VIVACE: A framework for the systematic evaluation of variability support in process-aware information systems⋆

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1 Summary of the Contribution

Each product an enterprise develops or produces and each service it delivers to its customers result from the coordinated execution of a set of activities (i.e., business functions). In this context, business processes act as the drivers enabling this coordination [1]. Consequently, process-aware information systems (PAISs) provide a guiding framework in enterprise computing, supporting the entire business process lifecycle [2], managing, executing, and analyzing the internal business processes of an enterprise (e.g., sales business processes) based on explicitly specified process models. The increasing adoption of PAISs in enterprises during the last decade has resulted in large process model repositories [3–5]. Usually, such repositories comprise collections of related process model variants (aka process family) which may pursue the same or similar business objective (e.g., product sales, patient treatment, or car maintenance) but at the same time differ in several aspects due to their varying application context (e.g., regulations to be obeyed in different countries or the type of product to be delivered). As a result process families may comprise dozens or hundreds of process variants [6].

In order to efficiently and effectively manage process families, enterprises are interested in capturing common process knowledge only once and in making it reusable in terms of a reference process model [7]. However, the lack of support for explicitly describing variations in process families in off-the-shelf process modeling suites has motivated the development of approaches that treat variability as a first class citizen. These approaches contribute to avoid model redundancies, foster model reusability, and reduce modeling efforts. However, explicitly capturing and modeling variability introduces additional complexity with

respect to the design of the process modeling language used. In order to make these process variability approaches amenable for industrial use, the quality of process variant models becomes crucial. In particular, this necessitates proper assistance of process engineers with respect to the modeling and management of process variability. This means that process engineers should be supported in selecting that process variability approach fitting best to their needs. However, there is a lack of profound methods for systematically assessing and comparing existing process variability approaches. Although several attempts to characterize process variability have been made, a comprehensive and well elaborated framework for assessing process modeling tools and PAISs regarding their ability to deal with process variability is still missing.

Therefore, in this paper we present results from a systematic literature review (SLR) of approaches enabling process variability along the process lifecycle. Besides elaborating the state of the art, we want to systematically analyze and assess existing process variability approaches regarding their expressiveness with respect to process variability modeling as well as their support for managing variability along the process lifecycle. In addition, based on the empirical evidence provided by the SLR, we derive the VIVACE framework, which shall allow for the systematic assessment and comparison of existing process variability approaches. This framework enables process engineers to select that variability approach meeting their requirements best as well as helps them in implementing PAISs supporting process variability.

References

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