

Approach of Agent Oriented Technology in Designing of Marketing Research Tools

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ABSTRACT

Now in the modern world most insidious technologies used in Marketing Research tools are software agents. Use of Agent - Based Role Modeling (ABRM) and Multi Agent in Case Base Reasoning (MA-CBR) approach provides the better designs in agent technology. In the recent past, lot of methodologies has been proposed. They offer a range of modeling concepts, elaboration and analysis techniques, and opportunities for tool support. They diverge in maturity and scope of coverage. By using the multi agent technology, multidirectional marketing research tools is design which crosses the barrier of traditional marketing research tools unidirectional approach. The traditional marketing research tool is very slow in process execution and they have lack of automation and decisions. By Using the Agent base architecture of marketing research tools it over come the limitation of traditional marketing research tools.

General Terms

Case-Based Reasoning (CBR), Agent - Based Role Modeling (ABRM), URL Uniform Resource

Keywords

Business case; Business decision making.PDAA (Primary Data Arranger Agent), OIAA (Online Information Arranger Agent), Business Intelligence (BI). (MA-CBR) Multi Agent in Case Base Reasoning.

1. INTRODUCTION

In the recent world most persistent technologies used in Marketing Research tools are software agents. Software agents are now used to support various e-business and network control applications processes. In the recent past software agents get control on the technology which is related to intelligence. The agents collect information from company database, third party, and multiple commercial sites and then filter it and provide appropriate responses for client tools. The agent image, due to its correctness for open environments, has recently become popular with distributed, large-scale, and dynamic, multidirectional applications. In the recent past, lot of methodologies has been proposed. They offer a range of modeling concepts, elaboration and analysis techniques, and opportunities for tool support. They diverge in maturity and scope of coverage. The marketing research tools is concerned specifically about handling marketing processes and help in control markets problems, so that they get maximum business

and maximum profit from this business and they work all these by smoothly and highly efficient. In the marketing research tool development there is lack of systematic methods and intelligence approach, and normally all traditional marketing research tools are single application handlers and unidirectional, these type of lacking can be removed by using agent technology. Use of Agent - Based Role Modeling (ABRM) and Multi Agent in Case Base Reasoning (MA-CBR) approach provides the better designs in agent technology. Marketing research tools are useful in gathering information about markets or customers and their competitors in the market.

2. RELATED WORK

In 2003 Celina M. Olszak focused on the Business Intelligence systems. At the beginning, knowledge as an important and strategic asset that determines a success of an enterprise is presented. Next, some characteristics of the Business Intelligence systems are discussed and their architecture is described. Purposefulness of applying such solutions in an enterprise is highlighted. An integrated approach to build and implement business intelligence systems is offered. The systems are shown in four dimensions: business, functional, technological and organizational. In 2006 Samo Bobek showed to make qualified decisions managers combine information arriving from BI applications with disperse information about global economic state, their customers, partners and competitors.

In 2009 Leo Sennott worked on the architecture of the business intelligence solutions used at Skyworks and details how this integrated system is being used to improve our competitiveness in a global marketplace. In 2010 A. TEJASWI & J.N.V.V.S. PRAKASH introduced business intelligent decisions that take place from the data-warehouse through the Actionable-Knowledge Discovery (AKD) in Domain Driven Data Mining (D3M for short). The general architecture of D3M for enterprise decisions was proposed and the model storage was presented, and its characteristics would be analysed. In 2009 Reza Khajavinia presented the paper titled "THE BASIS FOR BUILDING A BUSINESS CASE IN SOFTWARE DEVELOPMENT, A CASE STUDY" in which in many software companies, software engineers and business decision makers live in separate worlds, using their own terminology, decision criteria, and working methods. Building a business case is one possible way to bridge the gap between business and software engineering and to increase the quality and the profitability of software development. Main empirical findings of this study are that case companies used a software business case to allocate resources between concurrent projects, to support sales and pricing activities and to identify the technical

platform of their customers' products. Venkatadri. M [2010] presented the paper titled as A Novel Business Intelligence System Framework that states Business Intelligence (BI) systems plays a vital role in effective decision making in order to improve the business performance and opportunities by understanding the organization's environments through the systematic process of information. The development of BI systems is limited due to its huge development costs. Developing the complex systems with Self Organized Multi Agent technology would reduce the building cost without affecting the scalability and reliability of the system. Hence, this paper presented a novel framework based on Self Organized Multi Agent technology for building the low cost BI systems European Journal of Scientific Research shows - Agent design patterns form a new methodology used to improve the development of software agents. Agent design patterns can help by capturing solutions to common problems in agent design. Patterns are applied in different systems such as knowledge management systems, real-time systems, and network management systems. Agent design patterns for business-based systems, aim to support different e-commerce paradigms business-to-business (B2B), business-to-consumer (B2C), and Consumer-to-Business (C2B).

3. MARKETING RESEARCH TOOLS

Marketing research tools is use to gather information about markets or customers and their competitors in the market. It is a very important component of business strategy. The marketing research tools is concerned specifically about handling marketing processes and help in control markets problems related to customer handling, logistic, production problems and both the outer edge and inner edge of the company level so that they got maximum business and maximum profit from this business and they work all these by smoothly and highly efficiently. In marketing research tools there few fields majorly come under high processing

3.1 Market information - Through Market information you can know the prices of the different commodities in the market, the supply and the demand situation. Information about the markets can be obtained from different sources and varieties and formats. And the sources and varieties have to be obtained to make the business work.

3.1.1 Market segmentation

Market segmentation is the division of the market into subgroups. It is a widely used for segmenting on geographic differences, personality differences, demographic differences, techno graphic differences, use of product differences, and psychographic differences and also gender differences.

3.1.2 Market trends

The upward or downward movements of a market, during a period of time. The market size is more difficult to estimate if you are starting with something completely new.

3.1.3 Interaction and Interfaces

In marketing research tools interfaces and interaction and each and every edge is required. In inter processing of tools, interaction with customers, clients and other company and communication within inter and intra layer of tools systems, and different-2 application need communication, interaction in same tools

4. PROBLEM WITH THE TRADITIONAL MARKETING RESEARCH TOOLS AND SOLUTION

The traditional marketing research tool is very slow in process execution and they have lack of automation and they did not have any concept of artificial intelligence so that they make self decision in the absence of manual guidance so they have lack of automation in both tool operations and decisions. Designing the architecture of Agent based marketing research to which over come the limitation of traditional marketing research tools

5. DESIGNING OF MARKETING RESEARCH TOOLS USING AGENT TECHNOLOGY

The architecture for designing the marketing research tools systems have there layer or three tier structure

1. Application layer
2. Communication/ Interface/middle layer
3. Data collection & handling layer or information get and controlled layer

These three layers further divided in sub layers according to the system requirements

5.1 Application layer

In this layer so many agent work there first agent is **CIA (Client interaction agent)** this agent basically deals with the client of the company for which they are working for marketing research. In this the work like Bid type functioning, in which both argument and the requirements of the client deals.

PSA (Parameter setting agent) This agent interacts with the CIA and then set the parameter for the application task which is functioning on the instruction set by the client.

AGA (Applications Generating Agent) This agent creates the different -2 application agent for the different-2 the task. The agent for task 1to n interacts with the user for various purposes for solving marketing research problem.

5.2 Communication/ Interface/middle layer

this layer basically deals with control communication and message passing b/w the agents. For interaction of the agent it provides an interface. It has special type of agents for this work

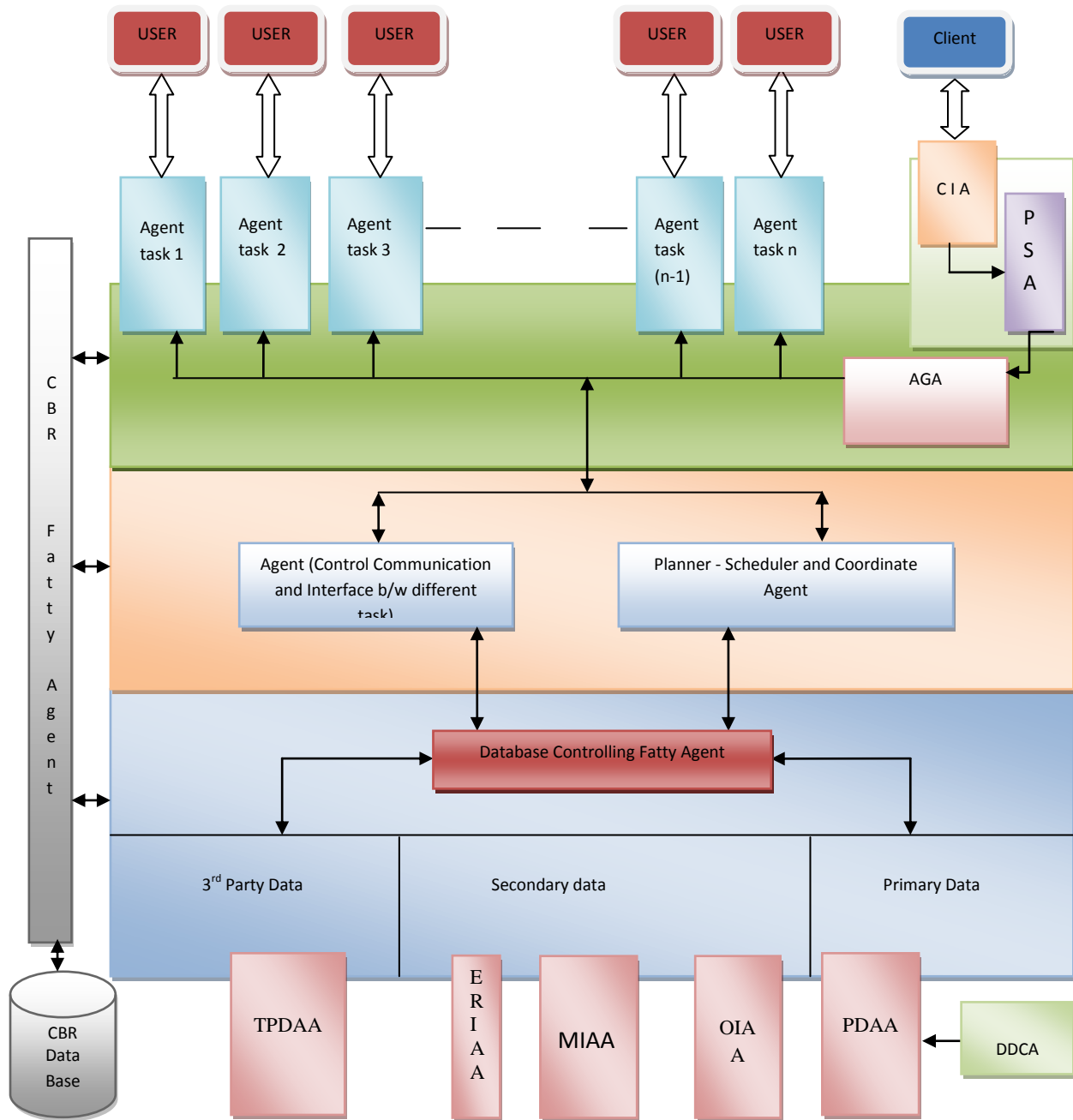


Fig. Frame work of Agent Approach in Tools Designing

and this layer is also deals with the planning and coordination between the tasks. In this system agent communication languages (ACLs) use and It is based on speech act theory where in human utterances are viewed as actions in the sense of actions performed in the everyday physical world. ACLs specify message types called per-formatives, such as *ask*, *tell*, or *achieve*, which by virtue of being sent from one agent to another. Two agents play important role in this layer

Agent (Control Communication and Interface b/w different task)- this agent deals with control communication and help in interacting and message passing between the agents.

Planner - scheduler and coordinate Agent- this agent is used to plan and scheduling the task and agent operations so that they work in highly coordinating environment.

5.3 Data collection & handling layer or information get and controlled layer

This layer basically deals with the information collection and handling the data or information, in this layer data is divided on the basis of their resources and the agent set the priority of the data retrieving in case of redundancy.

Primary data - the data is provided by the company or the main source of the company (from each department of company)

Secondary data- the data is collected from the internet, manual resources, marketing agent, and other extra resources of data collection

Third Party Data- this data is given by the other company on which the company owner shows Trust or the other marketing research company

5.3.1 Database controlling fatty agent

This fatty agent is the group of agent which works with smart coordination. Basically this fatty agent contains agents according to their type of information. it has PDAA For handling the primary data and for collection and handling the secondary type of data it has there type of agent and for Handling Third Party Data a special type of agent is there known as TPDA.

PDAA (Primary Data Arranger Agent) For handling the primary data this agent is used and its interact with other agent which provide the information about the company via DDCA (Departmental Data Collection Agent) or in other sense it collect the primary data. For collection and handling the secondary type of data it has there type of agent. first agent is OIAA(Online Information Arranger Agent)- this agent do three main function first is crawling the web page by downloading the target page and then extract the required information by special type of algorithm , Known as extract target algorithm. Then third function is put the extract information on the database use the font named Times. Right margins should be justified, not ragged.

MIAA (Manual Information Arranger Agent);- this agent handle the information which is collected manually from the market.

ERIAA (Extra Resources Information Agent):- this agent arranges and handles the information which comes from any resource. For Handling Third Party Data a special type of agent is there known as TPDA. TPDA (Third party Information Arranger Agent)- it collect the information from any third party in which company shows trust.CBR Fatty Agent In this complete format the application and agent can face the problem and for each layer is supported by the CBR Fatty Agent which directly interact with their database Which collect the previous case data. The Case-Based Reasoning (CBR) is a problem-solving approach that simulates the human problem-solving behavior. In this approach, the problem is being solved out on basis of past experiences gained from during solving the problem in the past. In case of complex system, it is very difficult to formulate the situations with domain rules. Other drawback is that the rules require more input information than is typically available, because of incomplete problem specifications or because the knowledge needed is simply not

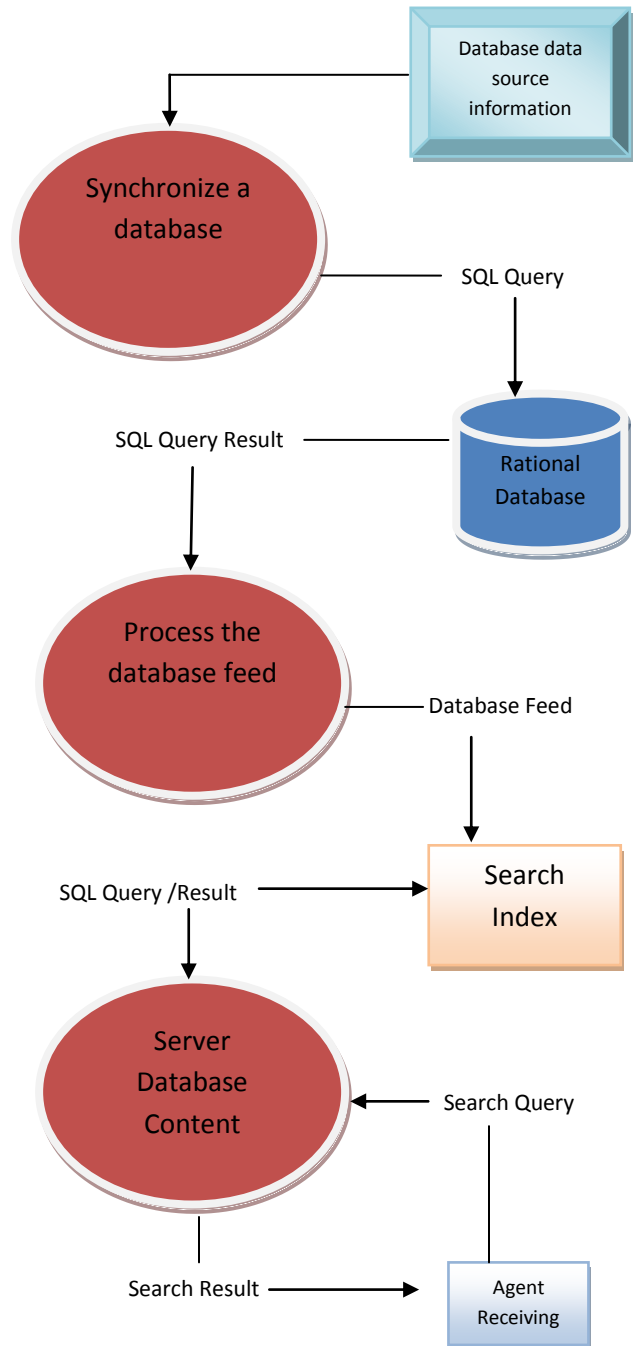


Fig 2: Database crawling & serving

available at problem-solving time. But in case of CBR approach, if general knowledge is not sufficient because of too many exceptions, or when new solutions can be derived from old solutions more easily than from scuff, then on basis of past experiences, the problem is being solved. The case based reasoning involves four phases in the problem solving. Each problem specification & its solution are stored in form of the cases. It maintains the collect of the cases that is known as the case base. In this system, every problem is considered as the

case is being searched from the case base & selected. After the selection of the case, that case is adapted with the new case. In the retrieve phase according to the new case, approximate solution generates the solved case. Now the solved case is evaluated in the revise phase & the faults in that case are being repaired. Now modified case is the solution of the problem. This solution is stored in the case with proper index. This action is mandatory for extracting the cases very efficiently & fast access to the cases in future. For this complete process the CBR fatty agent is design.

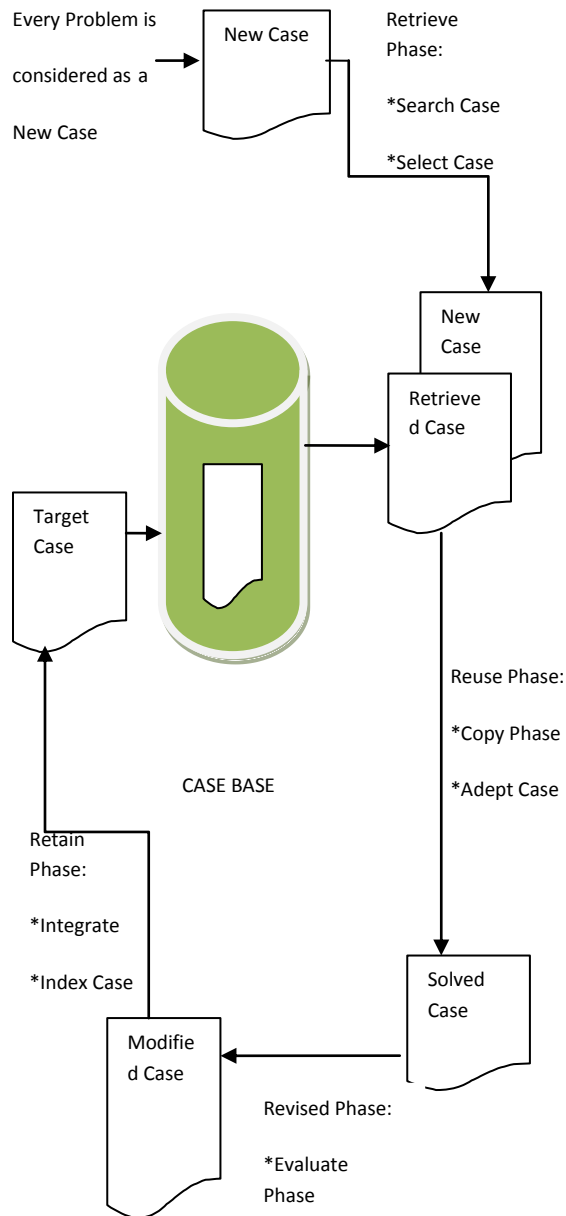


Fig 3: show the case based reasoning fatty agent working

6. CONCLUSION

Approach of agent oriented technology in designing of marketing research tools, Enhance the efficiency and capability of traditional Marketing research Tools. The traditional marketing research tool is very slow in process execution and they have lack of automation and decisions. By Using the Agent base architecture of marketing research tools it over come the limitation of traditional marketing research tools.

7. FUTURE SCOPE

Working in the field of agent to agent communication, argument passing between the agents, improving the decision support algorithms and interaction with user and client, the system can improve the efficiency of the marketing research tools

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