. In this type of leadership management, members of the group partake more in the project's decision-making process. It also encourages trust and collaboration within teams and, in return, promotes an integrative approach to problem-solving. This leadership style can help break the barrier of lack of involvement during the virtual meeting and improve the shared knowledge amongst team members. That way, a specific group of people in a team do not handle most of the project task. Although it is impossible to have one on one physical contact with each team member, the leader needs to address the virtual environment as it is a physical environment by exhibiting a supportive and coaching-oriented nature that will make the team members safe in the

team environment [3]. It is also essential for a team leader to develop and transition team members into the project [2] despite the virtual presence. The second problem with knowledge sharing is the lack of mutual knowledge [7]. A lack of mutual understanding can build a lack of trust and confidence within cross-functional team members. It can create unequal distribution of work amongst team members.

Prior expertise critical for the task on hand, and work-related competence puts each member on an unequal footing by undermining their ability to cooperate interdependently and contribute to the ongoing knowledge processes. Lawson et.al., (2009) suggests that knowledge sharing can be an outcome of formal and informal social mechanisms where formal knowledge is through structured, scheduled meetings or requests for information. Although knowledge sharing is very vital in the success of new product development teams, Tamjidyamcholo et.al., (2014) argues that information and communication technology (ICT) Improves performance. It helps make the process easier for virtual teams to share knowledge through collaboration easily is positively related to new product development project success.

It is also essential to shed light on how conflict can negatively affect the knowledge-sharing process even when ICT is used in virtual remote work. More so, overcoming conflict in a virtual remote workplace is more complicated due to the lack of physical presence. It is prevalent in task relationships and process conflict within cross-functional team members from different departments. The usage of ICT can help facilitate and bridge this barrier. Clercq et.al., (2013) suggested that two firm conflict management approaches may also play moderating roles in overcoming conflict within teams. To be more instrumental in achieving product innovativeness, to the extent that

conflict is managed in an integrative manner. An integrative approach implies more concern for other departments, such that different functional areas likely work together to reach a win-win solution when conflict arises (Rahim, 1983; Song et al., 2006). The knowledge needed to unravel conflict likely gets brought out into the open, and therefore the conflict situation prompts objective judgments of potential solutions. Cross-functional team leaders need to bridge the conflict with team members to solve the knowledge-sharing problem and potential failures of new product development projects. Although some might see conflict as a negative, conflict and expertise diversity can cause knowledge sharing to decrease. It is very beneficial for organizations to build strong teams that have the capability and the willingness to share knowledge, which results in effective virtual teams [9].

Conflict

Many people consider disagreement as exclusively negative and attend great lengths to avoid it. But team conflict within workplace teams is important to their long-term business success. Conflict can spur better ideas, creativity, and more significant innovation that helps leading companies gain a competitive edge. and therefore, the process leader helps run meetings and manage the team. the matter is that an efficient team has got to have flexible leadership-leadership and expertise that require to vary consistent with the difficulty and obtain passed around as needed [21]. However, if conflicts are not effectively managed, it can negatively affect a replacement development team's success. Conflicts can range from communication gaps, interpersonal clashes, differences in work styles to task conflicts. Lovelace et.al., (2001), suggests that a leader's behavior might lessen the negative effect of conflict that a team inevitably experience

[22]. The simpler the leader of a cross-functional new product team is, the less extensive intrateam task disagreements are going to be [22]. The simpler the leader of a cross-functional new product team is, the freer team members will feel to precise task-related doubts to every other. For cross-functional teamwork to flourish, team leaders must establish clear ground rules on what's expected and explicitly recognize and reward achievements [23]. To support cooperation and productive conflict resolution, coordination is required for the timely sequencing, scheduling, and synchronization of activities of team members and other relevant parties, for the execution of project tasks [24]. Thus, participative leadership in NPD teams should be positively associated with functional conflict resolution strategies and negatively associated with the utilization of dysfunctional conflict resolution strategies within the team [25].

Performance

More so, conflicts and knowledge sharing can impact a cross-functional new product development virtual team either positively or negatively. While team performance is vital in cross-functional teams, an individual's collaborative performance is equally important to facilitate overall teamwork [10]. According to Lovelace et.al., (2001), team members with diverse cultural backgrounds are prone to low performance due to attitude, values, and beliefs. The effect of ICT has positively affected this area of team performance by removing cultural diversity's negative effect. If the proper leadership management is not properly executed, cultural diversity can inherently influence negative team performance by directly impacting team members' trust. [11] A team leader can be a mediator in a situation like this, which can positively influence trust amongst team members. As reasoned by van Knippenberg and Hogg (2003), people trust fellow members of their

group since they pursue the same collective goals and interests. Therefore, leaders engaging in identity leadership and crafting a shared collective identity should be trusted more by employees since they show group-oriented behavior (van Knippenberg and Hogg, 2003). In addition to the importance of leadership and how it can negatively or positively influence a team, various leadership behaviors are found amongst teams that need to be properly examined. Others using a functional approach to team leadership have argued that behaviors that serve to motivate team members are those such as: statements indicating encouragement, active consideration, and positive comments regarding member capabilities [13]. Management style and position exert a significant influence on the team's learning, which subsequently affects the NPD team's performance in terms of the level of innovation introduced in the product and the product speed to market [15].

Analysis

Adding on to the research topic on how effective leadership can impact cross-functional new product development virtual teams, qualitative methods would be most appropriate to find an answer. The literature on related topics suggests that qualitative methods are most appropriate to cultivate a deeper understanding of the issues and develop and validate the theoretical framework proposed. ([3]; [1]; [4]; [15]; [18]; [20]). While some of the literature reviews focused on the combination of qualitative and quantitative methods for data collections ([4]; [8]; [13]). The quantitative data is mostly used for the sampling size and corroborates the outcome obtained from the current study.

When it comes to knowledge sharing, hierarchical linear modeling was used to test the approach of learning because [8],[15] believes that this model is used for investigating relationships that cross the level of analysis. This means that individuals

within a group may be more similar to each other than individuals in another group. Specifically, Sarin et.al., (2003) find that the more team leaders involve the members in the team's decision-making process, the greater the learning within teams. Montoya et.al., (2013), also supports that the hierarchical model is essential, especially this hierarchy of richness describes the capacity of an ICT to convey cues and facilitate shared understanding on time.

Research Methodology

While leadership management processes have been studied regarding cross-functional new product developments and how it can impact performance, knowledge sharing, and conflict in a team, there is still limited research regarding impact of leadership management on cross-functional NPD virtual teams. Due to this research's nature, it was difficult to confine to specific disciplines; the relevant materials are scattered across various journals from Marketing, Business and Management. Consequently, the following online journal databases and websites were searched to provide a comprehensive reference of the academic literature on the impact of leadership in cross-functional NPD virtual team:

- Google Scholar database.
- Wiley Online Library.
- JSTOR.
- IEEXplore.

The literature search was based on the descriptor “leadership management in cross-functional team” and “Effective leadership management in virtual new product development team”, which initially produced hundreds of articles. Each article was

reviewed to eliminate those that were not actually related to the research question in this paper. The selection criteria were as follows.

1. Only those articles published in Technology, Business, and Management journals were selected, as these were the most appropriate outlets to the research and the focus of this review.
2. Conference papers, masters and doctoral dissertations, textbooks, and unpublished working papers were excluded, as academics and practitioners alike most frequently use journals to accumulate information and disseminate new findings. Thus, journals represent the very best level of research.

The search yields various relevant articles to the research topic. Each paper was carefully reviewed and separately classified into three different categories. This classification aims to know how leadership management can affect these categories and the way they will impact cross-functional new development and virtual teams. This search is a comprehensive base for understanding the impact of leadership within the cross-functional new development team.

Classification method

1. Knowledge Sharing.
2. Performance.
3. Conflict.

Research Question

According to the literature that were carefully examined for this paper on the focus of new product development cross-functional teams and virtual teams, the following categories were constantly brought up as elements that could either negatively

or positively affect the cross-functional team process. To properly understand the obscurity of leadership management's impact on virtual cross-functional NPD team, the interview was conducted with cross-functional team leaders who operate through virtual remote work. Due to the importance and consistency seen from the literatures used in this paper when using the qualitative data collection method, these interviews were focused on a qualitative method for a deeper understanding of the issue at hand and developing the appropriate model. This research was inductive, intending to connect broad data, although it was unknown what the completed model would look like. The following questions were designed to carefully understand leadership management's impact on performance, conflict, and knowledge sharing in cross-functional new product development virtual teams. These interview questions are centered around team leaders who have been affected by COVID-19 and are now forced to work virtually. These questions will help understand the correlation between working from the office and fully transitioning to virtual remote work. They form the literature reviews and the gaps that were not addressed. Project success and failures will be carefully examined for both virtual and physical workplace environment.

Knowledge Sharing Questions:

1. What kind of leadership style do you use to encourage knowledge sharing in the virtual environment?
2. What are the mechanisms by which leaders can facilitate team learning and the self-regulatory activities which contribute to team learning in the virtual environment?
3. How does trust, ICT, diversity and conflict affect knowledge sharing?

Performance Questions:

1. How does team leader management style affect the performance of Cross-function NPD virtual teams?
2. How does trust, ICT, diversity and conflict affect project performance?

Conflict Questions:

1. When team members from different departments have conflicts, how do you manage this situation without it negatively affecting the success of the project?
2. How does communication affect conflict resolution in cross-functional NPD virtual team?
3. What is your overall take on conflict in cross functional team? Is conflict important for the success of a cross-functional NPD virtual team?

Results and Application

The interview method of approach for these interviews were qualitative method. This study focused on questions regarding how performance, conflict, and knowledge sharing can affect leadership management of a NPD cross-functional virtual teams. Although these are the main categories that this paper is based on, there are also elements like trust, ICT, diversity and communication that can affect the outcome of knowledge sharing, performance and conflict in a NPD cross functional virtual team. When there is lack of trust within a NPD cross functional team, this can affect the deadline of project by causing lag in knowledge sharing and conflict within the cross-functional team. The interviewees were all team lead in a cross functional new product development virtual teams and they are as listed; A Senior Scientist from Waters Corporation, A Construction Project Lead from Raimore Constructions, and A Scientist Developer from Cognigen.

Figure (1) shows the summary of the responses to the interview questions. The full interview can be seen in Appendix I.

Interviewee Background	Knowledge Sharing	Performance	Conflict
Senior Scientist: A team leader for a New Product development cross functional team	<ul style="list-style-type: none"> - Uses democratic leadership style. - Using right language and communication skills. 	<ul style="list-style-type: none"> -Have a project manager who each team member would report and be held accountable. - Use teams, record meetings for reference and clarification. 	<ul style="list-style-type: none"> - Find a common ground and always have a plan B for the cross-functional NPD team. -Be a role model - Good communicator - End of meeting round table discussion. -Conflict can positively influence the team.
Scientist Developer: A team leader for a New Product development cross functional team	<ul style="list-style-type: none"> - Uses democratic leadership style. - Assigning task to each team member to prepare for next meeting. 	<ul style="list-style-type: none"> -Democratic leadership can be positive and negative to team's performance by creating conflict. - knowledge sharing helps the team complete task on time and improve team's quality. 	<ul style="list-style-type: none"> - Having plan B and switching out different team member. - Clear Communication - Set up weekly one on one meeting through ZOOM meet. -Conflict is essential for team and developing alternative methods to solving a problem.
Construction Project Lead: A team leader for a New Product development cross functional team	<ul style="list-style-type: none"> - Uses democratic leadership style. - Always give clear description and visualization of tasks and project. 	<ul style="list-style-type: none"> - Use of effective communication creates more unity amongst team and positively affects performance. - Conflict can disrupt transfer of knowledge and therefore affect performance 	<ul style="list-style-type: none"> -Conflict brings about need for critical analysis of New Product Development.

Figure (1): Interview Overview

The qualitative data collected from these interviews have shown the relevance and impact of effective leadership management of NPD cross-functional virtual teams. It also gave an in depth understanding on how performance, conflict and knowledge sharing can impact the leadership management of NPD cross-functional virtual teams. These interviews have remained consistent with the literatures in this paper, and it added on the

research of leadership management in NPD cross-function virtual teams. All the interviewees said they used the democratic leadership style, like [3] mentioned, in their NPD cross-functional virtual teams. The senior scientist used communication skills to help improve knowledge sharing within the teams while the scientist developer said assigning tasks on a weekly basis was something that helped the team improve on their knowledge sharing ability. The focal points from the interviews repetitively stated the importance of clear communication, establishing a democratic leadership style, one on one meetings, and setting ground rules is very important for the success of cross-functional new product development team. There was also a correlation between conflict and knowledge sharing due to how information is shared or team members diverse expertise. While performance is being enhanced by knowledge sharing and conflict.

Discussion

After summarizing the points from the interviews, we realized there was correlation between knowledge sharing and conflict. All the interviewees mentioned the use of democratic leadership as a facilitator to bridge the gap between knowledge sharing and conflict. Although there was similarity, in leadership style among the interview, it was not statistically significant given the limited sample size. Further research on a larger sample size would help in addressing and seeing other type of leadership style and how it affects knowledge sharing and conflict.

A summary of our discussion is represented in the model (Figure 2) created below. It breaks down the interviews for a brief description of an ideal functioning multicultural team. It also included the broken trust box to tell the reader how they can rebuild trust when broken in a multicultural team. Although this model has not yet been

proven, with the consistent key words that were obtained from the interview, a framework was created to assist new product development teams going through rebuilding trust with their teams. When the connection of each arrow is explored, it reflects to what was heard during the interviews. The following is the explanation of what each box represents and how it is tied to trust. The developer scientist assigned weekly tasks to each team member and sometimes assign different expertis task to another team member so as it to improve their knowledge of the project. For example, he would assign an 4 team member to do a market research task so as it broadens their knowledge and improve their team learning. In contrast the Scientist developer uses teams and languages in which the team members can understand despite their department or expertise. The interviews also mentioned that with knowledge sharing, you can improve your project timeline and speed to market. Although different mechanism and styles to ameliorate knowledge sharing within the team, it a profound way that has helped the interviewee improve the success of their teams.

Another commonality for the interviewees was the use of ICT as a tool that enhances performance and improves communication. One of the interviewees mentioned that with teams they now record all their meetings, and by doing so makes it easier for the team members to refer to meeting videos as reference to what was discussed during the meeting. This has really helped the performance of the team unlike in the conventional setting where most meetings are not recorded, and you have to take notes which can there by cause loosing vital information. Another interview the use of ICT can improve communication and knowledge sharing by making the team more effective. Overall, the interviewees believe that conflict investable and it is important for the growth and

successful performance of the team. It can give a deeper insight about a problem, help the team develop new ideas for the success of a project, expose team members to new opportunity, it brings need for critical analysis and it helps in restructuring the team. One of the interviewees said conflict is like troubleshooting a problem to obtain the possible best way to fix it. However, conflict can also be negative and affect the team's performance. It is important for team leaders to detect and confront conflict in early stage.

Figure (2) is a model based on the result collected from the interviews on way effective leadership management can impact new product development cross-functional virtual team. The overall model depicts how performance, knowledge sharing, and conflict can affect the success of a NPD cross-functional team. (a) and (b) are correlated and they both can positively or negatively affect each other. i.e. If knowledge sharing is negative and conflict is negatively, this can negatively affect performance. If knowledge sharing is positive, and conflict is negative knowledge sharing will positively improve the performance of the team. However, if (c) is negative and (b) is positive, performance (e) will be negatively affected because this means that not everyone on the team has the necessary knowledge to make the new product development project successful. If performance (e) is positive, (f) will be positive.

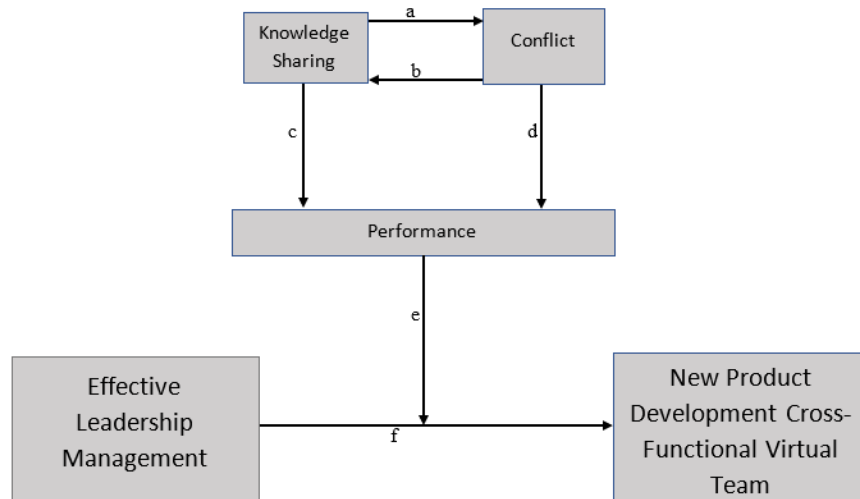


Figure (2): Effective leadership Management Impact

Conclusion

In this paper, in-depth analysis of literatures on the topic of leadership management and how it impacts new product development cross-functional virtual teams was examined. This literature reviews focuses on different factors like culture, leadership, ICT, conflict, Trust, and communication as essential elements that can impact performance, knowledge sharing and conflict in virtual teams. Due to the limitation in research paper focusing on this paper's objectives, empirical research was performed to understand how performance, knowledge and conflict enhance new product development cross-functional virtual teams. This research was based on qualitative data collection to cultivate a deeper understanding of the issues, but also to develop and validate the theoretical framework proposed. Although this review cannot claim to be exhaustive, it does provide reasonable insights and shows the incidence of research on this subject.

This research also shed light on a new topic that can influence knowledge sharing in NPD cross-functional virtual team. It will be plausible to interview a broad range of team leaders from NPD cross-functional virtual team. Investigate different modes of

knowledge sharing in virtual teams and how it impacts NPD. In addition, due to covid-19 and the rise in virtual remote work, it would also be resourceful to do further research on ICT tools in virtual environment and how it can be used to bridge knowledge sharing, conflict, and improve performance. Most importantly interviewing team leaders from engineering, pharmaceuticals, and construction whose workplace is virtual remote will be a great addition to understand if virtual cross-functional teams from different industries needs different leadership management or it is applicable to all cross-functional virtual teams.

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Appendix I

Scientist Developer

A. Knowledge sharing questions.

1. What kind of leadership style do you use to encourage knowledge sharing in the virtual environment? I use democratic leadership style because I like everybody to have an open discussion about the projects. With their inputs, I can make the final decision based on the opinions of everybody. It has really helped encourage knowledge sharing within the team.
2. What are the mechanisms by which leaders can facilitate team learning and the self-regulatory activities which contribute to team learning in the virtual environment? Giving weekly assignments and task helps and contribute to knowledge sharing. It helps them to contribute to the team members. It facilitates knowledge sharing. This way it is easier for everyone to know what is going in the project not just the area they are working on.
3. How does trust, ICT, diversity and conflict affect knowledge sharing? I think that trust does affect knowledge sharing because if someone has given an idea that did not yield anything it can affect trust. For example, when my manager said don't let the project apply this way, it can look different. Giving information do not turn out well for the team it can create distrust. If someone offers an idea and their idea has not yielded anything. overtime people will trust you based on your information and results. If you are trying to share a knowledge everything becomes questionable. I bridge the gap through giving them an easier task that you know definitely they will able to accomplish it. If one has lost trust within the

team, the only way to reestablish credibility within the team is to make sure they are able to handle the task. So that it does not not disrupt knowledge sharing within new product development. It will affect the team and can affect team member belief in themselves. He gave an example as being a student who could not get the project done, the remaining team members started to lose trust on me . my professor helped me reestablish trust by giving me a simple experiment that have been shown to work just to verify that the problem wasn't me and it was the experiment. It also helped the team establish trust in me after I worked on the project and the results came out good.

B. Performance Questions:

1. How does team leader management style affect the performance of Cross-function NPD virtual teams? Sometimes it can be very positive and sometimes it can be very negative. It is negative when someone who is a scientist gives you business advice without business knowledge. At the same time it can everyone sees things different. Giving the wrong advise because you think as an engineer you can advice the financial team on how to calculate their spreadsheet. It is more positive with this style than negative. In my company we are designing an app and we give it to the cross functional time. Everyone has their own perspective that can help improve the app.
2. How does knowledge sharing, and conflict affect project performance?
Knowledge sharing is a very positive effect. It is always good to learn more. It is always good to learn more. It improves performance because it decreases time to achieve something. When you are in a cross functional team, it makes each depart

focus on its core concentration and improves project timeline. It accelerates the project a lot. It gives you more time to review each project during the milestone. Be more effective, more quality product, better result. Conflict can slow down performance for example in my team we spend more time going through a conflict which delays the task at hand. It is also unavoidable especially when you have people with like mind. When you have cross functional team, conflict is less likely to happen because of the diverse department. But when there is conflict and knowledge sharing problem, you can end up spending two hours instead of 10 mins meeting discussing one thing.

C. Conflict Questions:

1. When team members from different departments have conflicts, how do you manage this situation without it negatively affecting the success of the project? The likelihood of having conflict is less but when they do have conflict it might be serious. If I am working with science team and business team but the businesspeople have certain way of doing thing and they can develop conflict by doing things different. To resolve, I switch out team members that can work the according to the requirement of the projects. Always have plan B in case of situations arises for the success of the project. Give people different roles who are from different department.
2. How does communication affect conflict resolution in cross-functional NPD virtual team? Communication is the key in conflict resolution. I have had a lot of conflict because communication was not clear. With more communications and explaining things more automatically resolves the conflicts. You can also use

Microsoft teams and make remote meeting and send email. It is almost as if you never left work. Have a one-on-one call. Schedule 30 minutes call every week and during that time you go through disagreement. In my company we call it coffee clash.

3. What is your overall take on conflict in cross functional team? Is conflict important for the success of a cross-functional NPD virtual team? Conflict is important for the success of a cross functional virtual team. I feel that conflict makes you a better team in a way because when you have conflict it forces you to think more and outside of the box. It is not so much of a great thing for the team, but it helps the team becomes more strategic. Makes the team more strategic and learns to solve problem. If a team have conflicted an able to resolve it, they become a much better team. People do not want it but having it and going through it makes you a stronger team.

Senior Scientist

A. Knowledge Sharing Question

1. What kind of leadership style do you use to encourage knowledge sharing in the virtual environment? Democratic leadership style because we have to collaborate on different aspect. If it is new product engineering, usability, it encourages. For example, engineers have good ideas but might not know what type of product that the user would be willing to use. Marketing recruitment.
2. What are the mechanisms by which leaders can facilitate team learning and the self-regulatory activities which contribute to team learning in the virtual environment? We exchange information that could be useful for product to the

team members. It could be through teams. Using language that everyone could understand and make everyone easily understand it. Communicating critical information.

3. How does trust, ICT, diversity and conflict affect knowledge sharing? Trust means you have the information, and you provide the source of the information. We are doing chemistry and scientific projects, so I need to give source to help build trust about the information provided for the project. We have never had issue with trust. Encourage asking team members to ask questions. Conflict affects but we bridge this gap by having rounds table discussion after meetings. This everyone speaks up and contribute, and we encourage people to contribute to the discussion.

B. Performance Questions:

1. How does team leader management style affect the performance of Cross-function NPD virtual teams? Honestly, in terms of moving forward, I usually have a project manager to hold everyone accountable to hold people accountable of the team. This helps performance for the milestones. Styles is very effective for the performance of the team efficiency and tasks and overall project.
2. How does trust, ICT, diversity and conflict affect project performance? Teams have been very useful for the performance of the project NPD. Before Covid-19 we used to have all types of all platforms. Nowadays when most people are working online, all the information are easily organized online and teams. In conventional setting you will have to ask 10 people but now there is recording of the meetings. You can always go back and watch the meeting and know what was

informed. You can easily listen to other meetings through Microsoft team's platform. You get to know what goes on in different part of the world when it comes to the project life cycle.

C. Conflict Questions:

1. When team members from different departments have conflicts, how do you manage this situation without it negatively affecting the success of the project?
There are so many ways, but first you must understand why they are having such conflicts and whether you can find a common ground for them. If not, what is the best option so that the team can move forward. There is always a plan B, and the reason why conflicts exist is because sometimes the team members think they are stuck so as a team leader you need to help them find a common ground.
2. How does communication affect conflict resolution in cross-functional NPD virtual team? Communication is very crucial to success of product development. A good communicator needs to know how to pass information. What I discovered is to try to be a role model to exchange information proactively. You set a tone to the team that is good to communicate. Work and show people that it is important to share information especially crucial information. Be able to encourage people to speak up.
3. What is your overall take on conflict in cross functional team? Is conflict important for the success of a cross-functional NPD virtual team? The moment you hit a roadblock when conflict happens, I do not like it in the initial end but over time I realize the important. It happens because of facts. It could be money resource and coordination of the teams. Conflict is inevitable. Conflict is good for

team because it exposes you to the new opportunity. If you have conflict you will have to figure out another which might be the better way to do things. Conflict is like troubleshooting, and it helps perfect project in a way.

Construction Project Lead

A. Knowledge Sharing Question

1. What kind of leadership style do you use to encourage knowledge sharing in the virtual environment? Democratic leadership style is important because when you allow people to input ideas it gives more insight to analyze the focus topic. With every team member input, you are able to analyze them. Encouraging the team members to interact and contribute to the team.
2. What are the mechanisms by which leaders can facilitate team learning and the self-regulatory activities which contribute to team learning in the virtual environment? Giving description and visualization.
3. How does trust, ICT, diversity and conflict affect knowledge sharing? Each person must feel comfortable. Make sure to use effective communication during team meetings. When the team leader makes the team, members feel comfortable it makes easier to share knowledge and build trust between team members and team leader. Sometimes you can take your team members out for lunch and breakfast.

B. Performance Questions:

1. How does team leader management style affect the performance of Cross-function NPD virtual teams? It helps create more unity to work together and effectively

communication during team meetings can positively affect the team's performance. It helps the leader set clear expectation.

2. How does Knowledge sharing, and conflict affect project performance? Is there is conflict it can reduce the performance of the project. Also, conflict can positively affect performance. When there is conflict there will not be a good transfer of idea. While sometimes people rather not confront conflicts, which can negatively affect the performance of a NPD team.

C. Conflict Questions:

1. When team members from different departments have conflicts, how do you manage this situation without it negatively affecting the success of the project? If the team members have different opinions, you can become a common ground and understand different opinion. I would make sure to confront the situation and diffuse the tension between the team members. If this is not resolved it can negatively affect the project.
2. How does communication affect conflict resolution in cross-functional NPD virtual team? The use of video technology to prepare meeting, and effective communication. Always be straight up and not afraid to confront the situation.
3. What is your overall take on conflict in cross functional team? Is conflict important for the success of a cross-functional NPD virtual team? Conflict is important for the success of the team. When people have different opinion, it is good because it brings need for critical analysis. Instead of having one opinion and everybody agreeing to it.