Seminar 4: Activity 2

Read the articles by Verner et al (2014) and Anton & Nucu (2020) and then answer the following questions:

1. **What are the main risks that the authors identify? How do these fit into the traditional SDLC model?**

Verner et al. (2014)

Verner et al. (2014) raise several points that can be classified as risks associated with Global Software Development (GSD), such as

- Offshoring and outsourcing software development is complex.
- Outsourcing software development is generally unsuccessful due to time constraints, culture, and stakeholder distances that negatively impact communication and information exchanges. Here *language* and *culture* are considered the biggest risk factors.
- An increase in communication costs ("up to 50% of development effort spent on overheads such as communication and increased project management")
- Existence of hidden costs—not identified at project initiation—despite overseas vendors appearing to be cheaper than local development teams.
- Lack of knowledge of international and foreign contract laws.
- Political instability in offshore regions.
- Lack of protection of intellectual property rights.

Matching the above risks (complexity, culture, language, time zones, costs, contract laws) into traditional SDLC, 23 risks relate to the software development lifecycle. Namely, poor ***requirements engineering*** (Requirements Phase), incorrect **software development process** (Design Phase), architectural design decisions and **software configuration management** (Release and Deployment Phase).

- Software development risks relate to poor integration between project managers and the clients.
- Requirements engineering risks relate to an inability to correctly communicate the customer's requirements. Verner et al. (2014) note that "many projects fail

because the client and the client stakeholders do not grasp the importance of the participation in requirements elicitation."

- Software development risks involve lack of communication used within the vendor's environment and use of incorrect application of agile processes.
- Architecture risks relate to geographic distribution and communication risks.
- Configuration management risks relate to lack of common agreement for leveraging the same configuration management processes.

In summary, communication and culture are the main concerns when outsourcing software development.

Anton and Nucu (2020)

Anton and Nucu focus on Enterprise Risk Management (ERM), its implementation, effectiveness, strategies, maturity, and adoption rate.

The biggest concerns raised by this paper relate to the risks to financial performance if not adopted, cultural factors, risks introduced by the COVID-19 virus and the need for greater governance in lesser developed countries.

2. Which of the frameworks discussed in the Unit 7 lecture cast would you use to capture and categorise the risks?

Based on the lecture cast from Unit 7, the most appropriate framework to capture and categorise risks is related to communication is Critical Path Analysis (CPA) because it deals with dependencies between activities and upfront lists all the activities required to complete a deliverable. CPA identifies the longest path of all activities needed to deliver and this then defines the critical path of the project.

I think focussing on the critical path through a project is of tremendous benefit to focus on the risks related to each activity. However, CPA (and related Critical Path Method) must be used in conjunction with a risk management framework that helps to categorise risks, such as the Risk Management Framework (NIST, 2022). Using the NIST Risk Management Framework

(RMF) helps to “inform organizational risk management processes and tasks by determining the adverse impact of the loss of confidentiality, integrity, and availability of organizational systems and information to the organization.” According to this definition, CPM is useful in conjunction with RMF to inform organisational risk management processes.

References

Anton, S.G. & Nucu, A.E.A. (2020). Enterprise risk management: A literature review and agenda for future research. *Journal of Risk and Financial Management*, *13*(11):281.

NIST (2022). NIST Risk Management Framework. Available from https://csrc.nist.gov/Projects/risk-management/about-rmf/categorize-step [Accessed on 12 May 2022]

Verner, J.M., Brereton, O.P., Kitchenham, B.A., Turner, M. & Niazi, M. (2014). Risks and risk mitigation in global software development: A tertiary study. *Information and Software Technology*, *56*(1):54-78.