



Universidade do Minho

University of Minho
School of Engineering of University of Minho
Department of information System - DSI

DELPHI QUESTIONNAIRE 1º

The objective of the present questionnaire is to evaluate a preliminary model of competitive intelligence – CI measurement, (attached model).

In our model of CI measurement we establish four dimensions which we believe should be considered in a measurement process: 1) *Information*; 2) *Knowledge*; 3) *Intelligence*; 4) *Organizational Transformation*.

Information Dimension: the first step to approach CI measurement in the organization is the information process. It's important that the decision maker knows the organization's needs, as well as the best techniques for the information process. This process includes the gathering, the processing and the analysis of information which help know the competitive advantage of the organization and support the decision-making. In this dimension the perspective is that more than the decision maker knowing the organization's needs, what is truly important is that the decision maker has an idea of organization's information needs and he/she is available to receive support in their fulfilment.

Knowledge Dimension: in order for the information to have any importance as support for the decision, it should be transformed into knowledge. This process of transformation involves individual learning (of the decision maker) and collective (of the CI team) and includes activities such as experimentation, analysis and synthesis of information, interaction, collaboration, and negotiation. The construction of knowledge is associated to action and interaction.

Intelligence Dimension: in our study we associate intelligence with the ability of learning. In the intelligence dimension in our model, we include the necessary

mechanisms to support and encourage continuous learning of the individuals and of the CI groups. We consider that learning alone shows behavioural changing with sophisticated reasoning.

Organizational Transformation Dimension: it embodies the aspects related with the generalized changing of the organization in the sense of better satisfying the needs and preference of its current or potential customers. Reaching that stage in an organization means being in a process of organizational maturation with returns and earnings that will go beyond the financial, but reach a point of unreachable returns and profits which free it from more immediate preoccupations, as for example the costs.

The proposed model is based on the Argyris and Schön theory (1974). The authors believe that the people own mental maps that say how to act in particular situations. That involves the way to plan, implement and review our actions.

With this approach about the ability of learning, Argyris and Schön (1974) defined 3 kinds of organizational learning:

1. *Single-loop learning:* this learning occurs in the organization when the errors are detected and corrected. However, the organization continues with the already established policies and objectives.
2. *Double-loop learning:* learning occurs when, besides error detection and correction, the organization questions and modifies the norms, procedures, policies and objectives which were responsible for the errors made.
3. *Deutero-loop learning:* learning occurs when the organization learns how to perform single-loop and double-loop learning in a planned way. This kind of learning is very important in the continuous and cyclic process of learning in the organization, since it's responsible for the organizational transformation process. It's important to highlight that the first two loops do not happen if the organization is not conscious that the learning should occur.

The *double-loop* and the *deutero-loop learning* are related with the “why” and “how” the organization should change, while the *single-loop learning* is related with the change acceptance without questioning key assumptions and practices of the organization.

The organizational intelligence is the result of the evaluation and reflection process which lets the decision maker and the organization members decide more

effectively, and helps them implement activities and mechanisms which guarantee competitive advantage to the organization.

CI Process	Learning loop
Gathering of information	Error and problem detection and correction – <i>single-loop learning</i>
Application of knowledge	Proposals for change in the application and measurement of the CI process - <i>Single-loop</i> and <i>double-loop learning</i>
Evaluation and reflection	Evaluation and reflection of the CI process and of CI staff and decision maker - <i>Double-loop learning</i>
Intelligence process results	a) Problem Solution and decision making; b) <i>Insights</i> on new competences of CI staff and/or decision maker.
Diagnosis of change and organizational learning	a) Formulating new competences facing the organizational internal and external environment opportunities and threats; b) continuous learning and restructure of the CI process in the organization.
Cyclic process of cognition and action of the organization	<i>Deutero-loop learning</i> . The decisions are influenced by changes and processes occurring in <i>double-loop learning</i> .

Below, we present some questions based on the clarification of the proposed dimensions and on the Argyris and Schön theory adopted in the preliminary model. Please answer each question using the following scale:

1	2	3	4	5
Disagree Strongly	Moderately Disagree	Undecided	Moderately Agree	Agree strongly

The following questions approach the proposed dimensions according to the learning process in the development of the CI process. Based in your experience, please answer the following questions clicking the appropriate choice:

Questions	Disagree Strongly				Agree Strongly
1. Identifying and correcting errors and problems of CI, proposing solutions can be considered an activity named <i>single-loop learning</i> .	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. The information process in CI contributes to <i>single-loop learning</i> .	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3. The information process in CI can contribute to individual and CI team learning in the approach specified by Argyris e Schön.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
4. It's relevant to clarify the transition of the information process into knowledge in the development of CI application in the organization.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
5. In CI, The information transition to knowledge process contributes to <i>double-loop</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

<i>learning.</i>	
6. The reflection and evaluation proposed by the Argyris and Schön <i>double-loop learning</i> is very important to ensure the construction of knowledge relevant for the CI team and decision makers.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
7. During the feedback of knowledge application in the CI process <i>single-loop</i> and <i>double-loop learning</i> can occur.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
8. The maturation process of <i>single-loop</i> and <i>double-loop learning</i> can occur in knowledge application in CI.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
9. The process of knowledge to intelligence transition should integrate <i>double-loop learning</i> , i.e., cognitive and behavioural changes in CI team members and decision-makers.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
10. In the <i>double-loop learning</i> process the necessary changes that provide the largest competences and opportunities to the organizations begin.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
11. The feedback of the reflection and evaluation process can provide a new learning process to the decision maker based on <i>single-loop</i> and <i>double-loop learning</i> .	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
12. The intelligence process in CI contributes to <i>deutero-loop learning</i> .	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
13. The intelligence transition process to organizational transformation contributes to <i>deutero-loop learning</i> .	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
14. During feedback of intelligence results in the CI process all the learning cycle <i>loops</i> can occur.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
15. Cognitive factors such as: attention, information, knowledge and intelligence contribute to the Organizational Transformation process, where the decision maker is the central agent.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>
16. We can apply the CI process to the organization according to the Argyris and Schön approach in order to generate organizational transformation.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

Please, add any observation you find relevant. Please use the shadowed area:

Below we present some specific questions about CI measurement related to the preliminary model proposed in our investigation. The referred model is based on the SCIP's model - Society Competitive Intelligence Professionals.

The following questions are related to indicators of the Organizational Transformation Dimension, since the CI literature already owns indicators that embrace the other dimensions.

For the **Organizational Transformation** Dimension we established the following indicators:

Staff / CI Decision Maker	Critical Factors	Performance Indicators
	Innovation: CI Staff and Decision makers' capacity to present new ideas	% New ideas profited by the organization; % New products and proposed services
	Satisfaction: to guarantee high CI staff motivation and determination	% CI Staff satisfaction index; % Incentives amount and possible perks
	Qualification: assure CI staff and decision makers knowledge levels which aim at enabling their performance	% Qualified collaborators; % Training hours; % Continued Education programs for CI staff and Decision Makers; % Research and Development (R&D)
	Technology: to benefit from the technological potential to better develop and apply CI in the organization	% IT tools supporting CI; % Investments in information technologies for CI Staff and Decision maker.

17. Do you agree with these indicators? Can you suggest others? Please use the shadowed area:

Based in your experience, please answer the following questions: In an importance ranking which ones do you consider more important and which do you consider less important, concerning the **knowledge** dimension? Please answer each question using the following scale, clicking the appropriate choice:

1	2	3	4
Not important	Slightly important	Important	Very important

Proposed Indicators	Not Important		Very important	
% New ideas profited by the organization	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% New products and proposed services	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% CI Staff satisfaction index	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% Incentives amount and possible perks	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% Qualified Collaborators	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% Training hours	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% Continued Education programs for CI staff and Decision Makers	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% Research and Development (R&D)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% IT tools supporting CI;	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
% Investments in information technologies for CI Staff and Decision makers.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Tank You!!!

Ana Maria

Ana Maria Pereira
 Department of Information Systems
 School of Engineering of University of Minho
 Campus of Azurém, 4800-058
 Guimarães/PT
 (+351 253510319)
anamaria@dsi.uminho.pt