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Service Oriented Investments

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ABSTRACT

In this ever faster changing world organisations have to be very flexible in organising their resources and processes. This paper proposes a capability approach to solve the problems related to constantly changing environment. A link is also laid between the capability approach and Service-Oriented Architecture, which supports adequately the capability approach.

The assessment of the investments is based on real options method because of the great uncertainty caused by this environment. However, the use of the Real Options is not obvious for a profit organisation. In particular the assessment of returns is difficult. For a non-profit organisation, it is hardly to accomplish. Therefore this paper introduces the notion of Service Options to suite better the assessment of investments in "Capabilities delivering Services".

INTRODUCTION

The Board defines the general strategy of the enterprise and determines the desired effects in the environment. The sum of the effects should be the vision of the enterprise. The Board obtains these effects on the society (outcomes) by using its capabilities, which will then perform actions (output) to obtain these effects. The wanted effects will be described in a number of scenarios. Therefore the CEO will configure capabilities to perform actions for all scenarios. Capability is the product of capacity and competence. In the ever faster changing world, these capabilities have to be flexible and easy to reconfigure.

The CEO uses the capabilities to deliver the products to the market. The capabilities consist of modules, which are business processes. These modules are composed of resources. In the process area of capabilities generation, modules and/or resources are acquired following investment and recruiting plans (acquisition function). So we have a schema of outcomes – outputs – capabilities – modules – resources.

The capability approach permits the introduction of the service concept within the enterprise. It is based upon the principles of Art of War of Professor Bernard [Bernard 1976]. The goal of the paper is to describe a theoretical framework to guide the investments in services with the Service Options Method.

The next point discusses Services and Capabilities, which will lead to the Service-and-Effect map. An interdisciplinary forum of managers will use this map as basis for the optimisation of services. This forum will assess the service investments with the proposed Service Options Method. Finally, further research and conclusions will be handled.

SERVICE AND CAPABILITIES

Each capability produces one or more outputs to its (internal and/or external) clients. The client expects a level of quality and service related to this output. In a business process to business process context the output (quantity and quality), time frame and services are described in a Service Level agreement (SLA).

As in the Balanced Scorecard methodology of Kaplan and Norton [Kaplan 1996] the strategy map is of great importance to know where the improvement initiatives should be undertaken. The cause-and-effect diagram in service management may determine where a certain service level should be improved.

A capability is composed of modules, but each module can be seen as a capability itself composed of other modules. By drilling down we reach at a certain point to modules that cannot be decomposed into other modules. This is the atomic module and has only resources such as material and human resources to manage.

Probably all the supporting processes will be put in a division of the catalogue called Service (processes) Catalogue. However not only business processes but also ICT-programs may be part of the Service Catalogue (see below).

SERVICE-AND-EFFECT

Similar with the strategy map introduced with the Balanced Scorecard methodology of Kaplan and Norton [Kaplan 1996], we propose a cause-and-effect diagram in service management which may determine where a certain service level should be improved. In stead of Cause-and-Effect, we suggest the name "Service-and-Effect" diagram.

From the point of view of the capability, three sorts of modules can be defined, and therefore three sorts of services:

- modules from external partners (outside the enterprise),
- modules from the enterprise but external of the capability,
- modules owned by the capability itself.

For the atomic processes (enterprise level and/or capability container level) the resources can be represented. So, atomic processes cannot be further decomposed in other processes, except for the management-module. For these processes the managers of the different resources put the necessary resources in place for the functioning of the process. Instead of SLA we propose to call such an agreement a Resource Allocation Agreement (RAA). For each atomic process the RAA can be put in a matrix related to the respective resource domains. So we have besides SLA, the RAA to assess the quality of services.

SERVICE ORIENTED INVESTMENT

Service Oriented Architecture (SOA) suits well to support the capability approach. As already mentioned, ICT-programs can also be modules. The main purpose of Service-Oriented Architecture is to detect discrete functions contained in enterprise applications and to organise them along with new functions (building blocks) into services that will be used by the business processes.

The Business Process Execution Language for Web Services (BPEL4WS or BPEL) is an XML-based language for the formal specification of business processes, where each step in the business process is executed by a Web Service [Zimmerman 2003]. But the BPEL itself is also a web services, meaning that a web service can not only be a procedure or activity, but also a real business process with long cycle transactions. So, in the services catalogue not only business processes are registered, but also web services.

Rabaey et al. propose a method to evaluate Enterprise Application Integration (EAI) [Rabaey 2005c] which has been extended to SOA. It maps the interactions between processes and applications and assesses different aspects (business coverage, technical stability, costs) in a global view, which is then presented to the Interdisciplinary Forum.

At the first glance, this is typically an investment method for ICT-projects. However with the SOA fitting the capability approach, the question can be asked, if this method can be adapted to fit capability investments.

In stead of applications (rendering information services), all services are then evaluated. The service-and-effect diagram is then the map on which the "Interdisciplinary Forum" (see below) can decide. Due to the complexity of this map and therefore a high degree of uncertainty, classical investments are inadequate. Since uncertainty is an important factor, options could be used. [Luehrman 1998a;1998b]

An option can be defined as "a right but not an obligation, to buy or sell something at a predefined price on or before a certain date [Miranda 2003]. Options were originally meant for financial markets (financial options) where the underlying asset is of financial nature (such as a stock or an exchange rate). Real options have tangible assets or projects as underlying asset [Bostyn 2002].

The different options are sequentially put in a tree structure. In a branch, an option can only be realised if its predecessors exist. However with the capability approach, services (capabilities) can be used anywhere, they are independent from most of the other services (in the realisation) [Glaros 2003].

INTERDISCIPLINARY FORUM

IT-investments do not stand alone and have to be integrated with other domains of a project. A possible framework is the Interdisciplinary Forum (IF) [Rabaey 2005a], which consists of as well experts in the field of the business strategy as well experts from each resource field (human resources, financial, IT etc.). It decides or advises on the organisation of resources and services in a business process, so the business process attains its objectives.

The output of this interdisciplinary forum is a description of services (through SLA) and Resource Allocation Agreements (RAA) delivered by the different resource fields to the core business processes. For that reason, the supportive business units are made accountable for realising the business strategy.

The discussion framework is based on a self-assessment technique as Malcolm Balridge, European Foundation of Quality Management (EFQM), Common Assessment Framework (CAF). These frameworks take topics as strategy, process management, leadership, partners and personnel into account. In the results, indicators are defined to check the critical issues.

The advantage of choosing a self assessment technique as basis for the working of the Interdisciplinary Forum is that in doing so, the social and cultural characteristics of an enterprise or network of enterprises are taken into account.

The Interdisciplinary Forum has an overall view of all projects, so a project portfolio management can be applied. Regarding the method proposed for the Department of the Navy[Davis 2003], the Interdisciplinary Forum treats in an integrated and holistic way the risks and opportunities of all projects of an organisation, not only the IT-aspects of these projects.

FURTHER RESEARCH

The ways (roadmaps) to attain an optimal configuration of the enterprise and its capabilities can be manifold. With the mix of different types of services, the assessment purely based on the techniques of real options is hard to perform. Certainly in the case of non-profit organisations, where management can hardly determine the inflows of projects.

Our research is about the adaptation of the real options method to a "Service Option Method". Since SLA's are a result of the Interdisciplinary Forum, the organisation is used to handle the concept of services, so that the concept of the evaluation of it is well understood in the organisation. The inflows of a project are replaced by a monetary expression of services. This requires also the use of another type of interest rate. Another research is going on to use this approach for SOA projects. However, this paper creates a research domain to investigate the assessments of all types of projects related to capabilities, not only those of ICT

CONCLUSIONS

In this ever faster changing world, enterprises have to adapt quickly to new situations and needs. The organisation of processes and resources has to be very flexible. This paper proposes the capability approach and services oriented investment method.

Modules deliver the necessary capabilities, where one module can serve multiple capabilities. These modules are composed of resources. In the process area of capabilities generation, modules and/or resources are acquired following investment and recruiting plans (acquisition function). So we have a schema of outcomes – outputs – capabilities – modules – resources.

With the resulting Service-and-Effect diagram and the dynamic system of intelligent agents, some scenarios for improvement of capabilities (services) can be determined. The introduction of the Service Options (based on the Real Options Method) can aid the decision process for investments in capabilities.

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