

# Knowledge and Business Intelligence Technologies in Cross-Enterprise Environments for Italian Advanced Mechanical Industry - *Project Presentation* -

Francesco Arigliano<sup>3</sup>, Antonia Azzini<sup>1</sup>, Chiara Braghin<sup>1</sup>, Antonio Caforio<sup>2</sup>,  
Paolo Ceravolo<sup>1</sup>, Ernesto Damiani<sup>1</sup>, Vincenzo Savarino<sup>3</sup>, Claudia Vicari<sup>3</sup>, and  
Francesco Zavatarelli<sup>1</sup>

<sup>1</sup> SESAR Lab - Dipartimento di Informatica  
Università degli Studi di Milano, Italy  
Email: {name.surname}@unimi.it

<sup>2</sup> Centro Cultura Innovativa d'Impresa, Università del Salento, Lecce, Italy  
Email: {name.surname}@unisalento.it

<sup>3</sup> Research & Development Laboratory - Engineering, Ingegneria Informatica, Italy  
Email: {name.surname}@eng.it

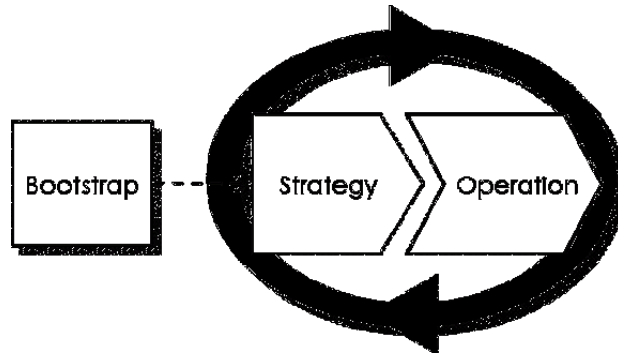
**Abstract.** The internetworking and the outsourcing of business activities have become essential in the short term to maintain competitiveness in the market, as it allows to significantly reduce time and cost of core business processes. However, outsourcing, increasing the level of information sharing, imposes new precautions to maintain, in the medium and long-term, strategic control over the knowledge produced and exchanged, both in terms of “know-how” and “know-that”. Especially for SMEs, this implies substantial risk of a technological nature, in that it requires complex and extremely expensive technological framework. KITE.it aims to develop a methodological and technological framework to support the transition of the advanced mechanical supply chains towards Value Network models able to guarantee:

- interoperability and cooperation between firms and individuals in the network;
- the management and securing of the intellectual capital;
- measurement and performance optimization.

**Key words:** Business Process Management, Data Analysis

## 1 Introduction

The exit from the great global crisis towards a new cycle of development requires to move from organizational and inter-organizational models, based on a strict definition of roles and organizational boundaries, to structures defined as a Value Network (VN): an organizational structure by fluid boundaries and the complex relational dynamics in which individuals, groups and organizations thrive through complex processes of interchange and integration of value, based



**Fig. 1.** KITE.it end to end methodology

on the network paradigm[2]. In this context, the competitiveness of the Made in Italy must be defended and enhanced redefining business models and business processes according to the VM Paradigm. We define VN as the integration of a Business Network (or network of enterprises) and the corresponding Social Network: the first characterized by the mediation of the economic value, while the second by the mediation of knowledge and intellectual capital of knowledge workers. In an increasingly, uncertain and changeable market, business agility is the mantra of knowledge driven organization [1]. A variety of tools and technologies were developed to simplify the communication among organizations and people across the VN. These tools are focused on information sharing and are characterized by the ability to integrate information systems, to connect the processes of an organization to those of suppliers and make the process accessible to the customers. Exhortation to collaboration, sharing, cooperation and the ability to rapidly set up their business and the value network in which an organization operates, is hampered by several kinds of issues, such as the dissemination of know-how, and this could damage the company. KITE.it project, is aimed at providing the conceptual, methodological and technological tool to maximize the ability to obtain agile, collaborative and social business in a secure manner, that is minimizing the risk. Therefore the fundamental ambition is the safe business agility; which means that both the process and the entire organization needs to be flexible.

## 2 KITE.it Methodology

An agile organization is expected to adapt itself to a changing environment proactively. Such adjustment should be done quickly at the level of modeling and implementation: a modified model is to be transferred seamlessly and quickly to the computer systems supporting the organization.

KITE.it “End to End” Methodology manages iteratively the entire business life cycle both at strategic and operational level. At the strategic level the exogenous variables and the value network in which the organization operate are



**Fig. 2.** Elements of the Strategy phase

analyzed. At the operational level, the strategy and the corporate policies are realized by an architecture of core processes supported by support processes. The big picture of KITE.it methodology is very simple. As described in Fig.1, it consists of two main iterative phases, which correspond to the two levels of analysis the methodology is based on: Strategy and Operations, preceded by a initial bootstrap phase in which teams are set up and the methodology implementation plan is established. As described in Fig.2, in the Strategy phase we identify four iterative steps:

- Strategic Analysis S1.
- Goal Setting S2.
- KPI and Target S3.
- Risk and Policies S4.

### 2.1 Strategical Analysis S1

After an analysis of the value network environment (socio-economic-political), it is necessary:

- to establish the vision,
- to analyze the value networks in which the company operates by identifying roles and value flows,
- and finally to define the value proposition.

The E3Value method [3] is indicated by KITE.it methodology as the preferred notation to model Value Networks. In addition, services to be implemented or modified are identified. The last step of this phase is to establish the value chain, that is the core processes that will be linked with the goals identified in step S2.

## **2.2 Goal Setting S2**

At this stage strategic goals, that the organization wants to achieve, are identified. This analysis is done according to four different perspectives:

- Financial.
- Value Network.
- Processes.
- Learning and growth.

These perspectives are borrowed from the BSC methodology [4] (balanced scorecards) in which the Customer perspective is extended to the Value Network and the Internal Process perspective is extended to cover collaborative processes.

## **2.3 KPI and Target S3**

All goals previously identified are mapped to key performance indicators and target values, that give the possibility to check the distance from each goal achievement. Through the objective identified in the scorecard perspectives, at this stage we establish all the measures with a low level of detail. In the operational phase methodology such measures will become detailed process metrics.

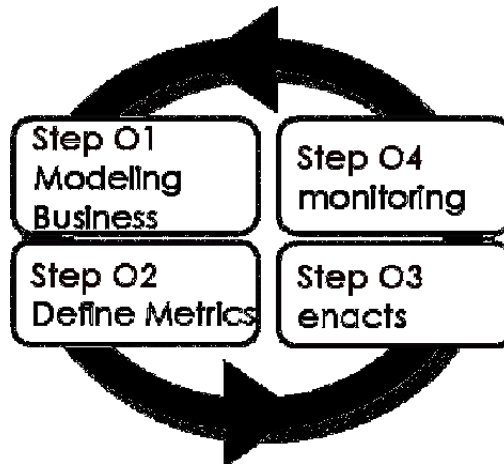
## **2.4 Risk and Policies S4**

The final step in this phase gathers business requirements for the operational phase, policies that will support the objectives are established and the business risks associated with the objectives and any policies to mitigate them are identified. The Strategy phase is iterative by nature and therefore the steps described are repeated until a stable and shared strategic model is obtained. These iterations may affect structural changes: once a risk is identified and its probability and impact is assessed, it may be necessary not only to review the objectives and the policies, but sometimes even the value proposition with profound effects on the organization. In order to carry out this phase in a truly effective way, it is needed the active involvement of the top management. As described in Fig.2, in the Operation phase we identify four iterative steps:

- Business modeling - O1.
- Define Metrics - O2.
- Enacts - O3.
- Monitoring - O4.

## **2.5 Business Modeling - O1**

This is the stage where the requirements of the strategic analysis become business models or diagrams; different models will be defined to establish the process architecture, the organizational structure, processes at various levels of detail, the business decisions and the operational risks associated with the processes.



**Fig. 3.** Elements of the Operation phase

### **2.6 Define Metrics - O2**

Starting from performance indicators, identified in the step S3 of the Strategy phase, the measures to be carried out on individual processes and methods for the recovery of the necessary information are set out in detail. The KITE.it methodology provides a model for the metrics specifically defined by the project.

### **2.7 Enacts - O3**

At this stage the models are ingrained into the organization's operations. The necessary components will be developed and put into production with the processes by integrating all in an environment of social cooperation.

### **2.8 Monitoring - O4**

The Monitoring stage is critical to ensure the ability:

- to continuously improve the performance of the organization,
- to verify the achievement of strategic objectives,
- and to control risks.

Using the information about the process, and the security and SNA measures, we will be able to close the loop and to reiterate the end-to-end methodology by restarting from the Strategic analysis (S1) or from Business modeling (O1) to make ever more effective the action of the business.

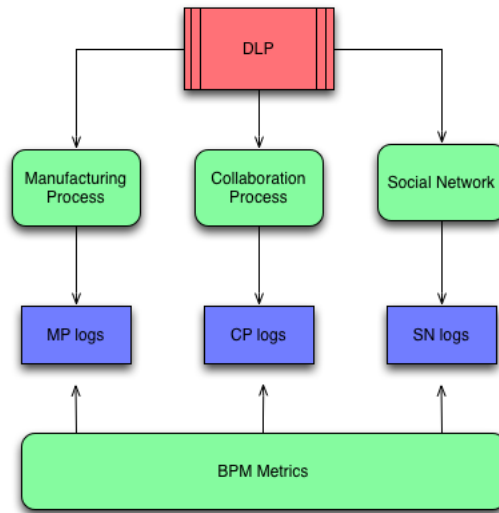


Fig. 4. Kite.it integrated BPM approach

### 3 Data Loss Prevention Scenario

Our first investigations was related to a Data Loss Prevention Scenario. The loss of sensitive information are critical for organization, solutions for preventing data leakage incidents are based on systems designed to detect potential data breach transmissions and prevent them by blocking data while in-use (endpoint actions), in-motion (network traffic), and at-rest (data storage)[5]. These systems provides logs describing the interactions among the organization and are typically able to track the originator and addressee of a data transmission, together with the action operated on data. Using this information KITE.it tacks the dynamics on the exchange of intellectual capital within the VN. In fact, the DLP system allows to extract information about the manufacturing process, the collaboration process and the social network of the interactions. The objective of KITE.it is to provide an unified view on these dimensions providing integrated metrics to enhance Business Process Monitoring, as illustrated in Fig.4.

### Acknowledgements

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