

Process Optimization via Business Process Simulation during a Post-Merger Integration Project

Within the Business Process Management lifecycle, process optimization plays an important role to continuously monitor and improve the current processes. Yet, implementing process changes is often time and cost intensive. Thus, companies try to evaluate the potential benefits of different design alternatives prior to doing any changes. Business process simulation (BPS) is a suitable tool for experimenting with the computer before changing the real process. Once the real process is closely enough resembled by the simulation model, scenario analysis helps to compare and evaluate different process design alternatives.

This thesis aims at an analysis of the invoice process by means of simulation and scenario analysis. The case study is focused on a real medium-sized consultancy, which wants to review its invoice process as part of a post-merger integration project. Before a new standard is determined, this specific finance process should be optimized. The invoice process usually starts with the receipt of all necessary data and ends with sending out the invoice. The longer the billing takes, the longer must the company generally wait to be paid. Hence, issuing invoices fast is an important financial goal. In collaboration with the company, an interview should be scheduled to gather the necessary information to build the simulation model using Arena Simulation. After validation, different scenarios shall be defined to determine optimization possibilities for both achieving a fast and customer-focused services and complying with the post-merger integration induced requirements.

As it is a German yet internationally active company, speaking German is beneficial, but not mandatory. This does not affect the thesis language, which can be chosen independently (German or English).

The objectives of this thesis are to:

- conduct a literature review of existing works about BPS and responsiveness in (financial) service processes,
- build and validate a simulation model of the current process as basis for scenario analysis,
- and give recommendations on the concrete process improvement possibilities of this case regarding process speed, as well as on service processes in general.

Basic Literature:

Law, A. M. (2019): How to Build Valid and Credible Simulation Models. In *2019 Winter Simulation Conference (WSC)*, IEEE, 1402-1414

Santos Bernardes, E., & Hanna, M. D. (2009): A theoretical review of flexibility, agility and responsiveness in the operations management literature. *International Journal of Operations & Production Management*, 29(1), 30-53.

Madadi, N., Roudsari, A. H., Wong, K. Y., & Galankashi, M. R. (2013, September): Modeling and simulation of a bank queuing system. In *2013 Fifth International Conference on Computational Intelligence, Modelling and Simulation*, IEEE, 209-215.

Luo, W., Liberatore, M. J., Nydick, R. L., Chung, Q. B., & Sloane, E. (2004): Impact of process change on customer perception of waiting time: a field study. *Omega*, 32(1), 77-83.