Chapter 23
Framework of Knowledge and Intelligence Base:
From Intelligence to Service

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ABSTRACT

This chapter introduces the concept of the "Intelligence Base," developed in a study on the information requirement of the management of an (military) organization. The purpose of the study was to conceive, for each level of an organization, an appropriate Decision Support System (DSS) and/or Knowledge and Information System. All systems would eventually have been integrated in an overall Enterprise Architecture (EA). By discussing the OODA-cycle of John Boyd and the Naturalistic Decision Making (NDM) the authors show that the concept of Intelligence Base can be a DSS for very demanding environments. Related topics are knowledge, culture, and real options (business example). The proposed framework is based on Service-Oriented Architecture (SOA) and Cloud Computing, which will determine the configuration of the Information Technology (IT) systems.

INTRODUCTION FROM INTELLIGENCE TO SERVICE

Already in 1998 the society was a knowledge society (Davenport et al., 1998; Drucker, 1998; Neef, 1998). The evolution of Information Technology increased the growth of this society (Rabaey, 2011). The result is that service industry

boomed (more than 50% of the 2011 US DOD budget are service contracts). This is only possible by the creativity in the organizations (profit and non-profit).

Another characteristic is the mass customization of the products in general, and services in particular. This demands an enormous flexibility in adapting processes to these requirements. The allocation of resources needs constantly to be changed so that the capacity can be configured

to satisfy the constant change in the market and the individualization of the customers. Not only the business processes and the related capabilities need fast adapting but also the strategies like the grand, business and operational strategies. In se strategy is the result of the balance between the resources and the objectives of an organization (Bernard, 1976).

If an organization is not capable of adapting quickly to its environment, chances are high that it will not survive. Since the pace of changes is continuously increasing, organizations don't have much time to think about "the" best solution, rather they will be satisfied with the choice of a best "acceptable" solution at that particular moment.

Another consequence of this accelerating pace of change is that the organization has to continuously monitor its productivity and the changes in the environment. In other words, the organization needs a constant stream of intelligence, which is not the same as information as we will show.

Parallels between warfare and the market of the knowledge economy are easily drawn. That's why we will start in the next section with the discussion of the importance of intelligence in a military environment. Intelligence cannot only be used to support the decision making of an organization but it also creates at the same time knowledge. Knowledge and intelligence are combined in a generic framework of "Intelligence base." This intelligence base will be the engine to facilitate the production of intelligence so that an organization can make faster and better decisions.

The following section will discuss more in depth decision support by the intelligence base. Two decision making approaches related to military decision making are put in the spotlight. The first is the Observe-Orient-Decide-Act (OODA-loop) of Colonel John Boyd. Especially the "Orient" phase will receive the most attention (Osinga, 2007), because it brings culture, structure, knowledge and related issues together which basically determine the way an organization observes (gets information), analyzes and decides.

The second decision making approach is Naturalistic Decision Making (NDM) which does not focus on decision models but focuses on the experience of the decision maker, the complexity of the task, and the environmental constraints (Rosen et al., 2008). However we will first start with the Babylonian confusion of tongues on risk and uncertainty, because in the assessments of unknown facts it is essential to know what can be measured (based on objective statistical data) and what can not be measured (subjective appreciation of a chance (probability) that something can happen), they cannot be mixed as homogeneous factors or chances.

The use of Intelligence Base for these two non-classical decision making approaches will be shown. Real Option Valuation (ROV) will serve as a business example. Real option is the right but not the obligation to act (invest, disinvest, postpone, start, delay, restart, stop projects). Although ROV is a very useful investment evaluation technique because it offers flexibility to management to decide and to tackle the risks, ROV can be complex and the follow up of these real options is quite intensive (especially the American type of options). We believe the use of an Intelligence Base can solve the majority of these problems.

Both knowledge management (KM) and Intelligence Base (tightly linked to each other) have to find a place in the overall architecture of an organization. In this context Enterprise Architecture (EA) is proposed as the appropriate framework. Since knowledge is obviously important in a knowledge economy, an additional knowledge layer will be introduced. Certainly now the use of (services in) Cloud Computing is increasing and Information Technology (IT) will become a "utility (commodity) [so] competitive/collaborative advantage will become almost fully dependent from the capability of producing intelligence for decision-making and knowledge management (in systems, processes and human resources)" (Rabaey, 2011).

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