Contemporary Techniques for IS project Risk Management

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Abstract

Managing risks in modern businesses is a taxing venture that demand informed strategy for competitive advantage. While risks are inevitable in any IS projects, mitigating their adverse effects is the aim of all risk managers. A soapbox of mechanisms exist in actualizing effective risk management. Nonetheless, with the dynamic technological change, there is a constant emergence of new risks hence necessitating newer methods to manage them. This study endeavours to critically review contemporary techniques for IS project management,

Introduction

Risk management is a focus area within project management. Risk is generally viewed as the likelihood that an event which can trigger loss or create damage. The challenge lies in not knowing for certain how and when it is going to happen. The fear is that improper planning of how to treat the situation will lead to a chaotic situation. Therefore, Risk Management is about dealing with uncertainties. It is a cycle composed of methodical process to identify, analyse and respond to risks. Accordingly, it entails objectives definition, risk identification, assessment, responding to risks and risk monitoring (Likhitruangsilp, Malvar, & Handayani, 2014).

Uncertainty importance analysis is key to unravel misunderstanding on risk analysis with the main challenge being to identify the most critical and essential contributors to output uncertainties and risk. Considerable work has been done on the rationale of uncertainty importance. It is questioned what information they give compared to the traditional importance measures such as the improvement potential. A new type of combined sets of measures is introduced, based on an integration of a traditional importance measure and a related uncertainty importance measure. According to (Zio & Compare, 2011) with a similar scope investigated how uncertainties can influence the traditional importance measures, and how one can reflect the uncertainties in the ranking of the components or basic events.

In the field of risk assessment, probabilistic models are typically used to describe the (uncertain) future of the quantities characterising the system or process. From a theoretical

viewpoint, these models reflect variation in an infinite population of elements. For example, the Poisson model can be used to represent the variation in the number of events occurring in a system over a period of time, when considering a population of similar systems. The values of the parameters of the probabilistic models need to be estimated from the information available on the system or process which, may be more or less precise and complete, and give rise to uncertainty on the values of the parameters. As such, epistemic uncertainty can be reduced if additional knowledge and information can be acquired; on the contrary, uncertainty cannot be reduced and for this reason it is sometimes called irreducible uncertainty. The dichotomy epistemic uncertainty is instrumental for its treatment in risk assessment and management. The next section helps to shed more light on the concept of current methods used to manage risk

Morden Techniques for IS Project Risk Management

In this section a description of current mechanisms used in the IS project risk management. Some of these methods includes: chaos management, agile development, adoptive management among others. We commence with chaos management.

Chaos management

Chaos management is an emergent concept observed in project management that has gained credence due to the upsurge in the need of complex systems and the instability of current development environment. In managing Chaos, proactively recognize and prevent situations that typically cause projects to fail. In a scientific context, the word chaos has a slightly different meaning than it does in its general usage. Chaos, with reference to chaos theory, refers to an apparent lack of order in a system that nonetheless obeys particular laws or rules; chaos, in this context is synonymous with dynamical instability, a condition discovered by the physicist Henri Poincare in the early 20th century that refers to a natural lack of predictability in systems (REA, 2004). The two main components of chaos theory are the ideas that system: 1). No matter how complex they may be, they rely upon an underlying order, and that, 2). Very simple or small (insignificant) systems and events can cause very complex behaviours or events. This idea is expressed as sensitive dependence on initial conditions. Based on the first idea, chaos, with an underlying order has a pattern! The following idea suggests that it has a consequence. If we are able to identify the pattern then, the risk of what the chaos elements will bring. A complex system is by itself, another contributor to chaos as change is more

difficult to be accommodated by a system which is complex, a complex system is assumed to be chaos-prone (Othman, Zain, & Hamdan, 2010).

Adaptive Project Management

Management of chaos may require that changes are made to adapt to a situation. Adaptive management is a structured and methodical process for continually improving decisions, management policies, and practices by learning from the outcomes of decisions previously taken (Intaver Institute, 2012). Adaptive management has been adapted by many engineering discipline. However, in software development, the prominent use of adaptive management is marked in 2001 when a group of seventeen prominent software gurus met in the Snowbird resort in Utah which among others to discuss effective software development processes. The independent thinkers as well as competitors named themselves the "*Agile Alliance*" (Abrahamsson, Salo, Ronkainen, & Warsta, 2002). Accordingly, during the course of this meeting, they wrote the "*Manifesto for Agile Software Development"*(Cockburn & *Hi*ghsmith, 2001). Change in software technology has resulted in fundamental amendment to how we should deal with software development (Yourdon 2000 and Fowler 2003). Rather than resisting change, developers should be accommodating changes. Systems development must strike a balance between being stable and hovering over adapting to change because, systems that are too stable will simply lose relevance and die as environment evolves while on the other hand, systems that are extremely chaotic will self-destruct (Tan et al, 2005)

Agile Project Management

Agile Project Management (APM) is an iterative approach to planning and guiding project processes. Like in Agile Software Development, an agile project is completed in small sections. These sections are called iterations. In Agile Software Development, for instance, an iteration refers to a single development cycle. A project is built from people having differing personalities and differing skills, working in a physical environment within an organizational culture. The people, environment, and organizational culture all influence one another. When a strong person leaves, the organization rearranges itself to compensate; when the team spreads itself across multiple floors, communications change; and so on. The project is an ecosystem(Cockburn & Highsmith, 2001). Using the term ecosystem to convey the totality of the project at hand brings us to the discussion of processes and ecosystems and fitting the two together. Installing a process within an ecosystem offers two choices: Fit the ecosystem to the process or fit the process to the ecosystem. In reality, both the process and ecosystem

change, but the agile approach honours the ecosystem and recognizes that not every process will work in every ecosystem.

Conclusion

The dynamic technological change leads to new risks that require newer methods to manage. This study has described several contemporary methods used to manage risk. Some of the mechanisms discussed include: chaos management, agile management and adaptive management.

References

Abrahamsson, P., Salo, O., Ronkainen, J., & Warsta, J. (2002). Agile software development methods: Review and analysis. *Espoo, Finland: Technical Research Centre of Finland, VTT Publications*, 478. https://doi.org/10.1076/csed.12.3.167.8613

Cockburn, A., & Highsmith, J. (2001). Agile software development: The people factor. *Computer*, *34*(11), 131–133. https://doi.org/10.1109/2.963450

Intaver Institute. (2012). RiskyProject Professional 6 Project Risk Management Software User ' s Guide, 132. Retrieved from http://www.intaver.com/downloads/RiskyProjectUserGuide.pdf

Likhitruangsilp, V., Malvar, J. S., & Handayani, T. N. (2014). Implementing BIM Uses for Managing Risk in Design-Build Projects.

Othman, M., Zain, A. M., & Hamdan, A. R. (2010). A Review on Project Management and Issues Surrounding Dynamic Development Environment of ICT project: Formation of Research Area. *International Journal of Digital Content Technology and Its Applications*, *4*(1), 96–105. https://doi.org/10.4156/jdcta.vol4.issue1.10

REA. (2004). *Units of assessment and recruitment of panel members*.

Zio, E., & Compare, M. (2011). A snapshot on maintenance modeling and applications. *Marine Technology and Engineering*, *2*(May).