THÈSE DE DOCTORAT

Présentée par

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Titre

Smart Business Process Improvement for Process-Aware Information Systems

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Résumé: 

Processes are how everything gets done everyday, whether they are performed well or poorly. Facing this axiomatic statement, process improvement is a necessary evil. Within the context of business, organizations seek business process improvement to maintain a competitive stamina and stay at the forefront of the competition. For that matter, numerous business process improvement techniques are considered. Be that as it may, some of them are rigid. Others are rigorous and require a meticulous playground with no guarantee of success. Still, others raise the complexity level of the improved process and hinder any prospective improvement rounds. This dissertation is a stepping stone towards a smart business process improvement. It proposes three techniques to act on the performance metrics of the processes (i.e., time, cost and quality) and reach a new level of improvement. Variability, decision-making and ubiquitous computing are the proposed techniques. Variability enables an efficient design and execution of business processes as it factorizes those that are similar to one another in some ways yet differ in others in a process of reference. Decision-making progresses the work of variability and equips the process with a mechanism to either take decisions on behalf of the process participant or recommend the appropriate course of action to her/him. Ubiquitous computing comes up as the latter proposed technique that paves the way for a smart business process improvement. It not only improves the performance metrics of the processes but also does it in an efficient way. Efficiency here refers to flexibility of the technique, the complexity level of its outcome and the low level of human commitment it requires. The techniques were respectively validated via the business process improvement patterns, a popular dataset for managing loan applications and a concrete case study. Overall, the three techniques act positively on the performance metrics of the processes, require less commitment from humans and make the improved processes clear-cut from any confusion that might impede the improvement window in any future rounds.

Mots-clefs: Process-aware information system, business process improvement, BPMN, variability, decision-making, ubiquitous computing.