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How to extend an Traditional Medical Process Modeling

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Abstract

In this paper, the traditional medical engineering focused on the Medical Process Modeling, which is modeled with two ways such as Activity Centric Approach and Artifact Centric Approach. Most of medical systems focus on Disease Centric Medical Process. There are also difficult to develop and manage an efficient medical system. To solve this problem, we suggest to map medical process modeling with business process framework, which consists of five layers based on a closed architecture.

Keywords: *Business Process Modeling, Medical Process, Closed Architecture*

1. Introduction

Recent development of medical information technology has significantly affected with the way how a healthcare industry operates. Medical information systems have advanced from Electronic Health Record solutions to sophisticated clinical decision support systems and clinical pathways management systems. While the former are usually rely on Evidence based machine learning and hypothesis generation, the latter is mostly based on workflow technologies, originating from Business Process Modeling (BPM)[13]. To adapt very quickly changing or new business, an enterprise needs to be provided with a business integrated system.

Most enterprises have a computer system to efficiently operate systemic information, and also to appropriately preserve/manage it based on closed layer architecture [1]. This architecture is based on the layer mechanism which directly accesses information under the layer. Seo and Kim[4] suggested and defined five layer structure based on the closed architecture. Seo[6] also suggested to reuse the existing software component for reducing development time and cost with mapping CBD(component based development) and BPM(Business process modeling)[2].

This paper, describes as follows: it mentions related work in chapter 2, shows a based on Medical Process Framework in chapter 3, describes a case study in section 4, and finally conclusion.

2. Related Work

In this paper, the layer structure may be improved on BPF(Business Process Framework).
Figure 1 shows Business Process Framework. This chapter presents a proposed closed architecture of 5-layers. Figure 2 is 5-layer based on closed architecture. Business rule layer is constraints before running process [8]. Business process layer is a step for a certain goal and a concrete activity procedure [10]. Service layer can combine services for easily replacing about business requirement changes [12]. A service may become running of an application [7]. Component layer is a dynamic workflow for developing a service [3]. Data layer is physical data storage. Entire data is stored as a table.

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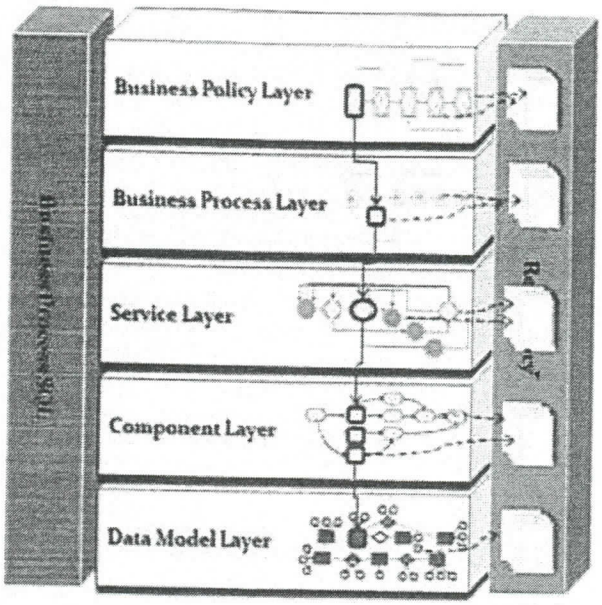

Figure 1. Business Process Framework

For a developer side, although customer requirements are frequency change, it modifies a process, a service, a component, data with mapping customer's requirement. There changes business requirement easily [6]. After developing the system, it is easy to manage the system whenever a business requirement is changed.

3. Medical Process Framework

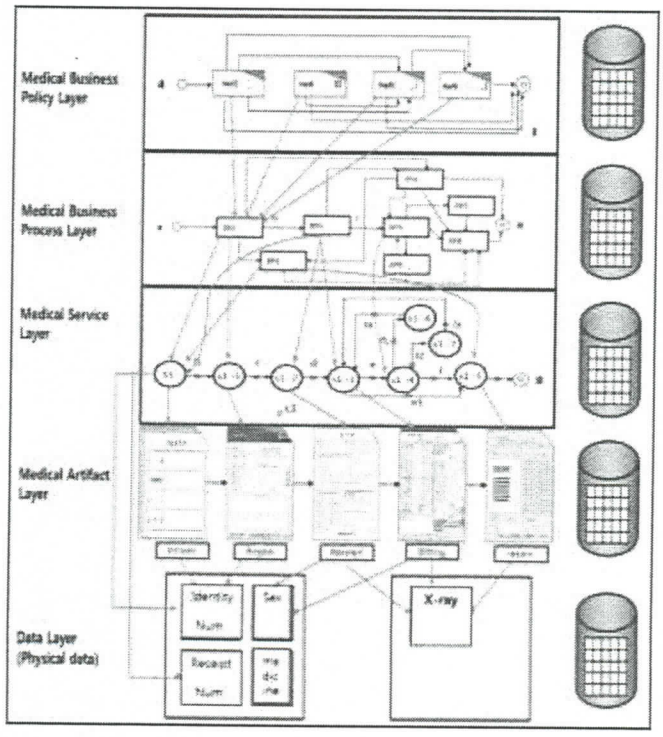

Figure 2. Medical Process Framework

Our medical process framework is based on 5-layers. Medical policy is placed in top of 5-layers [13]. There are constraint of medical policy. Medical process layer is medical business process. There are services for a medical business process or business processes. Service layer is consisted of variable services for executing a process. Data layer are physical data storage and non-formal storage.

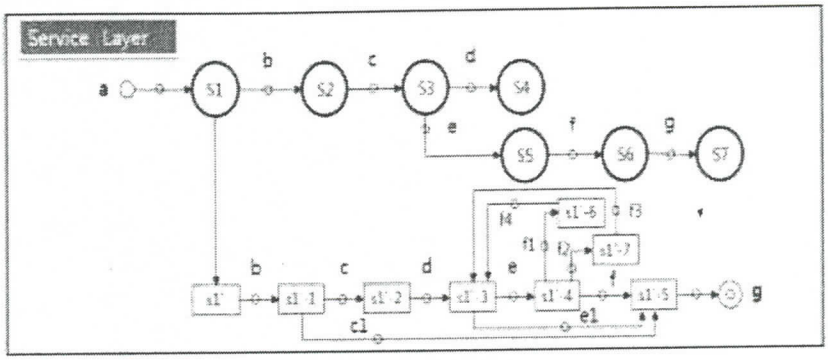

Figure 3. Medical service layer

Figure 3 shows medical service layer of medical process framework.

4. Conclusion

Medical Business Process Framework based on closed architecture. Most of medical systems focus on Disease Centric Medical Process. There are also difficult to develop and manage an efficient medical system. We suggest to map medical process modeling with business process framework, which consists of five layers based on a closed architecture.

5. Acknowledgement

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