Cruising the Bermuda Triangle of Software Development

A study about perceived challenges of Belgian software product builders

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Software is becoming a major driver for innovation in various sectors and has acquired a unique position in the value creation processes of companies [1]. The software ratio increases in many products, and therefore many of them become software intensive. This has implications for the builders of these products as they have to leave their comfort zone of “traditional” product development, and enter the realm of software (intensive) product development.

Between 2004 and 2007, SIRRIS conducted an empirical study at 57 software intensive product builders in Belgium. The goal of the study was to gain insights in how builders of software intensive products perceive the challenges they face in the domain of software engineering. The objective was threefold: (1) to identify the perceived individual challenges of software intensive product builders; (2) to consolidate this information in a set of shared challenges; and (3) to use this information for launching industry-driven research initiatives and advisory services to the Belgian industry.

During the study companies were approached individually to determine their individual challenges. This generated a large pool of individual challenges, most of them formulated within the scope of the various disciplines of software engineering (requirements, testing, quality…). In a next step, these were grouped on the basis of similarity, resulting in a set of shared challenges. Finally, a limited set of key strategic challenges emerged that cross-cut the various disciplines of software engineering. These are challenges that, if mastered efficiently, can result in a competitive advantage for a product builder.

The study revealed a remarkable convergence towards three key strategic challenges, referred to as the Bermuda Triangle of software product development: Product Variability, Flexible Development and Risk Management of Failure:

- **Product Variability** is the problem of managing the complexity of a product and its large number of possible variants (e.g., because of personalization, regionalization, language…).

- **Flexible Development** is the problem of managing the speed of the development
process (i.e., reducing the development lead time).

- Risk Management of Failure is the ability to fully exploit the potential of software in products while at the same time dealing with the high number of potential failures introduced by this software.

In this talk, we will introduce the challenges of Flexible Development and Risk Management of Failure challenges, and focus on the Product Variability challenge in more detail, explaining why variability is becoming more and more important and why companies still perceive managing variability as a challenge, despite the abundant state-of-the-art.

References

Is the Bermuda Triangle mystery even real? Probably not, many experts say. According to journalist Larry Kusche, some of the ships and planes that allegedly sank in the Bermuda Triangle were completely made up by writers. Moreover, others that "mysteriously sank" actually went down during violent storms, and some ships that were lost far outside the Bermuda Triangle's perimeter get lumped into the total. Additionally, the Bermuda Triangle is a path for many major cruise lines and trade routes, so it sees more ship traffic than many other parts of the ocean. "The region is highly traveled and the Bermuda Triangle is one of the most mysterious areas of the world. If you drew a line between Miami, Puerto Rico, and Bermuda, you would trace the approximate area of the Bermuda Triangle. Since the beginning of European sea exploration, the Bermuda Triangle has been a mystery filled with tales of shipwrecks, planes disappearing from the sky, UFO sightings, sailors vanishing from thin air, strange inclement weather and equipment malfunction, just to name a few. If you're on a Caribbean cruise that crosses the Bermuda Triangle, one thing you may not want to know is that the Bermuda Triangle is one of the deepest places on earth. According to National Geographic, the ocean goes from the less deep continental shelf to an extremely deep drop off. The Bermuda triangle is one of the most popular places when it comes to mysterious places. It is positioned on top in terms of mystery. Bermuda triangle aka the Devil's triangle or the hoodoo sea is situated in the western part of the North Atlantic Ocean. Numerous ships & aircraft are said to have been disappeared from the site under difficult situations. However, many renounced sourced denies the notion of any mystery of the Bermuda triangle. The area encompassing the Bermuda triangle is the most heavily voyaged shipping tracks in the world, with ships often sailing through it for docks in Europe, America, and the Caribbean islands. Bermuda Triangle Conspiracy Theories.