

# Chapter IV

## Models of OI from Literature

### 4.0 Introduction

This chapter is an extension of Literature Survey to confirm the choice of variables suggested by senior executives of corporations and researchers. In the earlier chapter we discussed about Research design and methods in detail. The choice of variables and samples, questionnaire design are discussed and the reasoning behind those designs was explained. In this chapter we will discuss about various conceptual frameworks from OI Literature. These models are based on intuitive understanding of the organic entity called organizations that learn cognitively and grow. These models are experimentally verifiable with suitable instruments. There are also analytical models that suit my research such as exploratory factor analysis and Multiple Regression methods. Here we discuss the model variables and how are they similar and different from the variables chosen for our research work. Section 4.1 covers different conceptual models found in literature. Section 4.2 discusses the inferences from them and confirms the choice of the variables chosen to study Organizational Intelligence (OI). Section 4.3 concluded the chapter.

This entire chapter sets the platform for the construction of OI measurement model - primarily with the Part I of the objective. Part II deals with the exploration of the linkage between Organizational Intelligence and

Organizational Performance and that is independent of the models discussed in this chapter. Thus this chapter revolves around first part of the objective set.

## **Part I**

### **4.1 Models from OI Literature**

There are plenty of angles to looking at organizational Intelligence (OI). They are theoretical, descriptive and largely intuitive designs of OI. Each Model addresses on various aspects of organizations from learning ability to organizational structure and performances in the market place.

#### **4.1.1 Environmental Scanning Model of OI**

This model proposes 'Intelligent Organizations can scan environments' (Thomas Gerald, 1997)<sup>235</sup>. This model describes that, it is difficult to transform information into knowledge for decision-making. Intelligent organization, defined as one that learns and adapts to the environment in which it exists, with particular emphasis on the value of systematic scanning of the organization's external environment. Learning takes place only when the organization effectively acquires, organizes, stores, and, most importantly, transforms information into knowledge products that are useful to its purposes. This Model once again establishes the humanistic nature of organizations to scan and learn from environments and change themselves to adapt to environments.

#### **4.1.2 Creative and Innovative Model of OI**

This model proposes 'Intelligent Organizations are creative and innovative' (Vickers Margaret, 2000)<sup>236</sup>. It reveals that a rational balance of exploitative and exploratory learning depends on the distribution and relations of power and

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<sup>235</sup> Thomas Gerald, (1997), "Book Review of the Book "Information Management for the Intelligent Organization: The Art of Scanning the Environment,' by Chun Wei Choo'", Journal of Academic Librarianship, Vol.23(2), p146

<sup>236</sup> Vickers Margaret, (2000), "Innovative Organizations and Organizational Intelligence", Academy of Management Executive, Vol.14(3), p135-136

knowledge constituting that organization. The power relations that foster innovation and creativity characterize intelligent organizations. They are able to successfully strengthen and distinguish their place in the market by trading off the intelligence of their employees. Global technology enhances dissemination of knowledge gained from exploratory learning across geographically distant domains.

Competitive advantage gained when innovations developed by skilled employees are disseminated to less economically rich locations, in which wages and other overhead costs are significantly lower, may come at the cost of future viability for the organization, its employees, and its community. OL will be enhanced if current practice is not embedded in past memory and constraining rules. Practical OL always involves imagination and understanding of multiple designs, processes, ways of thinking and realities. According to this theory, Creativity and OL are the components of an intelligent organization.

### 4.1.3 Intellectual Capital Model of OI

This model says, 'Intelligent Organizations have Sufficient Intellectual Capital' (Richards Brett, 2002)<sup>237</sup>. This model proposes that, in a dynamic, global environment in which competition is service-based and knowledge-intensive, human creativity and individual initiative is a critical source of competitive advantage. Additionally, organizations need to be designed so that they are flexible enough to exploit the idiosyncratic knowledge and unique skills of each individual employee. A fundamental challenge for leaders is to create effective systems and an organizational climate that allows intellectual capital to flourish. Intellectual capital is the sum of an organization's intangible assets. It's the, know how, know who, and know what of everyone in the organization that can be leveraged to create wealth. Intellectual Capital is taken as the key variable that may determine OI.

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<sup>237</sup> Richards Brett, (2002), "Rethink.. Creating Intelligent Organizations", Journal of Quality and Participation, Vol.25(4), p34-37

#### 4.1.4 Information Managing Model of OI

This model proposes 'Intelligent Organizations manage Information efficiently' (Malinowski et al, 1999)<sup>238</sup>. Identification of information needs, Information acquisition, Information storage and organization, Information products and services, Information distribution and Information usage are the key aspects that determine OI.

#### 4.1.5 Action based Model of OI

This model proposes that 'Intelligent Organizations have the ability to achieve the targets set' (Sessa Valerie, 2004)<sup>239</sup>. OI is defined as "the capacity of an organization to mobilize all of its brain power, and focus that brain power on achieving the mission." There are seven organizational components of OI. These are strategic vision, appetite for change, alignment and congruence, performance pressure, knowledge deployment, heart, and shared fate. This model also speaks of the softer aspects of humanistic organizations such as brain power. The scale to measure and assess these aspects such as heart, fate sharing capabilities is based on perceptions.

#### 4.1.6 Decision based Model of OI

This model says, 'OI is the ability of an organization to decide correctly' (Miner Anne, 2002)<sup>240</sup>. There are four aspects that contribute to OI. They are, Decisions in Organization, Learning in Organization, Risk Taking in Organization and The Giving and Taking of Advice in organization. These variables such as giving and taking advices, risk taking abilities are based on softer aspects such as culture, interpersonal skills and the leadership abilities.

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<sup>238</sup> Malinoski et al, (1999), "Tools of the Serials Trade", *Serials Review*, Vol.25(3), p113-120

<sup>239</sup> Sessa Valerie, (2004), "Book Review of – The Power of Minds at Work: Organizational Intelligence in Action", *Personal Psychology*, Vol.57(7), p1071-1073

<sup>240</sup> Miner Anne, (2002), "Review of the Book – The Pursuit of Organizational Intelligence", *Administrative Science Quarterly*, Vol.47(1), p174-178

#### 4.1.7 Information Utilization Model of OI

This model says that 'OI is the ability of an organization to innovate effectively' (Lawson and Samson, 2001)<sup>241</sup>. This model proposes that Innovators create an awareness of internal and external customers. Employees are actively encouraged to search out customer needs and problems, both known and latent, in order to solve them in a value-adding manner. The process of generating, learning and applying knowledge about competitors' products and strategies are developed and used effectively in some management systems leading to better learning thereby establishing the presence of Intelligence. This model proposes the 'Competitor Learning' significantly help in position diagnostic benchmarking and position advantage building. This model deals with the harder aspect such as stakeholder satisfaction and competition management based on the business reality that can be measured directly.

#### 4.1.8 Neural Network Cognitive Learning Model of OI

Compared to human beings who have an ability to grasp complex information from the external environment; an ability to process, assimilate and respond to the information and an ability to learn from the entire activity done from the reception of the information and the response given. In contrast, organizations do display such cognitive abilities and similar behavior patterns of learning (Anuradha et al, 2008)<sup>242</sup>.

This model proposes the learning organizations exhibit intelligence which can be measured with these 6 prominent attributes of organizations, which can be used for measuring OI. (i) *Bounded Rationality of Learning* - Learning behavior of organizations is actually indeterminable and probabilistic. There are many

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<sup>241</sup> Lawson. B. et al, (2001), "Developing Innovation Capability in Organizations: A Dynamic capabilities Approach", Journal of Innovation Management, Vol.5(3), p377

<sup>242</sup> Anuradha, Ghosh, (2009), "Neural Network Model – A Measuring Tool for Organizational Intelligence", Journal of Cooperation among University, Research and Industrial Enterprises, BITS Pilani Pb, Vol.2(1), p114-119

actions performed that may not account to a predefined framework of rational learning. (ii) *Implicit and Explicit Knowledge Management* – There are two ways by which organizational learning takes place; Implicit and explicit Knowledge management. (iii) *Conceptualization through Clustering* – Organizations learn through categorization and clustering of information same as that of human beings. (iv) *Building and Managing Expectations* – organizations manage future expectations by compare and build concepts that can be applied for future expectations. (v) *Logical and Reasoning Abilities* – A multiplayer perceptual ability of decision making are developed from the logical and rational algorithm followed to arrive at a plan that may yield an optimum result for an organization. This ability is innately present with organizations. (vi) *Intuitive Learning Capabilities* - A truly motivated organization gets the skill of intuitive decision making by experience. The more is the complexity of business processes and the product lines; more is the need for intuitive abilities to understand the linkage between them. This is a research publication by the student, a secondary research work from the literature review done.

#### 4.1.9 Combined Human & System Model of OI

An organization is a socio-technical system and it might be composed of many interoperating systems, each containing some intelligence. Thus the human intelligence of many employees when combined with the artificial intelligence of machines might deliver high efficiency of output (John Searle, 1999)<sup>243</sup>. This paper says integrating human intelligence with interdependent system intelligences can improve performance of organizations. It is interesting to note from the theory proposed in the book by Ray Kurzweil, that intelligent human beings can stay de-motivated in stupid organizations in (Ray Kurzweil, 1999)<sup>244</sup>. Systems thinkers such as ray Kurzweil and John Searle call an emergent property - an attribute of the whole system, not of the individual parts. What matters most

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<sup>243</sup> John Searle, (1999), “ Review of the book - The age of Spiritual Machines: When Computers Exceed Human Intelligence by Ray Kurzweil”, The Newyork Review of Books, [http://www.nybooks.com/articles/article-preview?article\\_id=539](http://www.nybooks.com/articles/article-preview?article_id=539)

<sup>244</sup> Ray Kurzweil, <sup>The</sup> Age of Spiritual Machines: When Computers Exceed Human Intelligence, Viking Adult Pb, p 387-388, 1999.

is how the parts of the organization are put together to get it dynamic to perform the best. The integrated intelligence of organizations can be a combination of techno-intelligence and human intelligence of the organization. From the arguments put forth by Ray Kurzweil, there are four types of intelligences proposed conceptually that govern the integrated intelligence of the organization; they are listed in Table 4.1

**Table 4.1 - Types of Human - System Integrated Intelligence**

<b>Intelligence Type</b>	<b>Definition</b>
Business Intelligence	Collecting, interpreting, and using vast quantities of complex data By both Human beings and organizations.
Organizational Intelligence	Collaboration between people and technical artifacts within and Beyond Complex enterprises.
Developmental Intelligence	Capacity to acquire and use knowledge effectively for personal and Organizational learning.
Existential Intelligence	Flexible engagement of interactions with the demands of the environment from Human beings and systems

#### 4.1.10 Learning Abilities Model of OI

This model (Carley et al, 1998)<sup>245</sup> proposes key attributes of learning organizations that are similar to Human Cognitive Learning Abilities, such as,

I. *Agent Cognition Aspects*

1. *Cognitive Learning Ability* - How well does the organization process information about itself and its environment?
2. *Memory of Learning* - How does the organization retain experience in a useful and accessible form?

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<sup>245</sup> Carley et al, (1998), "Design versus Cognition: The Interaction of agent Cognition and Organizational Design on Organizational Performance", Journal of Artificial Societies and Social Simulation, Vol.1(3), [Http://www.soc.surrey.ac.uk/1/3/4.html](http://www.soc.surrey.ac.uk/1/3/4.html)

3. *Interest in improving Learning* - How does the organization develop and improve its knowledge, capabilities and processes?
4. *Communication Biases* - How do the members of the organization exchange information and knowledge?
5. *Logical Reasoning* - How effective are the processes of collective thinking and decision-making?

## II. *Organizational Structure*

6. *Organizational Design* - How conducive is the structure and the design of the organization for the performance of people.
7. *Organizational Resource Access Structure* - How productively people can use the resources in the organization?

These two key aspects decide on the percentage of correct decisions made for high performances in organizations. This model also establishes the humanistic quality and the presence of Intelligence in Organizations and their learning and reactive behaviors being similar to that of human beings.

### 4.1.11 Organizational Capabilities Based Model of OI

Popular Business models such as Malcolm Baldrige Model and Tata Business Excellence Models proposes different types capabilities of the organization that can be tested to qualify the organization for its business performance. They can also be viewed as a capabilities based model of Organizational Intelligence. (i) *Effective Communication between Stakeholders* - How effectively an organization enhances communication across stakeholders? (ii) *Group Dynamics in the Organization* - How productive the group dynamics amongst employees? (iii) *Knowledge Management Levels of Organization* - How efficiently the knowledge within the organization is managed? (iv) *Coordination between Business Processes and Goals of the Organization* - how precise is the coordination organizational goals and business processes? (v) *Risk Management Ability* - How prepared is the organization for managing unexpected uncertainties (vi) *Technology Management* - how efficiently the technology is deployed by the organization for better productivity?



#### 4.1.12 William Halal's Model of OI

Professor of Harvard Business School, (William Halal, 1998)<sup>246</sup> proposed the model that has some interesting key points to probe while designing the questionnaire for primary data collection. The high lights of this model are, (i) *Definition of OI*. Table 4.2, graphically lists the key aspects of Willam Halal's Model of OI, which primarily defines "OI is the capacity of an organization to create knowledge and use it to strategically adapt to its environment".

**Table 4.2 - Key Aspects of Halal's Model of OI**

<ol style="list-style-type: none"> <li>1- Organizational Intelligence offers a broad conceptual framework. It allows CKOs to better understand the intricate complexities of managing an intelligent system.</li> <li>2- "Internal markets" offer the same benefits as external markets: better decisions through price information; creative entrepreneurship; and accountability for results.</li> <li>3- Cooperation is essential: it's now clear that knowledge increases when shared, thereby making cooperation economically efficient.</li> <li>4- All human action is the outcome of the battle between ego and id. In organizations a similar conflict occurs between the formal leaders and the informal employees.</li> </ol>	<p>Organizational Intelligence is defined as the capacity of an organization to create knowledge and use it to strategically adapt to its environment. It's similar to IQ but framed at an organizational level. The mean is normalized at 100, so that an OIQ above 100 indicates a more intelligent organization, whereas one below 100 indicates a less intelligent organization. A higher OIQ doesn't necessarily improve performance, any more than a high IQ ensures success in life. Rather, it's the fit between OIQ and environment that determines performance.</p>
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Source: (Halal, 1998)<sup>247</sup>

(ii) *Human and Organizational intelligence are compared for their ability to learn cognitively*. Table 4.3 depicts the functions and the human Organization comparison.

<sup>246</sup> William., Halal, (1998), "Organizational Intelligence: What is It, and How Can Managers Use It to Improve Performance?", Knowledge Management Review, Vol.1(1), p20-25

<sup>247</sup> William., Halal, (1998), "Organizational Intelligence: What is It, and How Can Managers Use It to Improve Performance?", Knowledge Management Review, Vol.1(1), p20-25

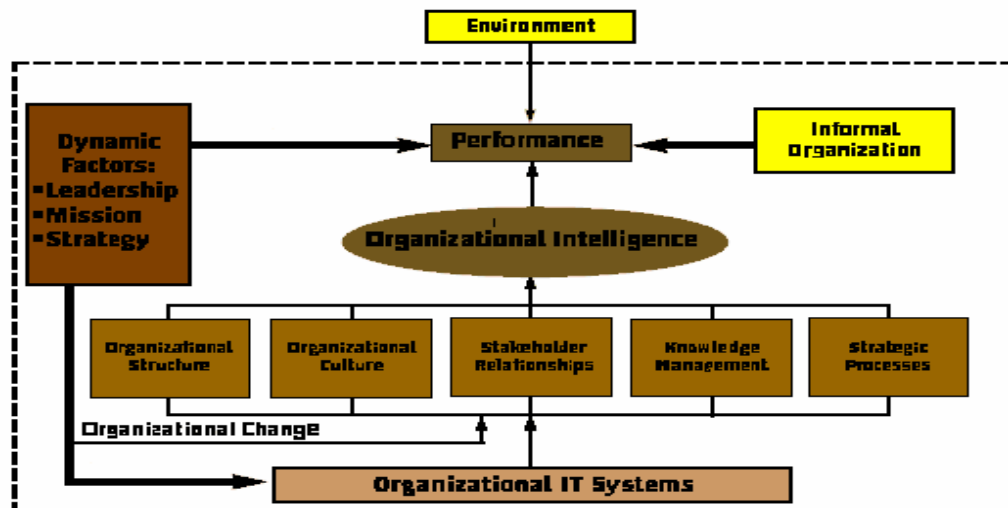
**Table 4.3 - Equivalence of Human and Organizational Intelligence**

<b>Function</b>	<b>Humans</b>	<b>Organizations</b>
Measurement	Intelligence Quotient (IQ)	Organizational IQ
Information Technology	Personal IT Systems	Organizational IT Systems
Structure	Network of Nerve Cells	Network of Business Units
Subjective Filter	Personal Values & Beliefs	Organizational Culture
External Linkages	Social Relations	Stakeholder Relations
Knowledge Store	Memory	Knowledge Management
Strategy Formation	Problem-Solving	Strategic Processes
Direction	Ego	Leader
Guidance	Vision	Mission
Decision – Making	Choice	Strategy
Covert Systems	Id	Information Organization
Routine Decisions	Autonomous Nervous System	Policies & Procedures
Knowledge Gain (Single Loop Learning)	Education & Action	Training & Action
System Improvement (Double Loop Learning)	Personal Change	Organizational Change

(Source: (Halal, 1998)<sup>248</sup>)

(iii) This interesting aspect of Cognitive learning ability of organizations revolves around the intuitive Organizational Intelligence as depicted in figure 4.1 below.

**Figure 4.1 - Cognitive Behavior of Organizations**



Source: (Halal, 1998)<sup>249</sup>

<sup>248</sup> William., Halal, (1998), “Organizational Intelligence: What is It, and How Can Managers Use It to Improve Performance?”, Knowledge Management Review, Vol.1(1), p20-25

<sup>249</sup> William., Halal, (1998), “Organizational Intelligence: What is It, and How Can Managers Use It to Improve Performance?”, Knowledge Management Review, Vol.1(1), p20-25

Figure 4.1 depicts graphically in a block diagram how organizations interact with environments and create knowledge from the intelligence within. This diagram also gives a few variables such as, **Organizational Information Technology (IT) Systems, Stakeholder Relations, Knowledge Management, Strategic Processes and Leadership**. Interestingly these are some of the variables being explored in this research study.

#### 4.1.13 Innovation Capabilities Model of OI

This Model (Benn et al, 2001)<sup>250</sup> defines OI as the capability to process, interpret, encode, manipulate and access information in a purposeful, goal-directed manner, so it can increase its adaptive potential in the environment in which it operates.

Since knowledge and ideas are primary imports into the innovation process, intelligent firms can use this information to reduce the inherent uncertainty and ambiguity of innovation. It allows them to identify new avenues for investigation and to more quickly eliminate unprofitable options.

This relies on being able to generate, communicate and act on the most relevant, up-to-date information available about their environment. Organizational intelligence is primarily about learning from customers and learning about competitors.

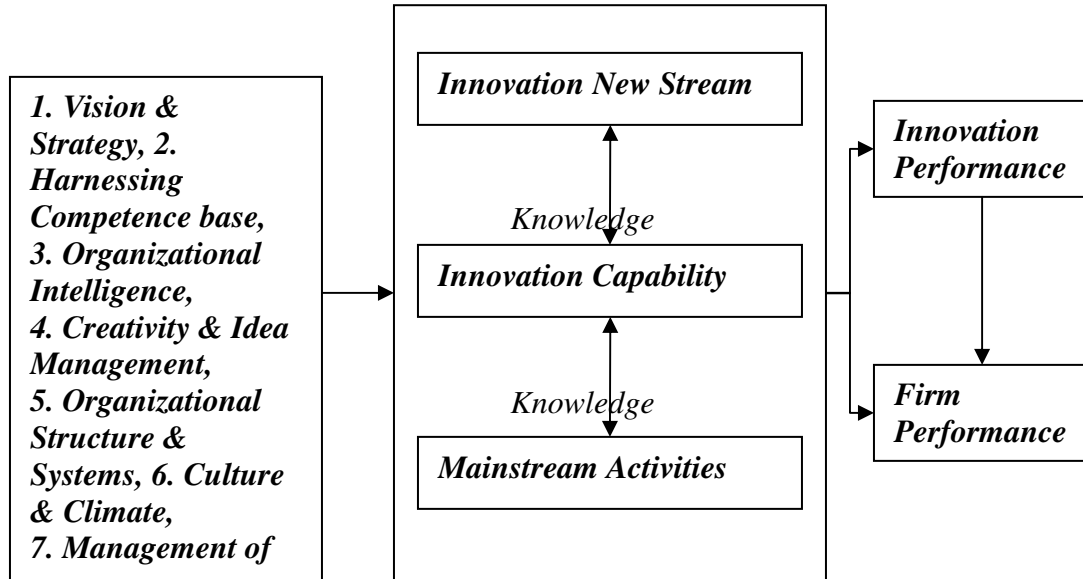
Understanding both competitors and markets to innovation management along with OI can lead to innovation. OI drives Innovation capability of an Organization. The capability Model (Benn et al, 2001)<sup>251</sup> is given in Figure 4.2.

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<sup>250</sup> Benn et al., (2001), “Developing Innovation Capability in Organizations: A Dynamic Capability Approach”, International Journal Innovation Management, Imperial College Press Pb, Vol.5(3), p377-400

Benn et al., (2001), “Developing Innovation Capability in Organizations: A Dynamic Capability Approach”, International Journal Innovation Management, Imperial College Press Pb, Vol.5(3), p377-400

**Figure 4.2 - Innovation Capability Model**



#### 4.1.14 Karl Albrecht Model of OI

The management consultant (Karl Albrecht 2002)<sup>252</sup> defines OI as "the capacity of an enterprise to mobilize all of its brainpower, and to focus that brainpower on accomplishing its mission." By that definition, the role of OI is simple; to make the enterprise more successful in its environment with aspects such as *Strategic Vision, Shared Fate, Appetite for Change, Heart (or spirit), Alignment & Congruence (the structure, systems, and rules), Knowledge Deployment, and Performance Pressure*. The organization that is moving in the direction of its highest potential must be continuously advancing in all seven of these key dimensions. Interestingly, his hypothesis says that Intelligent People in an organization leads to collective stupidity of organizations, which is proven.

#### 4.1.15 Cross Cultural Model of OI

This Model (Dayan, 2004)<sup>253</sup> discusses the information aspects from different cultures of an organization and their impacts on information usage and product innovation. Organizational Intelligence is measured with four constructs-

<sup>252</sup> Karl Albrecht, (2002), *The Power of Minds at Work: Organizational Intelligence in Action*, AMACOM Division American Management Association pb, p10-14.

<sup>253</sup> Mumin Dayan, "Cross Cultural Differences on Organizational Intelligence", Proceedings of the 2004 International Research Conference on Innovations in Information Technology, College of Business Studies, Al Ghurair University, 2004

Acquisition, Dissemination, Utilization, and Responsiveness. However, in each discipline researches do not use all constructs simultaneously to measure it. In organizational learning literature, only acquisition, dissemination, and utilization constructs are used to measure organizational intelligence. In product innovation, mostly information acquisition and dissemination are used. In marketing strategy, only information acquisition, dissemination, and responsiveness are used. *Information Acquisition*: Information acquisition refers to the collection of primary or secondary information from customers, competitors, and other third parties. These processes are carried out through marketing surveys, competitive intelligence activities, and other formal and informal collection of information from salespeople and competitors. *Information Dissemination*: Information dissemination is explained as the degree to which information is diffused among relevant users within an organization. *Information Utilization*: Information utilization refers to the indirect use of information in strategy-related actions and direct applications of information to influence marketing strategy related actions. These processes include giving meaning to data, interpreting the data and categorizing the data. *Responsiveness*: In organizational intelligence literature, responsiveness refers to the actions taken in response to intelligence that is generated, transmitted, and utilized. The antecedents of Organizational Intelligence are, Formal Communication, Informal Communication, Declarative Knowledge, Procedural Knowledge, Clan Culture, Hierarchy Culture, Adhocracy Culture, and Market Culture. This model is oriented towards organizational structure, knowledge and communication largely.

#### 4.1.16 OL - OI Linkage Model

This model (Ivana Simic, 2005)<sup>254</sup> depicts Organizational Learning (OL) as a component of Organizational Intelligence (OI). Organizational Intelligence is defined as two different forms. They are; (i) *OI as a Process*: Organizational

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254 Ivana simic, (2005), "Organizational Learning as a Component of Organizational Intelligence", Information and Marketing Aspects of the economically Development of the Balkan Countries, University of National and World Economy, Sofia, Bulgaria, p(189-196); <http://unwe.acad.bg/repec/sources/5c2005.pdf>

intelligence as a process involves five basic components or parts; Organizational memory, Organizational knowledge, Organizational learning, Organizational communication, and Organizational conclusion. Organizational memory represents the ability to store (keep) events, situations, successful and unsuccessful behavior as well as the ability to recollect them if necessary. Organizational knowledge involves organizational ability of perception and understanding, which allows the organization to concentrate on the essence. Organizational learning represents the ability to promptly use the knowledge stored in the organizational memory and to learn on the basis of experience gained in the past. Learning is reflected in the behavior in non-standard situations and in examining new ways of action. Organizational communication includes the total exchange of data, information, and knowledge between and inside human and technical agents in the organization. Organizational conclusion involves avoiding, overcoming, and solving problems. *(ii) OI as the Result of the Process:* Organizational intelligence as the result of organizational intelligence as a process or corresponding state reflects the totality of structured, synthesized, aim-directed pieces of information. It is generated in the situations when there is the need for strengthening the abilities of informational systems used for solving appropriate organizational problems.

#### 4.1.17 Smart Organization Model of OI

According to this model (David Matheson, 1998)<sup>255</sup>, there are nine components that define OI. They are; Continual Learning, Value creation culture, Creating Alternatives, Alignment and Empowerment, Disciplined Decision Making, Open Information flow, Outside - In Strategic Perspective, Embracing Uncertainty, Systems Thinking.

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255 Jim et al, "The Smart Organization: Creating Value Through Strategic R&D" Harvard Business School press, 1998

#### 4.1.18 Human – Organization Memory Model of OI

The conceptual boundaries of organizational intelligence are established according to the three working assumptions that Walsh and Ungson (Walsh et al,1991)<sup>256</sup> used to develop the construct of organizational memory: (a) organizations functionally resemble information-processing systems that process information from the environment; as such, organizations exhibit intelligence that is similar in function to that of individuals; (b) modeling organizations as information-processing systems implies that they also are interpretative systems that scan, interpret, and diagnose environmental events for their uncertainty and complexity, which supports the basic idea that adaptive capability underlies intelligent action; and (c) conceptualizing an organization as "a network of inter-subjectively shared meanings that are sustained through the development and use of a common language and everyday social interactions" delineates intelligence as a concept that is invoked to explain a system but is itself not easily observed. The first assumption that of functional similarity between human and organizational intelligence, leads to the following definition of organizational intelligence: *Organizational Intelligence is an organization's capability to process, interpret, encode, manipulate, and access information in a purposeful, goal-directed manner, so it can increase its adaptive potential in the environment in which it operates.* This definition embodies the second boundary condition (i.e., that organizational intelligence is adaptive); like individual intelligence, organizational intelligence is related to solving problems, meeting objectives, and making effective responses to environmental challenges. Regarding the third boundary condition, organizational intelligence offers an explanation for experiential learning processes that underscore organizational successes and failures (Glynn et al., 1994)<sup>257</sup>. Learning intelligently implies that an organization has learned correctly, accurately, and appropriately from experience; armed with good and valid information, the organization has the potential to perform more effectively.

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<sup>256</sup> Walsh, J. P., & Ungson, G. R., (1991), "Organizational Memory", *Academy of Management Review*, Vol.16, p57-91.

<sup>257</sup> Glynn et al, (1994), "Mapping Learning Processes in Organizations: A Multi-level Framework Linking Learning and Organizing", *Advances in Managerial Cognition and Organizational Information Processing*, Vol.5, p48-83

At an aggregate level, Intelligence of individual organizational members aggregates as organizational intelligence. Organizational intelligence varies as a function of its members, implying that organizations with more intelligent members will be more intelligent. And this is predicated on the measurement of the intelligence of individuals, typically with standardized instruments such as IQ. Organizational intelligence may be assessed as the aggregated total, the average, or the maximum of individual intelligence. This is measured with psychometric Instruments.

At a cross level, individual intelligence is transferred and encoded in organizational systems to become organizational intelligence. Organizations with more and better diffusion and institutionalization mechanisms will be more intelligent. Measurement of the effectiveness of mechanisms that transfer and institutionalize intelligence, including structural (e.g., roles, communication systems); technical (e.g., MIS and expert computer supports); social and / or political influence (e.g., social interactions, networks, power, and authority factors) mechanisms is found to be tough.

At a distributed level, Organizational intelligence is embedded in the organization's systems, routines, standard operating procedures, symbols, culture, and language. Organizational intelligence is increased to the extent that these systems encode declarative and procedural knowledge that is complex, information rich, and isomorphic with environmental demands. Assessment of the richness and ecological validity of an organization's systemic interaction patterns, (e.g., anthropological analysis of cultural, interpretive, and linguistic systems); assessment of reliability of systems; and assessment of an organization's behavioral interactions through qualitative studies is difficult. This inability of the model is overcome in the model constructed in this thesis which is explained in the forthcoming chapters.



#### 4.1.19 Complexity Model of OI

According to the Complexity Theory (Encyclopedia of Life Support Systems, 2003)<sup>258</sup>, Organizational intelligence and knowledge management refers to the capacity of an organization to gather information, to innovate, to generate knowledge, and to act effectively based on the knowledge that it has generated. Organizational intelligence refers to the knowledge-based capacity inherent in the organization. This capacity forms the basis of success in the rapidly changing or highly competitive environment of the knowledge organization. This development and leveraging of organizational knowledge is sometimes called knowledge management. Organizational learning has been described as occurring when an organization is able to engage in the process of detection, diagnosis, and correction of errors such as to potentially change its behavior in a favorable direction and reduce errors. In a similar way, a learning organization may be defined as one in which the members of the organization continually enhance their personal capacity to create what it is that they wish to create. Adaptive learning, or single loop learning, is the ability to resolve issues using established standard operating practices, but without examining the process through which this error reduction or fundamental assumptions about the way of doing work. Generative or double loop, learning results when the organization is able to examine, and potentially reengineer, the processes that organizations use in detecting, diagnosing, and correcting for errors. These are sometimes also called complex evolving systems. Thus, the process of learning is as important as what the organization knows, and improvements in both should be sought.

A learning organization is capable of generative learning and proactively seeks to master change processes. Five core disciplines are said to be necessary in order to build a learning organization: personal mastery, shared mental models, team learning, shared vision, and system thinking. For a learning organization, organizational intelligence is greater than the sum of the knowledge of each

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<sup>258</sup> Encyclopedia of Life Support Systems. Theme Section – Knowledge Management, Organizational Intelligence and Learning and Complexity, UNESCO, 2003.

individual in that organization. Organizational intelligence includes historical knowledge inherent in the organization and generative intelligence that results from collaboration between organizational members. Organizational intelligence is a major competitive advantage of a knowledge organization. Thus this theory speaks of the complexities in the cognitive learning processes of organizations. Organizational Intelligence is referred as the inherent ability of the organizations to learn cognitively however complex the learning may be.

## 4.2 Inferences from the study of the Models

These 19 different models obviously establish the fact that, there are plenty of avenues in which OI had been thought about by the researchers; cultural, communicational, planning, adaptation, responsiveness, ability to manage and use information, creative levels form the basic triggers or the variables that can measure the presence of OI. These Descriptive Models from Literature are intuitively designed. All these models have interestingly common aspects of the definition of Organizational Intelligence. These models can be verified by designing and capturing relevant variables from suitable samples.

To be very precise, we find some of these common aspects in all of the above models are Cognitive Learning Abilities, Communication, Organizational Culture & Design and Group Dynamics of people in the organization - which can be termed as the *Softer Aspects of OI*. Similarly the *Harder Aspects* may include, Leadership & Organizational Learning, Stakeholder Relationships, Strategic Processes, Knowledge and Information management, Systems Efficiency, Business Process Efficiency, Products & Service Quality and Financial Performances. It is to be noted that, the questionnaire design for this research study focuses only on Harder Aspects of Organizational Intelligence.

For this research study, we deliberately chose to study the '*harder aspects*' that are based on the data that is purely based on *the numbers fetched from business analysis as seen by business owners*. A questionnaire with specific 40 questions is designed to address this study as discussed in the earlier chapter. However, Studying

softer aspects can be a different research study in the future based on the emotional and cognitive aspects of the organization. Our research work is based on the propositions made by Professor William Halal's in his conceptual theory on OI (William Halal, 1998)<sup>259</sup> which is proposed based on Business Realities. The pilot study of the Questionnaire containing 163 questions (Annexure 1) confirmed that studying OI based on business analysis as perceived by business owners would be more precise compared to studying the same based on softer aspects.

### 4.3 Conclusion

OI Models from literature and their composition of elements are compared with that of the measuring variables in this research work. The reasoning behind the choice of variables based on Business Reality is also explained. The inferences from these models justify the research being designed on business realities and the specificity of selection of variables from literature. These models listed in this chapter look at Organizational Intelligence with different perspectives. However there had not been an attempt to measure Organizational Intelligence Quotient for the self assessment of organizations.

In this chapter we listed concisely the key aspects of various important conceptual models from the literature, that triggered our thinking on variables that affect OI practically and different aspects that might affect those variables in turn. The softer and harder aspects of organizations and their linkage to OI also became obvious.

The variables found that define OI in the models discussed above are mostly based on the softer aspects of perceptible humanistic qualities of organizations. Wherein for questionnaire design the variables chosen are based on harder

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<sup>259</sup> William., Halal, (1998), "Organizational Intelligence: What is It, and How Can Managers Use It to Improve Performance?", Knowledge Management Review, Vol.1(1), p20-25

aspects business realities seen by respondents, thus making our model distinctively different from other models discussed in this chapter.

In the next chapter on Analytical Framework, we will discuss about the theory behind the analytical techniques and software tools deployed for data analysis and the reasoning behind the selection of the techniques such as, exploratory factor analysis and multiple regression modeling. These methods help us to group the selected variables according to their behavior.