

CEPIS UPGRADE is the European Journal for the Informatics Professional, published bi-monthly at <<http://cepis.org/upgrade>>

Publisher

CEPIS UPGRADE is published by CEPIS (Council of European Professional Informatics Societies, <<http://www.cepis.org/>>), in cooperation with the Spanish CEPIS society ATI (*Asociación de Técnicos de Informática*, <<http://www.ati.es/>>) and its journal *Novática*

CEPIS UPGRADE monographs are published jointly with *Novática*, that publishes them in Spanish (full version printed; summary, abstracts and some articles online)

CEPIS UPGRADE was created in October 2000 by CEPIS and was first published by *Novática* and **INFORMATIK/INFORMATIQUE**, bimonthly journal of **SVI/FSI** (Swiss Federation of Professional Informatics Societies)

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Cover page designed by Concha Arias-Pérez

"Upcoming Resolution" / © ATI 2011

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ISSN 1684-5285

Monograph of next issue (October 2011)

"Green ICT"

(The full schedule of CEPIS UPGRADE is available at our website)



The European Journal for the Informatics Professional

<http://cepis.org/upgrade>

Vol. XII, issue No. 3, July 2011

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(published jointly with *Novática**)

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* This monograph will be also published in Spanish (full version printed; summary, abstracts, and some articles online) by *Novática*, journal of the Spanish CEPIS society ATI (*Asociación de Técnicos de Informática*) at <<http://www.ati.es/novatica/>>.

Presentation

Business Intelligence: Improving Decision-Making in Organizations

Jorge Fernández-González and Mouhib Alnoukari

1 A Concept hard to define

When we talk about Business Intelligence (BI) it seems that we all clearly understand the concept. Nothing could be further from the truth. BI is a concept difficult to define. Its small nuances and large applications make people understand different things. So the question is: What is Business Intelligence?

BI is a somewhat ambiguous term encompassing a number of different acronyms, tools, and disciplines: OLAP, Data Warehousing, Data Marts, Data Mining, Executive Information Systems, Decision Support Systems, Neural Networks, Expert Systems, Balanced Scorecards, and many others. It is impossible to give an exact definition of all the terms used in Business Intelligence. Some authors have gone as far as calling it a jungle.

The multifaceted and diverse fauna inhabiting this jungle have three characteristics in common.

The first is that they provide information for controlling the business processes, regardless of where the information is stored.

Obviously, BI forms part of a company's information

system, which is what controls the proper functioning of the processes performed in the company.

In a classical organization, processes are affected by external perturbations, such as changes in the market, replacement products, new legislation, etc., which must be controlled and corrected. And we all know that over time systems tend toward disorganization and chaos. This is why the measurement of performance indicators and their comparison against the organizations' objectives is the best way to find out if something is going wrong in our organization.

Processes generate and consume information as they are being performed. Part of that information (what we call operational information) is consumed in the short term, but a large proportion is stored in various transactional systems (ERP, CRM, SCM, etc.) until it can be used for tactical (medium-term) and/or strategic (long-term) decision-making.

Grouping this information and putting it at the disposal of the process control system in a timely manner, regardless of which operational system it may have originated in, will help us optimize our processes, whether they are of an

The Guest Editors

Jorge Fernández-González graduated as an Informatics Engineer from the *Facultad de Informática de Barcelona* (UPC), Spain, and is currently pursuing his doctorate in Software, specializing in Information Systems, at the same university. He divides his professional time between three activities. First and foremost he works as an information systems professional as Director of Business Intelligence Consulting at Abast Solutions, a company operating nationwide. Here he has worked in several different areas of consulting in the company's ERP, CRM, and R&D departments while helping with the implementation of tailored solutions. The second of his activities is university lecturing. He is currently lecturing in the LSI department (Department of Languages and Informatics Systems) of UPC (*Universitat Politècnica de Catalunya*) and he is responsible for the subject "Information Systems for Organizations" offered by the *Facultad de Informática de Barcelona*. He has also been a collaborating lecturer at UOC (*Universitat Oberta de Catalunya*), a lecturer for master and postgraduate studies at the *Fundación Politècnica*, and delivers lectures as a guest lecturer at business schools such as ESADE and EAE. He combines the above two activities with his work as a disseminator. He forms part of the editorial team of the journal *Gestión del Rendimiento* (Performance Management), he writes articles for the journal DATA.TI (formerly Datamation), he delivers conferences and seminars, and he writes in various Internet portals and thematic blogs, including his own blog <[http://](http://sistemasdecisionales.blogspot.com)

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operational, tactical, or strategic nature. Obviously the level of aggregation and standardization of heterogeneous data sources will be higher for processes of a decisional nature, and it is precisely this decisional nature that gives a new dimension to the definition of Business Intelligence: ***decision-making support is the second and most important of the three characteristics*** that all components of Business Intelligence have in common.

BI does not only present information but it makes it possible for that information to be managed and browsed to enable us to analyse causes. Analysis is fundamental to decision-making. Decisions are not made on the basis of a single source of information. Various sources of information are weighed up, interrelated; you might say that the information is "alive". The analysis ability of information is what enables us to make better business decisions.

We cannot make business decisions if we do not talk the language of business. Regardless of where the information is stored and how it may have been transformed or aggregated, the important thing is to deliver this information to business users in a language that they understand, are comfortable with, and which needs no interpretation for them to understand it. And ***this is the third characteristic of BI: information oriented towards the language of business users***. In this way their work is made easier and the decision-making required to improve processes and gain a competitive edge in the market is speeded up.

We might therefore define Business Intelligence as the system which provides us with the information required to control processes, and the information used by business users for the purpose of decision-making.

Perhaps the most important characteristic of BI is that it is focused on enabling business users to make decisions with semantically appropriate information. We are not talking about either data or IT; we are talking about business and information users.

2 What is in this Monograph?

At this point we started this UPGRADE monograph by imagining a scenario where a business analyst is looking at the information contained in a business report. What would happen if our analyst had misunderstood one graph?

Because analysts' brains have different ways of understanding or discarding the information displayed it is very important how we show it. For this reason we open this issue with an article by **Josep-Lluís Cano-Giner**, from ESADE Business School (Spain), entitled "*Business Information Visualization*".

But once we have submitted this information we need to have tools that allow us to use it efficiently. That's what **R. Dario Bernabeu** and **Mariano A. García-Mattío** from the eGlu Business Intelligence Group (Argentina) talk about in their article "*BI Usability: Evolution and Tendencies*".

On the other hand, the mature form of each organization and its adoption of different BI tools change according to multiple factors. **Paul Hawking** from Victoria University (Australia) describes a case study on company's trials

and tribulations in regard to their Business Intelligence implementations. His article is entitled "*Towards Business Intelligence Maturity*".

To achieve a good level of BI Maturity we need to choose a good BI platform. Choosing the right tools depends on the specific needs and goals that an organization is trying to optimize, along with the nature of its data and analysis requirements. **Mahmoud Alnahlawi**, a software architect from Palo Alto (California, USA), shares his knowledge with us in the article "*Business Intelligence Solutions: Choosing the Best Solution for your Organization*".

But not only a good set of tools can assure our success. We must think about a strategic plan, too. In his article "*Strategic BI for NGOs*", **Diego Arenas-Contreras** from the company Formulisa (Chile) explains to us how to plan and apply a Business Intelligence (BI) strategy to a nonprofit organization starting from the understanding of organizational processes and the identification of information needs, relevant available data and proprietary information to meet the information requirements that an organization has.

Nothing of what we have said so far can come true if we are working with erroneous or inconsistent data. Decision-making is based on the information we obtain from business data and all decision-making involves accepting a certain degree of risk, but the truth is that it is not always possible to have complete and hard data available. **Oscar Alonso-Llombart**, from the company Penteo (Spain), share his experiences with us in the article "*Data Governance, what? how? why?*".

In the same way we need to extract, transform, and load data into our data warehouses. **Veit Köppen**, from the Otto-von-Guericke University (Magdeburg, Germany), **Björn Brüggemann**, from the company Capgemini (Germany), and **Bettina Berendt**, from the *Katholieke Universiteit Leuven* (Belgium) tell us about the ETL Process in their article "*Designing Data Integration: The ETL Pattern Approach*".

All BI projects need a good methodological approach to succeed. In this way one of the guest editors of this monograph, **Mouhib Alnoukari** from the Arab International University (Damascus, Syria), shares with our readers the knowledge and experiences gained while preparing a book which he has authored on the use of agile methodologies for building Business Intelligence applications with an article entitled "*Business Intelligence and Agile Methodologies for Knowledge-Based Organizations: Cross-Disciplinary Applications*".

Finally, the monograph closes with the article "*Social Networks for Business Intelligence*" by **Marie-Aude Aufaure** and **Etienne Cuvelier** from the MAS Laboratory at the *Ecole Centrale Paris* (France), which explains the integration of social networks in enterprises and public administrations from the business intelligence point of view.

To close this presentation, let us express our most sincere thanks to all the authors for their valuable contribution. We also would like to express our gratitude to the Chief Editor of UPGRADE **Llorenç Pagés-Casas**, for giving us the opportunity to prepare this monograph and for his support during the preparation process.