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**Improving Agile Requirements Engineering  
Process and Practices: A Case Study of a  
Financial Period Close System in a Financial  
Company**

Master's thesis

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# 1 Aim of the thesis

The financial company in the scope of the thesis has defined a target state of business capabilities for financial period close<sup>1</sup> business domain it wants to reach in 5 years to be adaptive and compliant with the quickly changing regulatory environment. The financial company has started developing a financial period close system which would support achieving the target state of business capabilities.

After 6 months of developing the financial period close system, the financial company has analysed that the development of the system is not moving in a direction which would enable reaching the financial company's target state of capabilities in the financial period close area. Not reaching the target state of capabilities creates a large financial and reputational risk for the financial company. The financial company's assumption is that the main impediment in the way of reaching the target state of business capabilities is the current (AS-IS) requirements engineering process.

The aim of the thesis is to analyse the financial period close system AS-IS requirements engineering process and practices in the financial company, to identify gaps in the AS-IS process and practices and to design and propose an improved future (TO-BE) requirements engineering process and practices.

The scope of the thesis includes describing and analysing the AS-IS requirements engineering process, gathering data to identify problems in the AS-IS requirements engineering process, identifying improvement opportunities for the requirements engineering process, designing an improved TO-BE requirements engineering process and proposing metrics to measure if the TO-BE process is enabling reaching the financial company's strategic target state of business capabilities.

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<sup>1</sup> a company's ability to complete its accounting cycles and produce financial statements for internal management and external legal reporting working under time (and potential resource) pressures

## 2 Methodology

To gather data about gaps emerging in the financial period close AS-IS agile requirements engineering process, the author used unstructured individual and group interviews with stakeholders in the financial period close area. The author protocoled the interviews and summarized the results. The goal of the interviews was to identify what the stakeholders see as issues in the period close system's development process that could affect reaching the target state of business capabilities. Based on the input the author analysed if any of the problems are related to requirements engineering.

To analyse if the practices used in the AS-IS requirements engineering process are in line with the best practices used in the industry, the author used Ochodek and Koczyńska's list of 22 essential agile requirements engineering practices as a baseline.<sup>1</sup> The author focused on the most important and essential agile requirements engineering practices and omitted optional or situational practices based on the heuristic that when controlling variables in an environment, then the main benefit will come from controlling the most vital variables (Pareto principle or the "80/20" rule).

A quantitative analysis was performed on all the financial period close 74 user stories. Quality User Story framework criteria were used to assess the quality of the user stories.<sup>2</sup>

The author used business capability performance levels to perform a gap analysis of the AS-IS state of financial period close business capabilities. The goal of the analysis was to identify gaps between the target and current state of capabilities. The measurements from the gap analysis will be used to validate the effectiveness of the TO-BE requirements engineering process and practices once implemented.

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<sup>1</sup> M. Ochodek and S. Koczyńska, "Perceived importance of agile requirements engineering practices – A survey," *The Journal of Systems & Software*, vol. 143, pp. 29-43, 2018.

<sup>2</sup> G. Lucassen, F. Dalpiaz, J. M. E. van der Werf and S. Brinkkemper, "Improving agile requirements: the Quality User Story framework and tool," *Requirements Eng*, vol. 21, pp. 383-403, 2016.

### 3 Conclusion

The problem of the thesis was solved and the main results of the thesis are:

- A list of descriptions of gaps in the AS-IS requirements engineering process in the financial in the financial period close area was created:
  - 8 essential agile requirements engineering practices are not used in the AS-IS process;
  - Only 5% of user stories in the financial period close area pass user story quality criteria;
  - Constantly changing requirements are causing architectural issues and confusion about the current requirements in the financial period close system;
  - Lack of documented business rules and common terminology causes miscommunication between stakeholders in the financial period close area.
- Proposal of an improved requirement engineering process for the financial company was created;
- Financial period close area business glossary, structured business rules and a business information model were created;
- Quantitative metrics to measure the effectiveness of the TO-BE requirements engineering process in the financial period close area were created;
- The results of thesis provide a starting point into research how technology could be used to improve financial period close from an agile requirements engineering perspective.

These outputs of the thesis will be used as an input to improve the financial company's requirements engineering process.