K.R.I.O.S.

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Abstract

Many models and processes have established, worldwide, for data management and utilization. Such a model is K.R.I.O.S. It is not only a model but much more things. It is a multi-tool, a new trend and philosophy which targets to begin a revolution in business environment. KRIOS is a step by step process. It describes all steps from gathering data until gaining competitive advantages from knowledge. All steps are strong related with other two layers. One layer refers to knowledge and business and the other one related with human factor.

Human factor is the soul of K.R.I.O.S. Model will succeed, if it manages to become a siege ram in knowledge and in business process problems. K.R.I.O.S. revolution consists of benefits realization from data utilization and faith in its contribution. Also K.R.I.O.S. takes into consideration the customer and operates in order to return gain and benefits to him also.

Keywords: Data utilization, Knowledge, Data Mining, Decision Support.

1. Introduction

Data Management and Data Utilization (Chen et. all 1997, Hilderman et. all 1999) is a subject that interest much more than past, all business organizations. Massive data volumes spotlight the need of its utilization, in order to gain competitive advantages. You can find many models for such usage in international bibliography. Scope of all those models is to organize the data management process in separate and well understanding steps and contribute in business process optimization.

However, not all of them manage to fit to modern business needs. This 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.

K.R.I.O.S. apart from its step description and analysis, print all human roles and their contribution in model, in order knowledge utilization stands as a really useful and essential tool with multiple advantages.

K.R.I.O.S. comes from the initials of phrase “Knowledge Representation In Our Systems” and was born in 2005. It evolved in WINBANK from a statistical information system to an integrated knowledge utilization platform. Knowledge representation, data mining, decision support and actions are included in K.R.I.O.S. menu. Those characteristics are the success factors and they contribute in its whole acceptance from WINBANK micro-site.

K.R.I.O.S. is our vision. We want our vision to become reality. So our intention is to make K.R.I.O.S. national and worldwide known in business community.

Last but no least is to take decisions and make actions, according to the produced knowledge. Simple report and graphs reading has no value if it is not accompanied with decisions and actions.

2. The Model

K.R.I.O.S. model is shown in Figure 1.

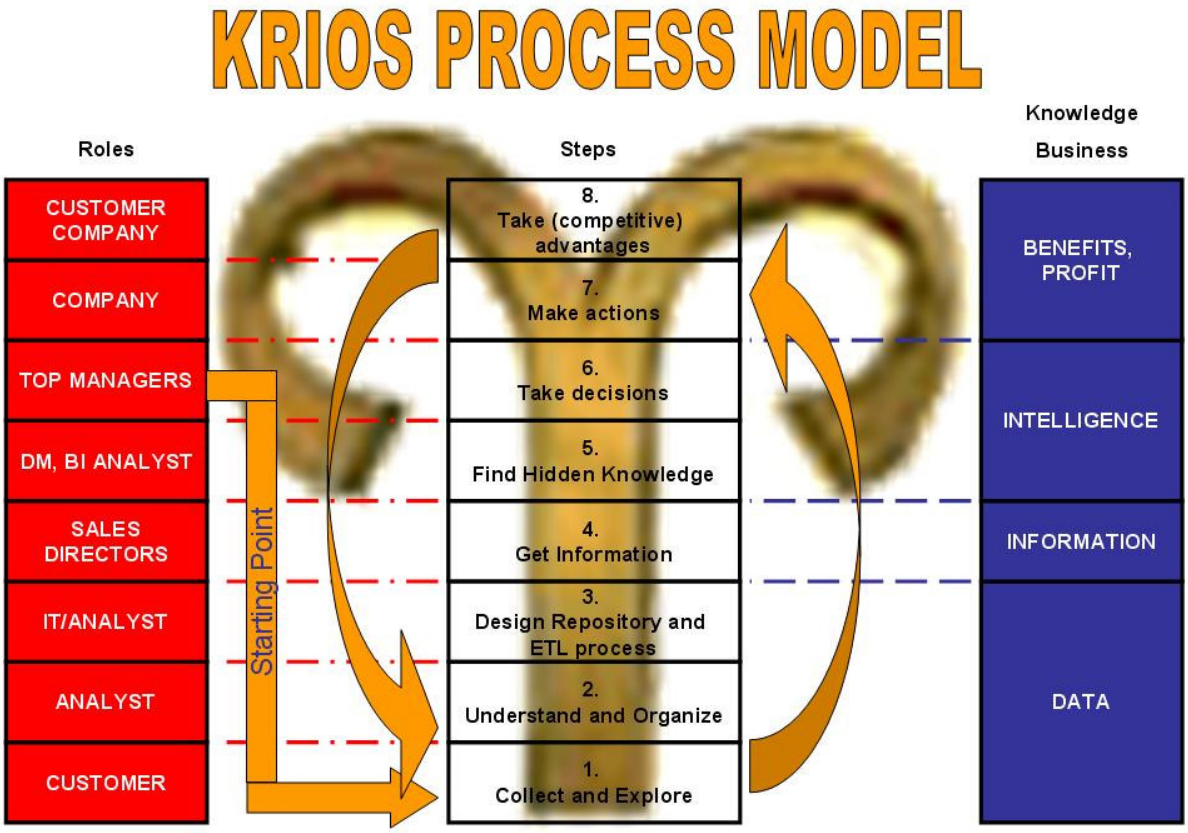

Fig.1 – K.R.I.O.S. model

K.R.I.O.S. 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

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 processes are the biggest mistakes for any organization.

3. Business and Knowledge Layer

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 and cleansing and data loading.

Fourth step of K.R.I.O.S. 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 information can be represented as report or graph. Nowadays there are more sophisticated representation forms, like Key Performance Indicators (KPIs) 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 (Zaki et. all 1997, Agrawal et. all 2002) would advance intelligence in decision making. There are many practices that could help to take decisions (Aggelis 2004 (1)), such as advanced or predictive analytics.

Last layer relates 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.

4. Human Factor

Discrete human roles are defined in K.R.I.O.S. model. Human factor 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 K.R.I.O.S. process.
- **(Business) Analyst**: Analysts 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 sale 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 sale 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 has to know data mining and business intelligence techniques and methods. It the second most crucial role because he is the one who add 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 K.R.I.O.S. It is the starting point. If they don't believe in K.R.I.O.S. capabilities there is no chance to take part K.R.I.O.S. 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.

5. Impacts

K.R.I.O.S. applied in WINBANK, an electronic banking division. WINBANK KRIOS is an integrated knowledge utilization system. It contains MIS, Data Mining and Decision Support System and Fraud Detection System.

WINBANK KRIOS offers advantages as the following:

- Good knowledge of the relationships (Aggelis 2004 (2), Aggelis 2005, Aggelis 2006 (1), Brin, et. all 1997) between different types of electronic transactions.
- Description and establishment of most popular internet transactions
- The electronic services become more easily familiar to the public since specific groups of customers are approached, that uses specific payment manners.
- Customer approach is well designed with higher possibility of successful engagement (Aggelis 2006 (4)).
- The improvement of already offered bank services is classified as to those used more frequently.
- Redesign internet transaction structures for those which used rarely
- Reconsidering of the usefulness of products exhibiting little or no contribution to the rules.
- Personalized menus through preference mining
- Customer views returning information via internet banking site (Aggelis 2006 (3))

In the other hand, offline internet banking fraud detection system (Aggelis 2006 (2)) offers many benefits to both bank and customers.

- Fraud detection system gives added value to e-banking. Especially, nowadays, where fraudsters' attacks are increased considerably in our country, such system differentiate bank owner from other bank competitors.
- Bank takes lead. Such in-house system implementations, which are set up for customer benefit, are infrequent in local market.
- Fraud detection system indicates quality of e-banking services. Quality depends on user friendly interface, on a full of electronic transactions portfolio, but also depends on user protection and guarantee.
- A significant number of users have the sense of care and protection from their bank. This sense helps customer loyalty escalation.
- Official fraud victims informed from the bank itself as soon as fraud detected. Customers feel that their bank stands by them and that fact strengthens mutual relation.

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