The Lamp Example – Impact of Human Factor in KRIOS model

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Abstract. KRIOS (Knowledge Representation In Our Systems) is an innovative data utilization philosophy. KRIOS includes three parallel layers. The first is a step by step methodology which describes all steps from gathering data until gaining competitive advantages from knowledge, using data mining techniques. The second one is the human factor layer. All steps are reflected in human roles and attributes. Finally, the third layer refers to knowledge and business level. All layers are strongly interconnected. KRIOS is a new trend, a multi-tool, a leading decision support system and it will succeed, if it manages to become a siege ram in knowledge and in business process problems. KRIOS revolution depends on humans. Business benefits realization from data utilization and mostly, faith in its contribution are the basic pylons of our philosophy. In this paper we focus mostly in human factor layer and we describe the lamp example. This example shows how top managers are the basis of successful data utilization in their business. Even, if there are established many models and theories in an organization, keystone for their usefulness is top management.

Keywords: Data Utilization, Data Mining, Knowledge.

1 Introduction

All business organizations are much more interested in Data management and data utilization than past decades. Massive data volumes spotlight the need of its utilization. Everyone can find many models for such usage in international bibliography [Badaracco, 1991]. Scope of all those models is to organize the data management process in separated and well understanding steps and contribute in business process optimization and reengineering [Davenport and Prusak, 1998]. Although many of them don’t manage to fit to modern business needs. That lack of fitting depends on human factor. Human factor is the crucial point. Humans are responsible to act in accordance with models, methodologies and theories. Humans are the executive arm. So, even a well established procedure cannot work properly, if it interacts badly with executives.

KRIOS apart from its step description shows all human roles and their contribution in model, in order knowledge utilization stands as a really useful and essential tool with multiple gains.

KRIOS name comes from the initials of phrase “Knowledge Representation In Our Systems” and was established in 2005. It evolved in WINBANK, which is the electronic banking division of Piraeus Bank, from a statistical information
system to an integrated knowledge utilization platform. Knowledge representation, data mining, decision support and proposed actions are part of WINBANK KRIOS. Simple reporting and graphs reading has tiny value if it is not accompanied with decisions and actions. Those characteristics are the success factors and they contribute in its whole acceptance from WINBANK micro-site.

Our big challenge is data and knowledge utilization. KRIOS is our vision. We want our vision to become real business procedure. So our intention is to make KRIOS worldwide known in business and academic community.

In the next sections we describe our model and our integrated data utilization platform. Section 2 contains KRIOS model, while in section 3 Human Roles is described. Section 4 contains Lamp Example. Finally, in section 5 we present the conclusions.

2 KRIOS Model

KRIOS [Aggelis, 2006] process consists of the following steps
1. Collect and explore data
2. Understand and organize data
3. Design data repository and Extract-Transform-Load process
4. Get information
5. Find hidden knowledge
6. Take decisions
7. Make actions
8. Take (competitive) advantages

KRIOS model is shown in Figure 1.

The whole process is iterative and runs continuously. This is the corollary of data texture and data characteristic. New data are added; current data are transformed or changed, so its management and utilization is a consecutive stepwise process. Static data management process is fatal flaw for any organization.

Process steps are represented in Business and Knowledge Layer. The three first steps related with raw data layer.

Data collection means specific definition of collected information and data repository identification, where the collected data are stored. Data exploration consists of record of possible missing information and data intercross.

In order to understand data it is prerequisite business process knowledge and deep experience on it. Also analysis skills are necessary for collected data repositories understanding.

Final step represented as raw data in business and knowledge layer, concerning definition of entities and their attributes. Very important is to set the process for data extraction, data transformation, data cleansing and data loading.

Fourth step of KRIOS is referred to information layer. Before having information representation it is critical to manage missing values, which inflect in many cases the results. After that task, information can be represented as report or
Nowadays there are more sophisticated representation forms, like Key Performance Indicators (KPI) or Visualization.

Next layer is the intelligence one. In order to make your business intelligent, hidden information and patterns must be found, using at most data mining techniques. Data mining [1] would advance intelligence in decision making. There are many practices that could help to take decisions, such as advanced or predictive analytics.

Last layer is related with benefits and profit that are gained from the whole process. Speaking about gains, it is important to emphasize that gains are both for companies and their customers.

3 Human Roles

Discrete human roles are defined in KRIOS model. Human factor [Brachman and Anand, 1996] is the innovative part of the model. All roles have the same importance, but two of them are most crucial. Those roles are:

- Customer: Customer is the initial and better data source. Any customer could be internal (organization staff) or external. Customer transactions produce huge data volumes daily. Customers buy, pay, deposit, order, register, allocate, cancel, navigate, have needs, have opinions, work, live, marry, study and make many other actions that
have new data production or current data transformation as results. At the same time customers are recipient of knowledge and benefits from KRIOS process.

- (Business) Analyst: Analysts [Hilty and Laware, 2006] must be qualified with business process knowledge and data manipulation skills.
- IT staff: IT people contribution is necessary because they are the most appropriate to design in cooperation with business analysts the data repository and implement it. Also they could help in the ETL process design and its automated operation.
- Sales Departments: Company’s sales departments receive information about crucial metrics via different systems, like MIS, CRM, etc. In addition they receive clear and steady information for their customers, in order to plan next actions.
- Directors: Information received by Directors differs than information get by sales departments. It is not so detailed, but contributes is a safe and real representation of business value. Directors belong to decision-makers group.
- Data Mining or Business Intelligence Analyst: This specific analyst [Horibe, 1999] has to know data mining and business intelligence techniques and methods. It the second most crucial role because he is the one who adds value in business chain by establishing models and patterns for hidden information.
- Top management: Executives, Presidents, General Directors are those who take the critical decisions for a company. Top management is the most crucial role; the foundation stone of KRIOS It is the starting point. If they don’t believe in KRIOS capabilities there is no chance to take part KRIOS revolution.
- Company: with this abstract notion we mean all company’s staff that is responsible to execute business plan and actions. Company’s shareholders also participated in this notion. They are those who gains benefits from company’s revenues.

4 Lamp Example

As we stated top management is a key role in KRIOS. Our intention is to persuade all those leaders for KRIOS usefulness. In order to set up our data utilization philosophy in a big organization, is not enough to have few visionaries somewhere in organization structure. Vision must be part of top management, as well as faith, inspiration and lead. Leaders [Goleman 1998] are the most appropriate persons to enforce KRIOS in all organization scales. Lamp Example describes that need.

Let’s assume that organizational structure is like a pyramid. In the top of pyramid are leaders (top management) and as we go down to the base all roles are rolled out. If there is a visionary in a middle level of pyramid and turns on a lamp
(e.g. KRIOS), only a restricted part of it is lightened. Head of pyramid remain in darkness. But if leader turns on the lamp (e.g. KRIOS) then light is shed in whole pyramid. Even the restricted part will be over-lightened then (figure 2).

Top managers are those who take decisions. Experience, emotional intelligence, scientific knowledge is valuable tools for decision making. KRIOS is an added value. Our model can verify facts and assumptions and supports decision making. In addition KRIOS can fill parts of decision puzzle, importing new and uncovered information.

![Fig. 2. Lamp Example](image)

5 Conclusions

Nowadays, human factor is underestimated in business intelligence process. This is a fatal flaw. Firstly, business people are responsible to evaluate and choose a business intelligence infrastructure [Berry and Linoff, 1997]. Secondly same people are those who use that platform and take decisions depend on it. There are two basic mistakes in business intelligence process

- Intelligent Systems are enforced by competition. Our competitor purchased an intelligent system, so we have to the same.
- IT departments are responsible for business intelligence platforms.

Top managers have to consider deeply the necessity of business intelligence. It is important to believe that decision support systems are useful and not luxurious. In addition, they must take advantages of their organization needs and implement systems that differentiate them from competitors.
References