**Virtual Teams are a viable Alternative in Project Management**

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**Introduction**

With the development of business's globalization, the project operation of this world has been changed seriously. Team building will produce far-reaching impacts for enterprise development. In the present world, the communication technology is developing completely, a large number of communication media caused the form of team composition become more flexible. For example, telephone, internet and video conference generate the different geographical areas and time zone become a simple problem. During the 1990s, the new way for create a project team was developed by project manager that named virtual project teams (Rosen and Blackburn, 2004). The virtual project team is a particular way to link together members of a project team that are not collocated to the same physical place (Pinto, 2015). At the same time, the change of organization structure and run mode can help the enterprise to adapt the constantly changing world that will lead to reduce costs and improve the efficiency of resources usage.

A virtual project team is a feasible solution that adapted to the project management. The diversity of talents is one of the key elements to enterprise. For example, the new flagship mouse produced by Logitech is a collaborative product. Each project team members can be responsible for the completion of manufacturing operation (Schiff, 2006). Different parts of mouse are produced in different areas that can guarantee quality, because different engineer is adept at different craft. Not only will the virtual project team to use for business, but also it become a kind of philosophy to service in various sectors. For example, the telemedicine projects need different experts get together to complete the process of treatment, although this process was being finished by only one hospital, however, all of participant shared their uncommon opinion and experiences. Information and knowledge sharing is another reason to establish a team (David L, 2006). Although the virtual project team is a practicable way to complete the project, however, there are still a large number of drawbacks in this mothed. How to resolve these problems is a critical factor to improve the efficiency of operations.

**Characteristics and advantages of the virtual project team**

Virtual team is the product of socioeconomic integration. All of project participants should share their knowledge and experience without exception. Different territory, nationality, religion, culture and living environment give more possibilities and creativity to the virtual team. The first character of virtual project teams is virtuality. Team members have little opportunity to connect with each other face to face, they can only exchange work experience through a variety of communication media. And then, a virtual project team, which has been built can work together for one project or several projects, however every project need different kinds of talents. That is a frequent occurrence for increase or reduce the number of members in a virtual project team. The second feature of virtual team is mobility. After the completion of a project, the original virtual team need to be disbanded or be retained is another aspect for staff mobility. Finally, every team member original assumes different responsibilities in the different project, which can account for each member perform more than one role in two or more projects. Intersectionality is one of the important issues that need to be paid more attention by project participants (Gilson et al., 2014). Compare with traditional project teams, the virtual project teams have a variety of advantages.

Virtual team is a kind of effective method to reduce the cost. Team members can work in different locations without fixed offices that means they can choose working environment wherever members they are. (Bergiel et al., 2013) Internet, video conference and others online communication mode replaced traditional meeting, which need face to face. Not only it can reduce space expenses, but also reduce business travel frequency. A project of Team-based European Automotive Manufacture shows a virtual project teams how to reduce cost. This project has developed a software, which based on a user-requirements analysis. That makes all of engineers who involved in project and users can join the process of product development according to the internet, shared whiteboard, application sharing and video conference at the same time. The results indicate that there are 20% fund usage efficiency rate has been produced by this working form. It can increase sales, which about 1 billion pounds and reduce the selling cost, which about 90 million pounds. (May and Carter, 2001)

Virtual team have advanced technology. A complete virtual team made up by a wide range of talents, which from all over the world (Ebrahim et al., 2012). For one thing, it can fully acquire latest technology, knowledge and product information for enterprise that makes new product more advanced. For another, although a variety of talents, which have professional skills are often difficult to be recruited by an enterprise. However, according to the internet, a large number of professional skills can be used intensively. The virtual team can also use in the learning process that means better academic exchange. There are several students where from two universities in Columbia joined in to an international project, which can help students to learn international business more deeply. The final result shows, although there a large number of challenges in this project, for example different time zone, technical restriction and trust issues. However, a majority of students thought the virtual teams, which promote the transcultural interaction is contribute to cultural understanding and international business learning (Gonzalezperez et al., 2014).

Virtual teams use the latest and fastest communication technology that can means team members can transmit information very efficiently. It can communicate with each participant who joined the project at the first time when the project has some problems. Not only that guarantee the quality of the project, but also according to knowledge sharing, each members can accumulate experience more efficiently. This efficient way of working can bring a greater competitive advantage to the enterprise (Ale Ebrahim, 2012).

**The disadvantages of virtual project team**

Compare with traditional project team, although virtual teams have apparent advantages. However, the virtuality and mobility of team members also brings a variety of problems.

Team members generally lack trust. Low level of trust between team members will hinder product development and delay project progress (Lawley, 2006). The knowledge sharing based on mutual trust, however it is hard for team members to trust each other in a very short time. That caused by each virtual team members have different cultural backgrounds. This kind of crisis of confidence will create new divergence between team members, and then, it can reduce the efficiency of project work. Team members are in a virtual environment, which cannot trust each other, not only it will decrease the effectiveness of the organization, but also a variety of a negative impacts will be generated on their own quality of life (Holton, 2001)

Team members have no opportunity for face-to-face communication, the reason of that is as same as lack trust. Firstly, the different time zone means that team members cannot have the same timetable invariably. Although communication technology allows news to be communicated as quickly as possible. However, time differences will give rise to the information cannot gain feedback at the top speed. Secondly, compare with face-to-face communication, the long-distance communication cannot help team members understand each other clearly (Horwitz et al., 2006). The communication content of team members is limited to work, which caused by trust issue. It will enable team members feel lonely and anxious. Finally, Communication equipment cannot guarantee that will never have problems. Team members where located all over the world will lose track if there are problems caused by communication technology. For example, power outage during video conference will make the project not to be completed on time (Marlow et al., 2017).

It is difficult for virtual team to supervise team members caused by the lack of effective management tool. For one thing, the virtual project team is a temporary organization, each team member has less opportunity or never work together with others before the project started. Without effective management measures that will enable team members often avoid responsibility. For another, virtual team have not clear responsibility structures. The research of virtual shows that the success of the project largely depends on leadership. Be as specific as possible, what leadership skills and leader behavior can effectively help the virtual team is a problems, which are eager to be solved. (Lilian, 2014).

**Analysis of feasibility and challenge**

Virtual team is a kind of variable method of project management. Although the virtual team is a double-edged sword, the shortcoming of that derived from its characteristics invariably. However, all of the shortcomings can be overcome. Compare with all of challenge, virtual project teams often bring huge project returns. A study collected data that shows that virtual team can help SMEs to develop quickly (Ebrahim et al., 2012). Improve the present situation of cross-cultural communication, enable team members and project managers to have unobstructed communication. Clear role positioning and long-term relationship building among team members, which are all successful performance of a complete virtual team (Horwitz et al., 2006). The feasibility of a virtual team reflected in how to overcome the challenge.

The first challenge is solving the problem of trust as far as possible between team members. Because the foundation of centralize the resource and knowledge sharing is mutual trust. There is a significant correlation with the level of positive knowledge sharing caused by trust, reciprocity and enjoyment (Killingsworth et al., 2016). Trust is the foundation of all successful relationships. Team members need to build and cultivate mutual trust carefully, which for the success of the project (Coppola et al., 2004). Generally, team members respect each other's performance that often creates an initial sense of trust in the virtual team. At the same time, there is more common ground among members that will also help them to increase the trust level for the virtual team (Derosa et al., 2004). For example, the same education background, similar experiences and social position. Even if team members fail to meet regularly, the initial project meetings will help members understand who they are cooperated. Teleconference or video conference can make use of voice to highlight everyone's personality and enhance mutual understanding (Joinson, 2002).

The success of the virtual team depends on the effectiveness of the communication. However, there is the same uncertainty in this kind of effectiveness caused by communication barriers between the each of virtual team members. Projects often fail to reach their own potential caused by poor communication and inefficient knowledge sharing between virtual team members. That resulting in high project cost and low efficiency (Precup et al., 2013). Firstly, communication obstacles were brought by spatial distance. Virtual teams should use a variety of communication technologies comprehensively. And then, that should use the diversity of communication methods to adapt to different project goals. Secondly, different culture also brings obstacles to communication. Therefore, each team member should understand the aims and objectives when the virtual project team was established. The project manager should try to coordinate the conflicts between personal goals and project objective as much as possible. Every team member should be encouraged and asked to communicate with others (Haines, 2014).

Virtual project team is also a kind of new challenge for project managers. The research of the virtual team shows that the success of the project largely depends on the leadership of the project manager (Lilian, 2014). Firstly, the virtual project managers should build the virtual cooperation agreements. It will make everyone reach an agreement and gain trust from others, which is necessary for a virtual team to succeed. Secondly, project manager need to build a kind of motivation model, which adapt to the team members. The higher-paying and challenging job often can enable team members to gain a sense of identity, which have special skill. After that, project manager should establish a kind of distinctive culture for virtual team. The characteristic virtual team culture can enable the team members have sense of belonging and group awareness that will make up for loneliness caused by long-distance communication.

Virtual teams play a large role in the development of projects for SMEs. Project managers of SMEs should give priority to the potential of virtual teams. It is important for project to reduce costs and increase productivity (Ale Ebrahim et al., 2010). Firstly, project cost determines that the project benefit. It is an important indicator in the development of SMEs. Virtual team can enable groups of all kinds of talent to work together, which make up for the shortcomings of lacking talents for SMEs. At the same time, SMEs will save huge cost caused by making full use of the resources and high-speed translation. Secondly, the competitive advantage of virtual team generates the new product to occupy the market quickly. All of that caused by the competitive advantage of virtual team, which generate the new product to be popularized quickly in the trading market. Virtual team will gain more vitality for SMEs where located all over the world.

**Conclusion**

Virtual project team is an inevitable trend in the development of project management. It can reduce the cost of production, improve work efficiency and quality, thus complete all aspects of a project perfectly. Although the virtual team has a series problem of communication and trust due to its virtuality and mobility. There will be more challenging compare with traditional project team. However, virtual team has huge human resources and technical resources, which can give the enterprise great superiority in the future development. Virtual team is a viable management tool, which build a king of dynamic and organic network organization structure based on modern communication technology. In addition, coordination and harmonization between project manager and stakeholder through the establishment of relevant operating mechanisms. That promote information sharing between project organizations and good cooperation of team members to achieve project objectives.

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