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Agile Practices for Global Challenges

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TREO Talk Paper

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Abstract

The use of information systems (IS) to support business processes in commercial organizations continue to grow as organizations create/adopt software solutions to achieve their business goals more effectively and efficiently. Yet such projects remain more challenging to realize than other types of business projects and their failures continue to plaque IS departments. Projects success relies on the stakeholders' ability to express how the system can transform the business from the internal standpoint of the company and its external interfaces and the capability of the systems analyst to effectively capture and reference these system requirements in the planning, development, and implementation stages of the IS project. Systems analysts act as "facilitators" for IS projects and must define a global view of the problems to be solved by the system and get all the stakeholders "on-board" the project.

This case study presents a business problem of a global scope that touches multiple functional business processes and asks the reader to build appropriate models of the information system requirements. The scenario of the case study is based on a real-world problem experienced by GlobePort, a multinational company that sells and services telecommunications equipment (Ghosh, 2011). GlobePort's dilemma requires a thorough analysis of their business process issues and developing requirements models for the needed information systems. Several specification techniques are described to allow the reader to develop their requirements analysis capabilities and get hands-on practice in modeling, analyzing and documenting system specifications. The described Agile techniques promote end-user communications and the capture of system requirements in the form of UX personas, user stories, use cases and system prototypes. Agile development practices have arisen with a clear move towards the use of a lighter process based iterative approach. Agile methodology views system development within an iterative lifecycle model, which highlights the importance of continuous collaboration and communications among developers and business end-users, to change feature specifications, as needed, by these project stakeholders during the execution of the project (Cram, 2019). The actual software functionality only emerges during the development phase based on this continuous collaboration between developers and the product owner (typically the systems analyst) to define the feature specifications of the end product.

Low code/no-code development tools have also recently emerged that support the use of modern cloud-based digital platforms in building business information systems (Mew and Field, 2018). This emergence of next generation digital platforms, which are based on modular architectures, open frameworks and libraries of functionality allow quick recombination of building blocks to support rapid value creation for the organization. These frameworks are heavily based in the Agile development approach for visualizing, specifying, constructing, and documenting the artifacts of software systems. However, complex software projects and larger projects with many features, many vendors, and many stakeholders, can require a hybrid approach – a mix of Agile and planned approaches to properly counter issues such as reduced coordination and a general miscommunication between stakeholders, when their numbers become large. This means that the project methodology must consider the project information analysis it works with in two levels – a broad "epic" level contains many "stories" at a sub feature level that build into defining the overall project.

The recommended methodology for this case study (Figure 1) is to first capture the user experience (personas) of the actors identified from the case narrative and understand the functional roles of these actors in the business processes contained in the case using UML activity diagram(s). After the initial analysis of capturing/modeling the actors and the business processes in the domain of interest using personas and activity diagrams, system specifications of a new/updated information system for the future

can be captured using user stories and use cases. The information from the above models: UX Personas, UML activity diagram, user stories and use cases allows the reader to create a data model to capture the entities and data relationships for the business domain. They then translate this data model into a system prototype using a rapid development tool. A goal of this teaching case is to describe the principles and methodology of systems analysis/modeling and allow the readers to learn and apply these techniques for rapid systems construction with low-code tools.
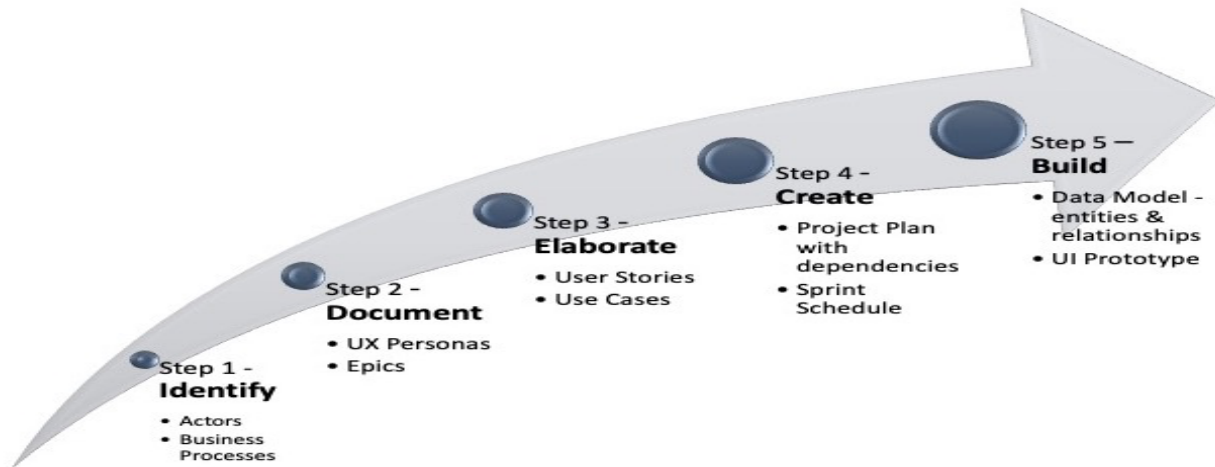

Figure 1: Methodology to analyze/document the System Specifications

Case Questions

1. Document GlobePort's indirect channel business process in its "current state" depicting the product sales, product installation and product support. Use a UML Activity Diagram with individual swim lanes for different actors. Use alternate paths to illustrate the regional variations in the process as described in the case.

2. How could the above process be changed so that it helps GlobePort better achieve its business goals? List some of the possible improvement objectives that could be considered, such as reducing the costs of administrative actions, or minimizing the amount of communication needed and avoiding rework due to manual errors.

3. Create and prioritize user stories and use case narratives (as needed) for the functional requirements of the information systems used by the actors identified in the case study. Create a project plan for iterative deliverables in Agile sprints to support the objective of the information system for efficient registration of products in the indirect channel.

4. Create a data model and a User Interface prototype of the functionality to provide another requirements model of the needed information system to support the case study scenario.

References

Cram, W.A. 2019. "Agile Development in Practice: Lessons from the Trenches", *Information Systems Management* (36:1), pp. 2-14.

Ghosh, B. 2011. "GlobePort Faces Global Business Challenges – Assessing the Organizational Side of Information Systems Projects*", Journal of Information Systems Education* (22:2), pp. 87-94.

Mew, L. and Field, D. 2018. 'The Course Registration App: A Low Code Development Scenario to Support Core IS Courses", Proceedings of the EDSIG Conference, Norfolk, VA, ISSN 2473-3857, http://iscap.info.