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Global Software Engineering

CS-C3150 Software Engineering

Global software engineering is a powerful tool for companies to expand in different frontiers to achieve an increase in resources, knowledge, and speed of development. Global software development also helps companies to stay closer to their customer base and it helps them reduce development cost because of a significant difference in salaries of employees in different countries of the world.

If I'm the manager at GuruSoft Inc, I would welcome the suggestion made by the CEO of moving all or part of the development to China. But just jumping onto a decision without looking at the pros and cons first could risk the existence of the company. There are several technical and non-technical aspects that I would consider before coming to a decision.

"Do we really need it?" Would be the foremost question I will think about. Global software development is fruitful when the number of people working on a project is high. If we working only on small and medium-sized projects, then there won't be any need to transfer the development to China because it is not the scale at which GSE is required. With team size close to 20, then I don't think that adopting GSE would be beneficial because it would just bring in more problems likes communication, synchronising the main milestones, etc. If the team size exceeds twenty or so, then it would be worthwhile to think of adopting GSE.

Cost is the other main aspect that should be considered. This aspect is very much dependent upon the number of employees (or resources) that we intend to hire from China. For eg. If GuruSoft plans on hiring 10 or 15 employees for the project, then it won't be wise to move to China because the cost-wise gain the company would achieve would not be able to overcome the number of problems that GSE brings with itself. Whereas, if we plan to hire 50-100 employees, then shifting the development to China would be a great idea since it would save us more than a quarter-million euros per month (50 * .85 * 3000e/m).

Communication would be the next big thing to be considered given the fact that work done in China would need mentoring and constant monitoring from our side. The time difference between Finland and China is of 6 hours which means there is a very short

overlapping working time between the two teams. Thus, it is very important to utilize this time very efficiently and effectively. It is necessary that both the sites have dedicated meeting rooms with necessary infrastructure, tool support, and a good internet network. We can use strict time-boxed meetings to avoid late-night meetings. To make the meeting effective, the team members can post their questions or backlog before attending the meeting. Due to lack of overlap time, we can plan meetings of local scrum teams at each site and then practice scrum of scrums to ensure inter-team communication. Although we are using WebEx and Slack, if we transition to GSD we need to have a rich communication environment to avoid slow, unreliable and poor transmission. We can support various kinds of communication tools such as phone, web camera, net meeting, email, shared email list, Instant message, etc.

The next thing to consider is team collaboration and mentoring. Socio-cultural distance between the two teams can cause substantially affect the team collaboration process and may cause ineffective scrum meeting practices. To deal with this problem we can adopt a method where a scrum team gathers and performs a few initial sprints at one site before the distributed development starts. This will help reduce the socio-cultural distance as well as provide some training to the new employees from China. Since we don't have any senior team member who is willing to be relocated, we can practice the regular exchange visits to the offshore team throughout the development. By maintaining planned rotation among the onshore and offshore team, we can reduce the cultural differences, increase mutual trust and at the same time increase project vision. Also, providing various collaborative tools such as wiki, expertise finder, etc will help to increase project transparency, visibility and support our scrum practices.

It would be worthwhile to consider the team management as well. To manage a large distributed team, it would be beneficial to split the teams into smaller sub-teams. This way our project would be distributed among several scrum teams out of which some could be located onshore and rest offshore. Creating autonomous scrum teams should be the main idea to ensure that each team is allocated independent architectural subsystems. This way we reduce inter-team dependency which increases the overall development rate.

Presented above are some of the factors which I would keep in mind while deciding to shift all or part of the development to China. If we can successfully tackle the above problems, then I think it would surely be a good idea to invest in global software development because it would benefit us by reducing the overall development cost and delivery time.