

## A Paradigm Shift in Business Intelligence in Rapidly Changing Environment

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**Abstract:** The term Business Intelligence (BI) is increasingly being used in a variety of business systems to develop networks within and between organizations. Business intelligence is based on cognitive strategies and cognitive processes that are functioning for both sustainable and synergetic corporations. To sustain the business systems effectively, BI requires genius, creative and inventive mindsets, and cooperative, innovative, productive skill sets. Plus, the operational procedure would be crucial. This research aims to present a framework of Business Intelligence System Model for data, information, and knowledge management, while creating a scientifically based methodology for managerial decisions and organizational performance. It will discuss how cognitive strategies and processes can contribute to an innovative development of business corporations and it will suggest ways of effectively adopting the system to the environmental changes or paradigm shifts while the system is growing in intelligence, technology, and expertise.

**Keywords:** Synergetic, (BI) Business intelligence, expertise, invention, innovation, diffusion.

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### 1. INTRODUCTION

In this increasingly changing environment, business systems require the capability of innovations or inventions. Because adaptability becomes a crucial factor for the evaluation and the survival of any system. In that respect, Business Intelligence Systems need entrepreneurship mechanisms that keep them adapted to dynamics of the environmental changes. In the innovation process, most of the business systems rely on thousands-years-old traditional trials and errors method in the act of creation (Kostler, 1964). However, to improve innovative processes considerably and to avoid costly trials and errors, business intelligence systems need a quantum networking methodology. Everything is operating in an integrated networking system that affects each other.

The common points of inventions and innovations aim to adapt to the changing environment and evolve to create best adjustments in emerging cultural settings. However, with the arising complexity of Business Intelligence Systems becoming the most crucial factor to switch their mindset from individualist to a more cooperative and synergistic model in order to maintain their position and strengthen their framework in the network of accelerating numbers of divergent populations.

Considering these problems and difficulties, there are some questions waiting to be answered.

Over the course of globalization, entrepreneurship has gained critical importance in a rapidly changing science and technology. By the development of science and technology, innovation-related entrepreneurship would have a critical importance to produce high performing business intelligence for a revolutionary or incremental change in businesses. In view of the rapidly changing science, technology and expertise, as the high influence of inventions, which are rapidly turning into innovations, a holistic model to develop an effective business intelligence system is required.

These questions are listed below:

- What are the strategies of inventing a new radical solution; generating new ideas and solving business problems to provide effective results?
- What are the ways of predicting and road-mapping for future generations of products, processes and human researches? What tools, methods and skill sets do we have for better adaptations in any emerging cultural setting?
- Overall, how does a synergetic corporation work as it works in nature that manages organisms in the most effective ways? And how can we apply the same mentality for business corporations? Answering these questions is at the very heart of the requirements for the development of Business Intelligence.

## 2. MATERIAL AND METHOD

### 2.1. Synergetic

What are the means of the words synergy and synergetics?

The word "synergy" means, literally, "working together". It is working on associative cooperation of integrated parts of any complex system through a purpose (Fuller, 1982). Applied to the human mind, "synergy" denotes working together of the enormous variety of cognitive functions that comprise the mind, producing a new whole system greater than the mere sum of its parts. In the synergic mode, a part acts naturally so as not only to achieve its own goals, but also to promote the goals of the whole system. This led to the concept of a science of synergy namely, synergetics (Fuller, 1982).

The application of synergy in a business context requires an associative approach.

### 2.2. Implication of synergetics to Business Management

A science of synergy has tremendous implications for any complex systems. It is potentially applicable to any complex system in any business corporation - since it enables each part to operate together. According to the science of synergy, each part of the business mutually reinforces to each other to naturally lead to greater effectiveness. Synergetics provides a framework in which any content can work effectively, increasing quality, increasing conformance and performance, expanding to broader market segments, extension of the product range, decreasing production costs, increasing effectiveness.

In other words, synergetics is an organizational mechanism of collaboration which aims to solve any problem with minimum energy and maximum efficacy. Synergetics can be applied to the problem of integrating different fields of knowledge to bridge the gap between fields of science and technology through expertise both individually and cooperatively. On this basis, synergetics is seen as an absolute necessity for any inventive and innovative problem solving processes.

## 3. FINDINGS

### 3.1. What is a system? What makes a system complex?

A system can be defined with its purpose, its content, its context, and their interactive relationships. The content of any system is interdependent, modular, in order, hierarchic, chunked (Kaufman, 1993). Additionally, the most important property of a system is its synergy that the relationships between the modular parts act in hierarchy through a common purpose. The operation of a system is studied by R. Buckminster Fuller who coined the term "Synergetics" (1982). In his work of synergetics, he stated that a successful system operates through the same purpose and produces most effective, sustainable, feasible outcomes.



Figure 1. Synergetics network

Synergetics starts from the observation that a system is strongly affected by the environmental conditions of its super system and its many interactive subsystems.

Synergetics starts from the observation that a system is strongly affected by the environmental conditions of its super system and its many interactive subsystems. To invent new qualities of a defined total system, the synergetic cooperation and the synergetic network of the sub-systems need to be studied (Figure 1).

#### 3.1.1. Mindsets of subsystems

Any system needs to increase or decrease the qualities and quantities of their products; goods or services through inventions and innovations managing the complex variables. Most organizations in the public and private sectors have to expand and as they expand, grow or develop, so do the complications they face in their planning, organizing, and control procedures. Correspondingly, a multitude of data sets related to regulations, evolving consumer needs, marketing and advertising, competition in the industries, resource and supply problems, and the correlation of risk and return are the parts of those complex variables. Creating a better mindset and reducing uncertainty; and thereby taking action for the intended purpose would be the most effective way to expand the business model.

#### 3.1.2. Skill Sets of subsystems

**Intelligence** implies seeing the interpolating, existing relationship. **Creativity** empowers a person to see extrapolating, further configurations and several possible relationships. **Inventiveness** implies amplifications, imagination of relationships which are novel and original and have a potential to be advantageous, viable and meaningful. **Innovativeness** implies situating those novel relationships within a cultural context that would also be adapted to a large number of people in an advantageous, meaningful and evaluative way.

An intelligent business system can become more productive by working on creativeness, inventiveness and

innovativeness and by practicing mindsets and skill sets needed to operate an effective network.

**3.2. How do systems work**

The components of the subsystems and which skill they should have in order to successfully operate as a system is discussed. Additionally, to make an impact on larger scales, the terminology of diffusion should be considered (Figure 2). Each stage can be discerned by a well-functioning interaction policy and interaction process management.

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**Invention** is exploiting new ideas leading to the development of a known system or the creation of a new system. Invention is based on scientific research and scientific discovery. In design, invention is based on creative associations. **Innovation** on the other hand is implementing new ideas leading to the development of a known system or the creation of a new system. It leads to technological development and new ways of information organization. Finally, **diffusion** is the use and advancement process of new knowledge, models, and products by other systems. In the process of diffusion, the models created in research and implementation or in other words invention and innovation processes can be transferred to any fields of other research and implementation processes.

existing system. And finally there is a radical innovation which is based on developing a new target system.

Level 1	Level 2	Level 3
Refinement of a target system	Associating two target systems	Developing a new target system
New for a part	New for the systems	New for the world

**Table 1.** Levels of innovation

**3.3.2. The growing pattern of innovation**

Change and growth are dynamic and continuous processes in nature. In the concept of the growing process of man-made environment; science, technology and expertise are the main growing axles of invention, innovation and diffusion processes (Figure 2).

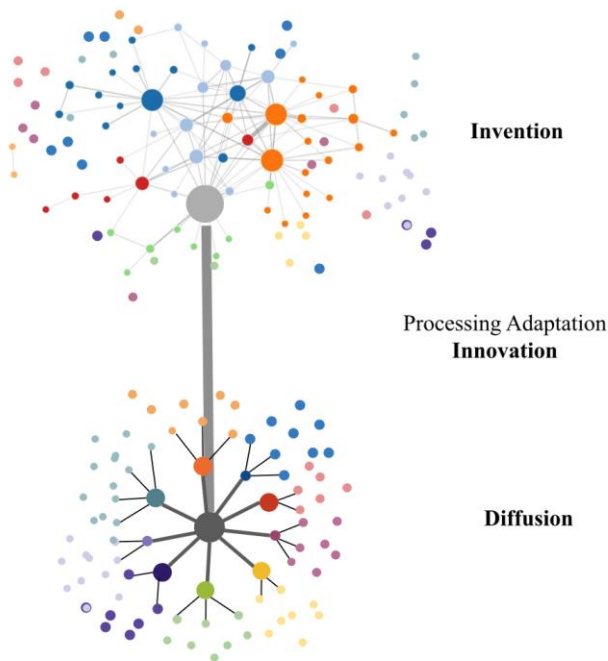
For an effective growth of science, technology and expertise, individuals, teams and organizations should operate according to synergistic interaction principles. Moreover, the information database and spatial organization should be designed according to synergetic organization principles interconnected, grouped and hierarchically organized.

**4. DISCUSSION AND CONCLUSIONS**

Based on expertise differences, synergetics provides a high functioning structure to guide diffusion processes. For genuine innovations, high functioning teams that are composed of different levels of expertise are one of the most valuable assets an organization can have. On high functioning teams, the members experience a feeling of contentment, juxtaposed by a **creative tension** of the members. Striving to work effectively as a team, the team also creates an environment of personal responsibility where all members are accountable to each other and as a whole.

**CONCLUSION**

In this paper, it has discussed how innovative practices are amplified by highly collaborative multi-speciality insights and how systematic practices will foster invention and innovation; creative idea generation and creative solution generation. Synergetic network is suggested to associate creative idea generation, effective solution generation and diffusion processes. Synergetics will serve as the models of (BI) Business Intelligence and system management including information management, operation management, and teamwork.



**Figure 2.** Invention and innovation and diffusion.

**3.3. Levels of Innovation**

**3.3.1. What are these levels of inventive and innovative processes?**

There are three levels of inventive and innovative processes (Table 1). First one aims at the refinement of an existing system. Second one includes the addition of new parts to an

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**Conflict of Interest**

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