Introduction
In recent years, there has been an enormous improvement in software industry, customers have higher requirements for the quality of software products as the swift technology development, therefore, software companies have introduced many strategies to enhance the quality of products to improve competitiveness, and the software process improvement (SPI) could be a famous one which benefits to software development process, there are many large software firms initiating the SPI in project, and it significantly reduces the possibilities of errors in the development process. However, SPI is not an essential element to acquire higher quality products, especially for small organisations, in comparison with large software firms, there are less small software firms implementing the SPI or other similar approaches in the development process, resource restriction and the variability of the small software organization are the main reasons for the absence of SPI implementation.   .

The SPI initiative in small organisations
The SPI is not a fundamental factor in developing a high-quality product by small software firms because few small organisations implement the SPI in the development process. Firstly, small software firms are an important component of the software industry. Staples et al. (2007)[1] indicate in Europe, 85 percent software firms consist of 1 to 10 employees, in addition, in Irish, only 1.9 percent IT firms employ more than 100 employees. It could be considered that part of the high-quality products is developed by small software organisations as the high proportion of small software enterprises in all software firms. However, there are not many small organisations adopt the SPI, especially in developing countries. In terms of the result of recently studies review, there is no SPI initiative done in small software enterprises in Asian except Hong Kong, in addition, there is a need to develop a specific SPI model which suitable for a specific area (Almomani et al. 2014)[2]. Therefore, the implementation of the SPI is not directly related to the high-quality products in a small organisation, some small software enterprises are producing high-quality products without the SPI initiative, moreover, in order to execute the SPI in small software organisations, the SPI that created according to the specific circumstance is required.

Resource restriction
There are many reasons why small organisations do not implement the SPI, Resource restriction could be the most important one. According to the survey result which covers 29 countries and includes 228 software firms, 28 percent of software firms agree with that the lack of resource is the main reason why IT enterprises do not implement the SPI (Laporte, Alexandre & Connor 2008)[3]. In comparison with large software firms, there is an obvious resource restriction in small organisations, small software firms are driven by cash-flow, the project development depends on project profits, thus, the project budget is much lower than large software firms budget, and the lower budget will negatively influence the SPI performance. Laporte, Alexandre and Connor (2008)[3] show the characteristics of small software organisations, there is little budget for employees training, limited or no budget to perform process

improvement or process assessment. All of these disadvantages could influence the performance of the SPI. In conclude, resource restriction is directly related to the implementation of the SPI, successful implementation of the SPI requires employees to be familiar with the SPI process, however, there is little budget can be used in employees training or process improvement in small organisations, therefore, the SPI could not be effectively executed in small firms as employees have no experience in SPI initiative.

Variability

The variability of small organisations negatively affects implementation of the SPI. The size of organisations and customers cause small software firms have a high variability than large software firms, Laporte, Alexandre and Connor (2008)[3] indicates that small organisations are more flexible than large organisations, in addition, small enterprises products usually have a single customer ,where the customer is in charge of the management of the system. Therefore, the customer will be integrated into the project team, because the number of small organisations' employees is less than 25, and there is a single customer, in comparison with the large firms, the customer often participants in the development process. A close relationship between a development team and a single customer will influence the development process, for example, during the development process, the customer requirements for a product might often be adjusted as they can participate in the development process. However, in terms of the SPI, there are no SPI frameworks that against this specific circumstance. Staples et al. (2007)[1] highlight that the nature of variability in small software development organisation is not yet clear, moreover, the SPI frameworks which can best help the small organisations have not been created. Finally, the variability of small organisation lead to the absence of SPI implementation, there are no specific SPI frameworks which against the specific circumstances in small software organisations to prevent the issue that caused by the variability.

Conclusion

In brief, it is not necessary to execute the SPI in small software organisations to acquire the high quality of products, because small firms play an important role in the software industry, however, most of the small organisations do not implement the SPI, especially in developing countries. Resource restriction and variability could be considered as the main reasons that lead to this result. The project development in small organisations depends on projects' profits, and there are not enough budget compared with the large organisations, furthermore, lack of the resources will negatively influence the employees training, some employees might not be adept at the SPI, thus, the small organisations could not implement the SPI successfully. Moreover, the variability of the small firms is another reason that leads to absence the execution of the SPI, small software organisations have a higher flexibility than large organisations, and products' requirement might be adjusted frequently as the customers can participate in the development process, however, there is no SPI framework that against the variable circumstance. In summary, in future, in order to

initiate SPI successfully in small software enterprises, the specific SPI which cost lower budget and against exact circumstance are required.

Word Count: 1014