

Specification of Adaptive Client-Tailored Product Models¹

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Nowadays, more and more products are being offered on the web in the form of web services. Financial institutions for example, also intend to offer their products in such a form in the near future. Within the area of web services, a lot of research has been conducted to compose such web services (see e.g. [9, 10, 11]). In order to maximise the probability that the product offered as a web service is indeed selected as part of such a composition, the company should offer the best product configuration it can. Such an offer can only be made if the product is fully tailored towards the desires and characteristics of the customer. Hence, a flexible and adaptive approach to obtain and maintain a product configuration is needed to maximise the success of offering a product as a web service.

Traditionally, product models often have been forced in a static format, entailing rigidity of two types: (1) rigidity in the manner most products are initially fit to clients and (2) rigidity in the way they are maintained over time after a client has accepted them. When offering the product via an interactive medium like Internet, as a Web service, solving such rigidity problems increases the service's success probability. To cope with these problems, this paper proposes a dynamic approach to product models. This approach supports an ongoing interaction process between the designer and the client. During such an interaction process, the background and the desires of the client may change continuously, which will lead to continuous adaptation of the product.

Globally, the approach is based on the Global Design Model (GDM) by [4] (see for an example e.g. [3]). It involves four important types of dynamical relations, i.e., (1) to identify requirements and to refine them into more specific requirements, (2) to relate specific requirements to basic design object attributes, (3) to determine derivable design object attributes from basic design object attributes, and (4) to evaluate a design object with respect to requirements. The approach has been formalised in the high-level executable language LEADSTO [1], which is a sublanguage of the predicate logical language TTL [2]. TTL can be classified as a predicate-logic-based reified temporal language; see [6, 7]. The resulting (generic) specification has been tested in a case study in the domain of car insurances.

In the domain of web services, extensive research has been conducted focusing on the composition of web services. Furthermore, the specification of the precise services offered has been investigated as well, proposing for instance semantic web technology (see e.g. [8]). An additional important aspect for businesses wanting to offer a service on the web is to make this service as attractive as possible for a client, which is addressed in this paper. In [5] such tailoring is also addressed; that paper introduces a language that allows for the specification of service level agreements in a flexible, individual way. The approach also introduces a way to manage such service levels throughout the entire life cycle of such a service level agreement. The approach presented in this paper is however more generic, since it focuses on tailoring of products in general, not only particular aspects of such a product.

In future work, more complex cases will be addressed, including more realistic examples that involve a higher amount of parameters. Moreover, to evaluate its generality, the approach will be tested in other domains, such as the design of mortgages.

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