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Ontology study in service-oriented architecture

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ABSTRACT
Service-oriented architecture and shared services are widely studied in the literature of information technology.However, there is no way to manage shared services in their use.This article provides an ontology map for shared services.The method used is based on the Zakman Information, Architecture framework, which determines the ontological views.This mapping connects semantically between all aspects of managing shared services.The case study provides a computerized ontology mapping and shows the product use capabilities.
Keyword:Architecture framework,Service-Oriented Architecture,Management of information sharing services, ontology

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I. INTRODUCTION

Service-oriented architecture and shared services are two correlated flows of business and information technology research [1,2].Service-oriented architecture deals with information architecture which supports demand-side services. [3,4,5] On the other hand, shared services are a combination of the usual performance of several organizations which are used to reduce redundancy and information sharing and increase knowledge sharing.Shared Services,new forces provide business resource strategies for the use of information technology [6,7,8].In general, accounting and financial management, human resources management, customer relationship management, business process line identification for shared services.Obviously, the main motive for the organization to adopt a service-oriented architecture is to implement community services [9]. In contrast, the foundation of the core technologies for implementing shared services is a service-oriented architecture [10,11].Service-oriented architecture is known as emerging phenomenon and an effective solution to deal with, quick changes in business environments, organizations. Service modeling is divided into service identification, service characterization and service researchIn this paper, the identification of service in architecture-oriented has been compared with other architectures.Organizational ontology in identifying the service it makes compared to other service identification methods. All semantic and conceptual aspects of the service are considered in the service identification process used in this paper [15]. A large amount of data and information resources on the Web has become an essential part of integrating web data.Hence, semantic web designers look for the right way to establish the correct and efficient interactions between the same concepts in ontologies that are distributed in a heterogeneous way on the web.One of the solutions proposed to solve this problem is the adaptation of theology [13]. The goal of adaptive theology is to find similarities and semantic relationships between the various ontological entities.So far, many adaptors have been introduced using different methods to find similarities.

The results of automated adapters due to lack of interaction with the user have shortcomings, which is posed as a challenge in the field of adaptation of ontologies.Hence this thesisis presenting a suitable solution to this challenge, in order to improve the quality of the results of the adapters of the ontologies [17].The proposed strategy is to add its preprocessing phase in order to investigate incoming intuitions and to detect patterns of disproportionate modeling in ontologies and modify patterns.Hence, in the first phase, introspective inputs from the lexical, structural and other aspects are examined,Then, by examining how the adapters function and considering their defects and their shortcomings in finding semantic similarities, appropriate patterns have been identified.

In the next step, by applying Refactoring rules to the patterns, input intersections are corrected.In the end, has beenevaluating the proposed strategy by applying two well-known comparators ASMOV and RiMOM which has the highest ratings in the organization's assessment testsby the alignment of OAEI [18].

Despite the close connection between the service-oriented architecture and shared hosting, but in many aspects have differences.The service-oriented architectureconcentrated on computing technology(Such as cloud computing, virtual

networks, web services, and software standards).The research shows that collaborative services emphasize the management of business enterprise processes through IT applications.In terms of IT management, integrating and integrating these two are essential and necessary for the creation of shared services management to support the evolution needed in the business process and service-centric computing.In the definition of this article, the management of shared services refers to organizational activities that coordinate the actions of shared service partners to achieve their goals and the use of shared and efficient services.

II.METHODOLOGY

Scientific ontology is the study of the explicit formal characteristics of the conditions on the domain and the relationship between them. In the philosophical term in general, ontology is a feature of a concept. In the context of thesemantic web, typically a net ontology of semantic objects relates to a particular domain.The ontology allows individuals to share their perceptions of a subject.Regarding the RDF resource description framework, the initial ontology consists of a subject, an object, and a proposition (relationship).Figure 1a and 1b illustrate a conceptual network of all relevant objects that lists the semantic relationships between these objects in the relevant field.

Figure 1. a. Conceptual network of all related objects

Figure 1.b Semantic relations between objects

Therefo re,an ontology is an object-oriented, unit-specific method for modeling.In the field of computing, efforts have been made to use computer language, including the language of web ontology.The ontology XML is automatically created and manipulated by the computer (for example, search and modification).An ontology for modeling is used in many domains, while a small number of applications can be found that from ontology in a service-oriented architecture model for service management, each of theinformational aspects of the architecture was shown with an ontological object.Accordingly, service-oriented architecture for service management can be modeled by an ontology that represents all of its objects and semantic relationships.However, with regard to the initial stages of re-use of ontologies, studies on existing ontology classes could not find out if they could be reused within the framework of Zachman.

Figure 2 the initial ontology view of service management

A high-level ontology can be represented as a vertical hierarchical structure. Figure 3 shows the overall structure of the service process. Horizontally, each component can be a representative of the initial ontology. The ontological view of the components is, in fact, a network of semantic connections with other aspects.

Figure 3 assembly structure of the service process

An example of the Ontology Service Unit in figure 4 is part of the ontology of e-government online payment service for local governments.The ontology section shows that the online payment service has a semantic or another aspect of service-oriented architecture.

Figure 4 Example of the ontology of service-unit components

Figure 5 shows the high-level ontology view for managing shared services.Figure 6 shows an example of the service structure association.Figure 7 illustrates the assembly structure of the service process.Figure 8 illustrates an example of online payment service components.Each button in the ontological tool specifies a method for conducting ontology.The "association structure" shows the service-oriented architectural components vertically for one level.

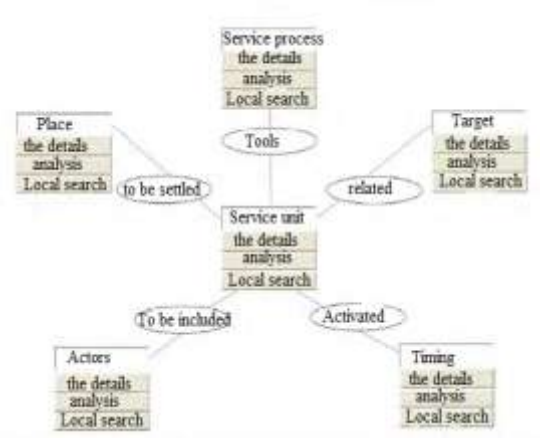

Figure 5 High-level view of the ontology of shared service management

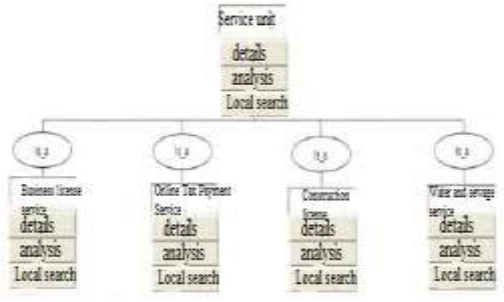

Figure 6 The structure of the service unit association

III.DISCUSSION

Zachman's framework in information systems plays a main role in the information architecture and much research has been done in this area.However, research shows that quantitative studies have been conducted on service modeling architecture based on the Zachman's framework. The general framework of Zachman can cover a high-level ontology, but it needs to be studied in the context of a further application.On the development side of Web services, information technology focuses on technical implementation.For example, the Open Group provided an ontology standard that could be used to develop serviceability.This standard is very useful for building a service-oriented architecture, but it is not supposed to be taken directly by business executives. In fact, there was no scientific ontology view for ordinary business users in previous studies. There is a gap between the Zachmann framework and the standards of web service development.The proposed ontology mapping has advantages over traditional tools like UML and OWL-S.This mapping can be used as a means to integrate ahigher level of service management requirements and precise technical specifications at the technical level.For example, it can link applications and object diagrams in UML and the service process in service-oriented architecture and planner's point of view is tomanage shared services mapping on software features.This mapping can also be easily done at multiple computer levels. Use as a tool to design a service-oriented architecture.When the description of servility aspects was stored online. The ontological view can be used as a computer interface to share the knowledge of the service used by all managers, developers, and service customers.The development of service-oriented architecture has defined new tasks for managing shared services.To facilitate communication between the server, the client and the service provider network, service-oriented architectural models for managing shared services should be business-driven rather than software-driven.This paper aims to integrate service-oriented architecture in the service management framework using the Zakman Information Architecture Model. On the history of serviceability modeling, based on the view of high-end business application software, the ontology mapping provided this tool to link the service-oriented architecture and the management of shared services.In the mapping, each component of the information architecture is semantically linked to an integrated ontology for managing shared

services. The advantages of this mapping include the following:

First: The proposed method has clear architectural information on aspects of the management of shared services.

Second: The integration of semantic links between all aspects of service-oriented architecture rather than interrupting a set of graphs in software systems

Third: The mapping is scalable and can be used as a means to integrate business perspectives and technical views.

Ultimately, this mapping can be easily computerized and provides a common perspective for all service customers, providers, and developers.Integration with the development and maintenance of service-oriented architecture can be achieved when this method is accepted in the interconnection service network.

IV.CONCLUSION

This article provides an ontology map for shared services.The method used is based on the Zachman Information Architecture framework, which determines the ontological views. This mapping connects semantically between all aspects of managing shared services.The case study provides a computerized ontology mapping and shows the capabilityusage of the product.

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