Chapter 2
The Business Transformation Framework and Enterprise Architecture Framework for Managers in Business Innovation: Knowledge Management in Global Software Engineering (KMGSE)

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ABSTRACT

The KMGSE offers a real-life case for detecting and processing an enterprise knowledge management model for global business transformation, knowledge management systems, global software engineering, global business engineering and enterprise architecture recurrent problems solving. This global software engineering (GSE) subsystem is a driven development model that offers a set of possible solutions in the form of architecture, method, patterns, managerial and technical recommendations, coupled with an applicable framework. The proposed executive and technical recommendations are to be applied by the business environment’s knowledge officers, architects, analysts and engineers to enable solutions to knowledge-based, global software engineering paradigms’ development and maintenance.

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INTRODUCTION

This Global Software Engineering (GSE) subsystem is a driven development model that offers a set of possible solutions in the form of architecture, method, patterns, managerial and technical recommendations, coupled with an applicable framework. The proposed executive and technical recommendations are to be applied by the business environment’s knowledge officers, architects, analysts and engineers to enable solutions to knowledge-based global software engineering paradigms’ development and maintenance.

BACKGROUND

This work’s background combines Knowledge Management (KM), GSE, enterprise architecture, heuristics/mathematical models, technology management, business transformation and business engineering fields. Building a KMGSE based on a Decision Making System (DMS) should be the major strategic goal for business companies, as shown in Figure 1 (Lanubile, Ebert, Prikladnicki, & Vizcaíno, 2010; Cearley, Walker, & Burke, 2016; Thomas, 2015).

The proposed KMGSE model or pattern is: 1) a generic and cross-business and a global technology modelling concept; 2) engineering and reasoning engine that contains basically GSE modelling techniques; 3) qualitative research methods that manage sets of factors; and 4) a framework that can be used by any type of Business Transformation Project (BTP). The authors based their over-all research method on intelligent neural networks and driven development, where both methods resemble to the human empiric brain processing that is very much influenced by the authors’ previous works and more specifically by the chapter related to the Knowledge and Intelligence Driven Development (KIDD) (Trad & Kalpić, 2018a). The KMGSE concept is business and technology driven one and is agnostic to a specific application and business environment, as shown in Figure 2. The KMGSE is founded on a research framework that in turn is based on the industry architecture standard, the Architecture Development Method (ADM) (The Open Group, 2011a). Enterprise architecture is a methodology used to develop BTPs, requirements, architecture, intelligence modules, knowledge modules and its technology software engineering components. The Business Transformation Manager (BTM) or an enterprise architect can integrate a KMGSE in the global architecture and its underlying software modelling of a BTP to support the DMS system (Trad & Kalpić, 2017b; Trad & Kalpić, 2017c; Thomas, 2015; Tidd, 2006). This KMGSE proposal’s goal is to deliver recommendations for managing aligned GSEs with synchronised KM(s) and DMS(s). The applied research methodology is based on literature review, a qualitative methodology and on a proof
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