Concept Modeling: An Ontological Advancement for Decomposition of Commerce Requirement

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Abstract

Collaboration is the term which is widely spread these days. It forms the prominent role as backbone for enterprise integration, they are needed to be developed and managed widely. With the growing reliance on the Web as a medium of business collaboration, there is an increasing need to quickly and animatedly form business progressive. Collaboration is based on high-level business goals and their underlying criteria. This proposed work introduces the Concept Modeling: An Ontological Advancement for Decomposition of Commerce Requirement, which is dynamically formulated to build business processes. This is an ontologized extension and augmentation of traditional AI, to built concepts as a hierarchical ontology of decomposable business stages encompassing all possible decomposition permutations. Through concept building, high level business goals can be easily decomposed to the lowest level tasks, effectively bridging the gap between high level business goals with operational level tasks and completing currently static business process modeling languages. An algorithm is promoted, which explains the meaning of concept building using tools and Web technologies.

Keywords

Web Services, Web Service Discovery, Hierarchical Task Network, Ontology, Semantic Analysis.

1. Introduction.

There are several of the methodologies, variability of application, with distinct type of outputs and mathematics which is used behind every innovation for information systems. Gradually, the changing customer's need and urge for making variety of parameters more effective, rises to new developments and research areas.

Widening, what, Information Technology pioneers once said, facilities and quality attracts consumer and always new innovation, replaces other. All the technologies are interrelated and move supportively. Enterprises are under constant pressure to expand business capabilities, enhance real-time information access, also in addition to this, provide richer user interactions. Globalization and new business models are breaking down traditional enterprise boundaries - and new Internet capabilities are raising customer and partner expectations and demands on user interaction. Business, in this century works with in collaboration to each other to maintain customers.

The web service (WS) paradigm is transforming the Web from a provider of static pages to a provider of interactive, automated and intelligent services that interact via the Internet [1]. Multiple web services may interoperate to perform tasks, provide information, transact business and generally take action for users, dynamically and on demand. The presented model simplifies business application development and interoperation, as it entails processes reuse and loose coupling between services.

The last two decades has witnessed, that the Web has become one of the most important platforms for e-communication, e-commerce, e- learning, e-business entertainment and education for sharing knowledge. This growth has made impact on how organizations deal with day-to-day operations and develop future business strategies. With the growing dependence on the Web as a medium of business collaborations, there is significantly increasing need to dynamically form collaborative business.

This thesis also aims at providing a sound and comprehensive literature review in the field of collaborative Business Process Management and collaborative technologies. Chapter 2 deals with literature behind, this research. Chapter 3 defines proposed system.

1.1 Background of the domain and need for innovation in that area

Domain: Web Computing

Over the past 30+ years, businesses have been very effective at defining and optimizing their business processes to take advantage of transactional IT systems. These processes and systems guide (some would say force) the user through a predefined set of steps or tasks (workflow) that are embedded in IT systems. Typically, these systems have been based on optimizing the flow of a business document through various process steps and then measuring and managing the overall process toward specific performance goals.

Collaboration and Business Process

Wikipedia tells us that "Collaboration is a recursive process where two or more people or businesses work together toward an intersection of common goals by building consensus and sharing knowledge, learning. Structured methods of collaboration encourage introspection of behavior and communication."

At first look, the recursive human-oriented nature of collaboration may seem to clash with the more inherently linear system-oriented nature of formal business processes. For example, Davenport says, "A process is a specific ordering of work activities across space and time with a starting and an end, and clearly defined inputs and outputs: a structure for action." Getting human collaboration and business processes somewhat closer together, Rummler & Brache use a definition that focuses on the organization's external customers when stating that: "A business process is a series of steps designed to produce a product or service. Some processes result in a service or product that is received by an organization's customer. We call these primary processes. Other processes yield products that are invisible to the external customer but essential to the effective management of the business. These are called support processes."

At the same time, much of what we see today in collaboration activities and technologies focuses on web consumers, or if it occurs in business, on improving internal communications. These uses, which strive to facilitate internal activities, could be thought of as "support". The use of collaboration techniques is used to improve the interaction between businesses, their customers, partners, suppliers, etc. - in other words, to enhance the "primary business processes".

The new paradigm for enterprise collaboration we are discussing has as its objective the dramatic acceleration of business processes by taking advantage of all enterprise resources (employees, partners, data, applications, and many more) wherever they are, whenever they are needed, and combining them in whatever way is optimal from a contextual point of view - all in a managed and controlled environment leading to continual business optimization and improvement.

Business Process Management (BPM)

BPM is viewed as a management approach that applies concepts of both punctuated and incremental change. BPM is often referred to as Management of task by Business Oriented Processes. The term "Business" can be bewildering as it is often associated with a cascaded outlook of a company. It is thus preferable to define BPM as "Corporate Management of tasks through processes". It is a management-through-processes method which supports to advance the company's performance in a more and more composite and ever-changing environment. Management through processes, is a management method based on two logical levels: process governance and process management:

Process governance is all of the company's governance activities which, by way of allocating on the processes, work towards reaching its objectives, which are both operational and progress-related.

Process management is all the management activities of a given process which work towards reaching the objectives allocated for this process.

The term BPM builds upon the notion of a business process, which is a set of activities that are performed in coordination in an organizational and technical environment. These activities jointly realize a business goal. Each business process is enacted by a single organization, but it may interact with business processes performed by other organizations" [Wes07, p.5]. This fairly new definition by Weske builds upon the definition by Davenport, who described a business process as a structure for action, implying a strong emphasis on how work is done within an organization, in contrast to a product's focus on what" [Dav93, p.5]. In the world of business processes, an activity is seen as the smallest separable unit of work, whereas a sequence of these work units forms a business process. Becker et al. define a business process, based on the notion of process orientation, as a completely closed, timely and logical sequence of activities which are required to work on a process-oriented business object. A business process is a special process that is directed

by the business objectives a company and by the business environment" [BKR03, p.4].

Collaborative Business Process Management (BPM)

BPM need further conceptual differentiation and introduce two theoretical "ideal types" of collaborative BPM distinct in the degrees of collaboration: 1) Non-collaborative Collaborative BPM describes one or more single individuals that conduct non-coordinated efforts to reflect on and to alter business processes. 2) BPM associates with coordinated initiatives that involve actors from inside or from outside a defined entity.

Commercially, it is of great understanding to collaborate the businesses today. Below Figure 1 shows the basic interaction of two Web service businesses as "Provider" and "Client" [2]. The ones who want to get serviced, through medium contacts to the one who provide required services. Both interact with the pattern of replying and accepting the facts. Web Service Request is send by the Client to the Web and processes to reply to what registered Providers have, in terms of Web Service Response.

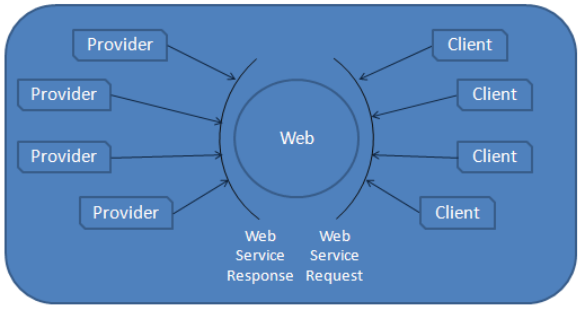

Figure1. Web Business Interaction

Organizational boundaries constitute a central phenomenon in management and organization research. The concept has been studied for decades and is considered one of the most important concepts in organizational research (for instance, Aldrich 1971, Mosakowski 1991, Santos & Eisenhardt 2005). Grand trends in management, economics, and organization have revitalized and fuelled the study of organizational boundaries (Newell et al. 2001). Drivers include the increasing concern of global value chains (Gereffi et al. 2005, Sia et al. 2008) and production networks (Sturgeon 2002), of interconnected firms (Lavie 2006), collaboration dynamics (Afuah 2001, Katila & Mang 2003), outsourcing (Walsh & Deery 2006), and of developments in information systems (Phelps 2007). Reflecting such developments, Ashkenas et al. (1995) argue the model of the boundaryless organization. Conceptually, an organization has external boundaries that separate it from actors outside of the organization, such as its suppliers and customers (Staber 2004), and internal boundaries that present demarcation of departments. In a boundary less organization the goal is to develop greater flexibility and responsiveness to change and to enable the free exchange of information and ideas (Ashkenas et al. 1995). The authors argue that a boundary less organization behaves more like an organism promoting better integration and closer partnerships with suppliers and customers. Such view is animadverted however, for just strikingly ignoring the factual existence of the boundary phenomenon and critics (for instance, Newell et al. 2001) identify the need for a realistic and mature treatment of organizational boundaries. Building on these arguments, we acknowledge that businesses processes are highly cross-organizational, but we recognize the existence of organizational boundaries. In order to address Newell et al.'s (2001) call for a mature treatment of this phenomenon, we suggest to differentiate between the presence and effects of organizational boundaries, first, on the level of business processes (work system level) and, second, on the level of business process management (build system level). On the work system level, businesses activities are executed and given organizational structures and procedures are utilized (see Alter 2002, Bergman et al. 2002, Lyytinen & Newman 2008, Mumford, 2003). These structures and procedures are designed by a (separate) build system, a system that commands a set of resources and enacts routines to carry out the change and addresses the issues of uncertainty, ambiguity, and complexity (Lyytinen & Newman 2008, Lyytinen et al. 1996). The emergent theme of collaboration in BPM reflects the trend of boundary-blurring business processes. We identify that a large body of research has focused and identified trends of boundary-blurring on the level of business processes (Afuah 2001, Gereffi et al. 2005, Katila & Mang 2003, Lavie 2006).

Concurrently, research acknowledges that boundaries are also blurring on the level of BPM as managing BPM collaboration, networks, and governance seems to become increasingly important and can be regarded a key challenge to BPM research and practice. Early in the development of business process oriented management, it was recognized that BPM projects can only be effective if BPM teams are made up of people from both inside and outside of the organization (Hammer & Champy 1993). This is not only necessary for the development of the framework, but should also be seen as a contribution to the BPM research community and its knowledge base.

Semantic Web Services (SWS)

Web service is the online facility that can advertise the presence of business processes, information or tasks that can be consumed by other systems or humans. Web services can be delivered to any customer device — e.g., cell phone, personal digital assistant (PDA) and PC — and can be created or transformed from existing applications.

Semantics is the study of relations between the system of symbols (e.g. words, phrases, and sentences) and their meanings. Semantics participate as an important role in the complete lifecycle of Web services as it is able to help service expansion, improve service reuse and discovery, significantly facilitate composition of Web services and enable integration of legacy applications as part of automatic business process integration. The fundamental idea underlying current SWS community is that in order to achieve machine-to-machine integration, a markup language (e.g. annotation) must be descriptive enough that a computer can automatically determine its meaning [C. Wu, E. Chang, A. Aitken, 2008].

The aim of semantic Web service is to describe and implement Web services so as to make them more accessible to automated agents. The key idea is to represent the functionality of a Web service explicitly, by using the so-called semantic annotations [WORLD WIDE WEBINTERNET AND WEB INFORMATION SYSTEMS, vol. 10, pp. 243-277, 2007].

Semantic Web services have been recently proposed as a technology for the automated integration of business processes. The creation, deployment and invocation of services that meet the needs of individuals and communities in virtually all areas of human endeavour is one of the hallmarks of civilization. SWS, also called Knowledge services, mainly take into account the data and applications on the Web represented as a kind of computational web knowledge components, so that they can be automatically processed and shared in their lifecycle(including service advertisement, discovery, selection, composition, invocation). Researchers and practitioners are only interesting in describing service semantics, but considering less the pragmatics aspects of Web services. Morris defined semiotics as consisting of three components: syntax, semantics, and pragmatics. Syntax deals with the structure of symbols, semantics with their meanings, and pragmatics with their contexts of usage [Zhai,Li Z and Wei J,2009]. SWS can turn into machine-readable, understandable and operational entity by semantic description based on ontology, after the translation SWSs can support automatic discovery, automatic execution, automatic combination and automatic interaction [H. Z. Weiying G, 2009].

Web Services Discovery is a sort of matching process to achieve the most suitable Web Services in Web Services Repository concerned with USR. Now, UDDI becomes the most popular method to solve this problem, which involves key-words to match USR to the profile of WSDL. However, owing to the high degree of information asymmetry in profile compared with most common texts, most suitable Web Services will be lost if we still adopt traditional key-words based Information Retrieval Methods [G. Yin, X. Cui and Z. Ma, 2010]. SWS and ontologies allow the sharing of web services to the context and use the concepts useful for search, communication and composition; base our architecture on the Semantic Web [A. Hannech, H. Mcheick, M. Adda, 2012].

Web Service Discovery

A web service discovery process is carried out in three major steps. First step is advertisement of web service by developers. Providers advertise web services in public repositories by registering their web services using web service description file written in WSDL. Second step is web service request by user. User sends web service request specifying the requirement in predefined format to web service repository. Web service matcher which is core part of web service discovery model, matches user request with available web services and finds a set of web service candidates. Final step is selection and invocation of one of the retrieved web services. QoS driven web service discovery approach has been introduced. The gist of the approach is to assist the user to search the pertinent web service based on functional and non functional evaluation [R. Jeberson R Raj, T.Sasipraba, 2011]. Discovery of correct web service depends on how mature web service matching process is. i.e.; how actual requirements of user are represented in formalized way and how they are matched with available services. Now the Web service discovery still has some problems: (1) lack of semantic information and rely on the keyword matching, which make the precise is low. (2) It is difficult to guarantee the performance and the quality of service as service matching method lack of service quality description.[K. Zheng, H. Xiong, 2012].

2. Related Work

A. Business Oriented Web Service Processing and Discovery Framework:

Approach: Business Oriented Web Service Processing and Discovery Framework to deal with the problem of undefined Web Service are introduced.
Advantages: It provides innovative Knowledge Engineering technique from a pre existing AI terms, it This is a wide approach and ontology is being developed based on this
Disadvantages: It is limited to small scale businesses and Firms
Innovation: Expansion in terms of large firm's compatibility can be added. This approach is idea for bringing AI in to Business.

B. Context-Based Web Service Discovery Model

Approach: A method and software frame-work for translating Business Process Models into HTN

Planning and scheduling domains, in order to cover some of these deficiencies

Advantages: It provides innovative Knowledge Engineering technique from a pre existing process model, it Automatically generate an AI planning domain.
Disadvantages: Theoretical aspects are more, rather than being natural.
Innovation: Expansion in terms of BPMN efficiency and implementation requirements would be added.

C. Design of an Intelligent Search Engine-Based UDDI for Web Service Discovery

Approach: At first, Web Services are published from the Service provider and the published Web Services are indexed and maintained in the index database. Then, by using the search engine concept, the relevant Web Services are provided to the user and at the same time, the accessing records are stored in the log file.

Advantages: (1) It is reliable search for Web Services, (2) potential solution to the scalability problem of Web Services searching, (3) a wide variety and quantity of Web Services, (4) most relevant Web Services to the user using index database

Disadvantages: Theoretical aspects are more, rather than being natural. The search results and time consumption factors affects the existing system..

Innovation: Still the work is in progress and the comparison study is Undergone with the public QWS dataset available.

D. Efficient Web Service Discovery Model Based on QoS and Meta Data Instances

Approach: This operation is based search. With the Qos Parameters rating, discovery becomes efficient.

Advantages: It is one of the alternate to discriminate Web Services. Also, It replaces keyword based search.

Disadvantages: Theoretical aspects are more, rather than being natural. It is hard to implement.

Innovation: The feed based search can be included to improve the performance of the system.

E. Event Matchmaking Technique in Dynamic Web Service Discovery

Approach: Method integrates the SOA with the Event Driven Architecture (EDA) in Web Service discovery. The Event Matchmaking Technique (EMT) has been proposed to enhance the accuracy and efficiency in matchmaking process

Advantages: The proposed EMT increases the accuracy and efficiency by matching the user request with the Web Services advertisements registered in the UDDI by both functional and non-functional requirements based on the events.

Disadvantages: Based on unrealistic values.

Innovation: A more complex and standardized semantics technology can help us to express the proposed technique more powerfully in future.

3. Proposed Work

Problem Statement: If systems can dynamically formulate inter-enterprise collaborative business process, when given some high level goals and criteria, we will be a step closer to highly adaptive organizations which can integrate with others within a matter of minutes. To achieve this vision, two fundamental problems need to be resolved first:

1] The current inability to bridge high-level business goals with low-level operational tasks and,

2]The inability to dynamically decompose compound business process tasks into primitive operational tasks with appropriate control flows for direct Web Service execution.

Solution: To alleviate the dependence on current static methods, we need to overcome the above challenges. Hence, the goal of this research work is to address the above-mentioned shortcomings via a fusion of 1) semantic relationship representation strengths of ontologies and also 2) dynamic task composition capabilities of hierarchical task network (HTN) planning. Decomposition reduces complex problems into manageable sub-problems, thereby lightening the inferential and computational loads. Thus, defining the problem as: **Concept Modeling: An Ontological Advancement for Decomposition of Commerce Requirement**

Features:

Features of Ontology

1. Ability to reuse domain language.
2. Making domain assumptions explicit.
3. Separation of operational knowledge and domain knowledge.
4. Analysis of domain knowledge. There are many contradicting definitions of ontologies especially in the AI world. Ontology is not directly a knowledge base. There is a thin line between the definitions of these to concepts. Definitions of some knowledge for a domain, the classes and the instances of these classes constitute a knowledge base. On the other hand, ontology is not much concerned with the individual instances. For example, for ontology the number of spicy pizzas is not important, rather the definition of a pizza is essential for

ontology. The definition of knowledge is what ontologies a more concerned about.

Features of OWL

1. Graphical Editing: The OWL-S Editor will allow users to easily create composite processes with all the control constructs.
2. Good Overview: with examples for new users.
3. WSDL Support: The OWL-S Editor will be able to load WSDL files, and generate a "skeleton" OWL-S Service based on it.
4. Import/Export: The OWL plug-in normally generates one single OWL file from the Protégé knowledge base, but OWL-S Services are typically divided into four files--one for each of the Service, Profile, and Process and Grounding instances.
5. Input/output/Precondition/Result: ManagerOWL-S Services have inputs, outputs, preconditions and results, and these are typically referenced in several places throughout the Service description.

Features of HTN

1. Logical Decomposition
2. Top down Approach
3. Best planning provider method in AI.

Features of cBP (Collaborative Business Processes)

1. Takes least Processing time
2. Customer Oriented Architecture

Features of System

1. Platform independent
2. Object Oriented
3. Modular design
4. Reusable components
5. Reduced processing time

4. Research Methodology

Project Steps: The requirement provided by the users is converted in User Requirement Specification (URS). The URS documents are then revisited, validated, authorized and approved by the user.

- The development commences after the approval phase i.e. after the signing of the URS documents. Thus URS is concerned to be the most important document from user and developer perspective. The developer will try to adhere to the requirement specified in the URS documents in order to develop the required application

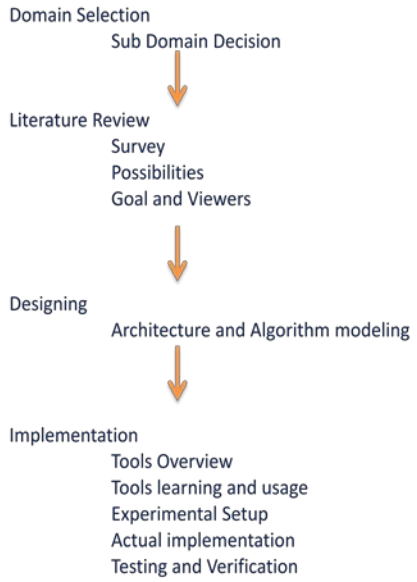

Figure2 Research Methodology

- To solve actual problems in an industry setting, software engineer or a team of engineers must incorporate a development strategy that encompasses the process, methods and tools layers and generic phases. This strategy is often referred to as process model or a software engineering paradigm.

- A process model for software engineering is chosen based on the nature of the project and application, the methods and tools to be used, and the controls and deliverables that are required.

Input:

1. Business Goal (BG). There are chiefly two highest level business aims for each B2Bcollaboration: i.e. Buy and Sell.
2. Business Criteria (BC). There are two types of criteria:
   a) Major Planning Criteria, are the constraints that are decided or described by the business users. Here, they describe commercial constraints that determine how business processes are to be formulated and executed. Through the author's interviews with experts from the industry, the electronics industry, and the computer industry eight key Major Planning Criteria were identified.

b) Minor Planning Criteria, are the one in back-end information that are important as for internal Boolean conditions and system variables storing temporary values aiding the proper execution of a business process transaction.
c) Subtasks. The possible subtasks that can be decomposed from a compound task the method belongs to. Subtasks are denoted in methods that yield different permutations of subtasks.

Processing

Compared to traditional business processes, the complexity of inter organizational processes has risen considerably as a result of the numerous possibilities of interaction as well as the strategic, structural and cultural differences between the partners. The allocation of performances and resources of the business partners, the determination of responsibilities for material and financial exchange relationships as well as the information and data exchange over interfaces have to be planned, arranged and "lived" together. Thus the demands on BPM increase.

Conceptual Phases of B2B collaborations: Out proposed method is based on a hybridization of hierarchical task network (HTN) planning and Web ontologies. Before one explores these topics, it is beneficial to understand the B2B collaboration phases. From a process perspective, all B2B collaborations generically and essentially comprise of some or all of the following five sequential phases:

1. **Discovery (D) Phase-** buyers and seller source for potential suppliers and customers relatively. This phase is skipped when enterprises are collaborating with qualified (existing) buyers or suppliers.

2. **Establish Contact (EC) Phase-** In this phase, the relevant appropriate Buyer or Seller is made to contact and all the pre-business requirements are inquired and discussed.

3. **Negotiation (N) Phase-** Both the collaborating parties meet, understand each other's need and drive a conclusion to whether do business or move to another business opportunities.

4. **Service Agreement (SA) Phase-** After decomposition, two (or more) collaborations will agree on the exact contract terms, declare penalties for non deliverance, and confirm the start of collaboration. It is also at this stage that a new supplier/ buyer become an established supplier/ buyer to the enterprise.

5. **Service Order Fulfillment (SoF) Phase-** Two collaborating companies seek to fulfill the terms of the contract. The creation and deliverance of the product or Service and payment usually take place in this phase. After-sales Services such as reverse logistics also took place here.

Figure3 Phases for B2B Collaboration

Ultimately, the above five phases exist to fulfill two essential business goals: to buy or to sell. There are many alternative terms for the "buy" goal, such as procurement, outsourcing, companies are basically buying or selling some sub-products or sub-goods to make profit. Thus, we are now able to identify the highest level goals that will fulfill B2B collaborations:"to buy" and "to sell". Most importantly, we now observe that both business goals can be decomposed into five phases as described above

Risks:

Performance Risks

Sr. No.	Risk	Likelihood	Impact
1	Can system manage buyers and sellers both simultaneously?	Low	Critical
2	Can knowledge Base process null submission?	Low	Critical

Business Risks

5. System Architecture

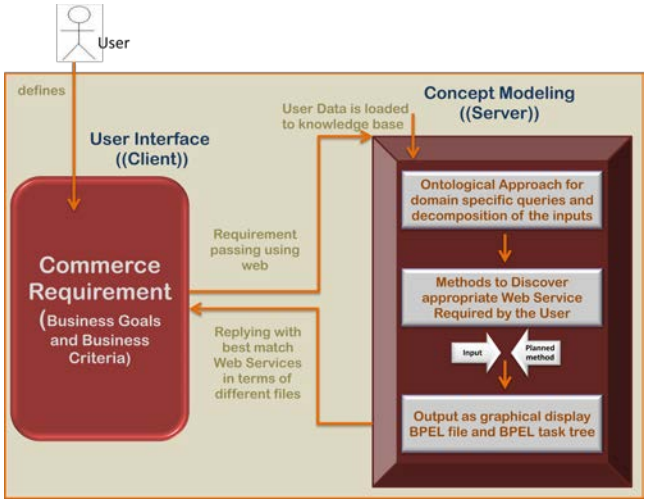

Figure4. Architecture for Generating Collaborative Business Process

Architecture defines the internal processing and block to block control flow of the system. Above, figure shows the architecture to be developed for building collaborative business processes.

User Interface

User interacts with the system using a Web Graphical User Interface (GUI). A Web page, that interacts with the user and passes information to and from the server. Here, the user enters the Business Goal and Business Criteria.

Concept Modeling

Discovery is the stage of searching for what user requires. Entered Business goals and Business Criteria by user is forwarded to the server or system. This is purely dedicated to processing of input by user. Genesis' users can be both suppliers or buyers. It is intended to generate the relevant business process for their collaboration with their buyers and suppliers, respectively.

(A)Task Decomposition: The user inputs will be passed from the Web browser to the Algorithm. Decomposition of Service required by user is an input to HTN planning process. The nature of dynamic business process formulation greatly resembles HTN planning from the field of artificial intelligence (AI) planning.

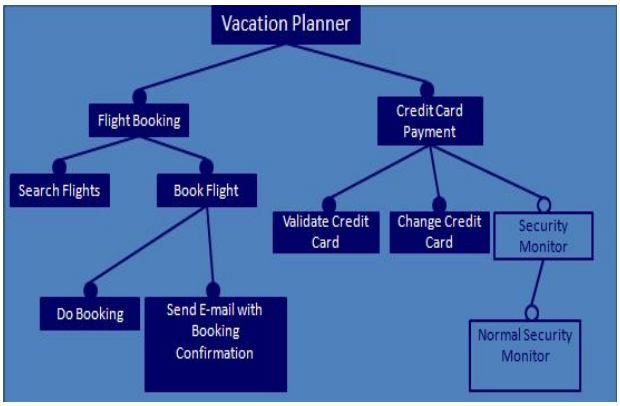

Figure5. Sample Task Decomposition

In HTN planning, a goal to a problem is realized via a plan of simple steps generated from the dynamic decomposition of a hierarchical network of compound tasks and primitive tasks of a domain and the so-called methods.

During decomposition and chaining of tasks, the HTN Planning algorithm matches the Constraints defined by the user with the Criteria of the appropriate Method that describes how this particular Task can be further decomposed to its Sub-tasks. Tasks are stored as a network that describes the parent-child relationship of the tasks. Two types of task exist: Compound Tasks which can compromise lower level compound tasks, lowest level Primitive Tasks in the network. As such, primitive tasks do not have any methods for decomposition. After the HTN planning algorithm traverses through the HTN recursively decomposing tasks according to the matching methods for decomposition. After the HTN planning algorithm traverses through the HTN recursively decomposing tasks according to the matching methods, a result (or plan) is generated. If we apply HTN planning for cBP's formulation, we can potentially bridge high level cBP tasks with low- level granular, operational tasks ideal for Web Service execution.

B)Creating Matching paramters

The creation of concept modeling is contingent upon the creation of both (1) the hierarchical network of compound and primitive tasks, and (2) the network of methods which are related to the compound tasks. Creating the Hierarchical Task

Sr. No.	Risk	Likelihood	Impact
1	Market value of Customers and Sellers are up to date?	Low	Marginal
2	Is Documentation maintained?	Low	Marginal

Ontology.

The current tasks in concept modeling are from the business processes commonly found in sales and marketing, inventory management, procurement and order management, logistics, and payment.

2. Creating and Linking the Methods Ontology A hierarchical task network of parent and child tasks cannot work as a standalone. Just like the supply chain reality, compound tasks modeled into concept modeling can be decomposed by multiple permutations, given different sets of requirements. For each compound task, its relevant method is logically modeled.

Output and Eventual Web Service Matching

After decomposing tasks in Concept Modeling according to the user goals and criteria, the algorithm helps the prototype to generate three possible outputs.

1. A tree breakdown of the dynamically generated required business process tasks in a hierarchical tree diagram. This is for ease of trouble shooting, and the right-most tasks in the tree often depict primitive tasks.

2. A graphical display of the control flows of cBPs tasks can be generated dynamically by the GraphViz software. This is to provide the user of algorithm with an alternative visual inspection tool to the tree breakdown

B- Business Goal	t-Knowledge Base
{C}-Set of Business Criteria	m-Method
F-File	t'-Value to be Matched, Topmost Task

6. Conclusion

Enterprises are under constant pressure to expand business capabilities, improve real-time information access, and provide richer user interactions. Globalization and new business models are breaking down traditional enterprise boundaries - and new Internet capabilities are raising customer and partner expectations and demands on user interaction. Businesses must respond with a new generation of applications for today's realities. Organizations begin by enhancing business processes by taking advantage of existing collaboration technologies and the API sets available to integrate them into existing applications.In this report, Introduction for current commerce collaborators and facilitated Service enhancement is mentioned. Required history knowledge and reviews, along with procedure are presented. Architecture is proposed, and designing with implementation of Knowledge Base is included. As the future work, dynamic formulation and decomposition of cBPs based on high-level business goals and criteria can be reported using MySql as a database. This is achieved via the proposed Commercial-OWL ontology modeled as an HTN. CONCEPT MODELINGweaves ontological modeling with HTN planning. It extends traditional HTN planning techniques such as methods with business process-specific properties such as control flows, supervised, and unsupervised criteria. This contribution facilitates the generation of output cBP with more realistic "nested control flow" structures linking primitive executable tasks, as compared to simplistic left-to-right sequential plans generated by traditional HTN planners. These generated primitive operational-level tasks can then be easily executed by Web Services or even agents. CONCEPT MODELINGis a Web-accessible OWL ontology that describes contains business process tasks. As a result, CONCEPT MODELINGis richer in describing the complex relationships between tasks, methods, actors, effects, and organizational thresholds required for business processes in B2B collaborations. These descriptions also overcame current information systems' inability to 1) automatically decompose problems into more manageable sub problems and 2) representing semantic relationships between high-level goals and low-level tasks.

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