EUNIS BI Maturity Survey Report

Elsa Cardoso
EUNIS Business Intelligence Taskforce
ISCTE – University Institute of Lisbon
Elsa.Cardoso@iscte.pt
Agenda

• The EUNIS BI Taskforce
• 2013 BI Maturity Survey
• Future activities of EUNIS BITF
BI Taskforce

• Goal: promote the creation of a European collaboration network to exchange and share knowledge and experiences on BI in HE institutions.

www.eunis.org/task-forces/business-intelligence-bi/
BI Taskforce activities

- 2013 BI Maturity Survey
- BITF Conference, Paris, March’14
- Representation at TNC2014, May’14
- BITF Local meeting in Ireland, May’14
- A BI track at the EUNIS Congress, June’14

Elsa.Cardoso@iscte.pt
BITF Meeting @UCD

23 May’14

Elsa.Cardoso@iscte.pt
BI Taskforce

• Send an email (Elsa.Cardoso@iscte.pt) and register on the site to access contents
2013 BI Maturity Survey
2013 BI Maturity Survey: milestones

Kick-off @Vila Real

Initial Results @Riga

4 pilot countries

9 countries

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“Unlocking BI”: the kick-off of this project

• EUNIS 2012 @ Vila Real, Portugal

• **Goal:** Improve the collaboration and exchange of good practices among HE BI practitioners

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2013 BI Maturity Survey: Goals

The Future
NEXT EXIT

START
Maturity Models (MM)

• Are used to identify strengths and weaknesses of certain areas in an organization

• MM are commonly applied to assess the AS-IS situation, to prioritize improvement measures, and to monitor progress

• Dimensions
• Sequence of levels (or stages)
## BI-specific Maturity Models

### TDWI Maturity Model
(The Data Warehouse Institute)

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>NAME</th>
<th>GENERAL DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ABSENT</td>
<td>No formal institutional intelligence initiative is in place, or it is in such an early state that it cannot be perceived as such. Data usage is, in general, limited to operational contexts.</td>
</tr>
<tr>
<td>2</td>
<td>INITIAL</td>
<td>The notion of data as a valuable asset that must be provided to certain addressees in an efficient, trustworthy way is perceived in some functional areas, and some local initiatives arise. Small scale, local success stories regarding data analysis services may happen.</td>
</tr>
<tr>
<td>3</td>
<td>EXPANDING</td>
<td>The potential of data to empower the institution at all levels is clearly perceived. There is a strong desire to build on the small, local institutional intelligence successes and translate that success to a bigger, global scale. The first global, coordinated efforts are put in place and gradually incorporate/substitute the previous local initiatives.</td>
</tr>
<tr>
<td>4</td>
<td>CONSOLIDATED</td>
<td>Institutional Intelligence is clearly established as a permanent, global, visible, and valued program resulting in an effective internal service. Several data products targeted to different user groups and covering different functional areas have been created and are actively used.</td>
</tr>
<tr>
<td>5</td>
<td>INSTITUTIONALIZED</td>
<td>Institutional intelligence forms an integral part of the institutional culture, and is taken for granted. Its effective use by all relevant user groups through an extensive set of data products covering all key functional areas is very high.</td>
</tr>
</tbody>
</table>

### OCU Maturity Model
(Institutional Intelligence)

### Gartner Maturity Model

### HP Maturity Model

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2013 BI Maturity Survey

Preliminary results
2013 BI Maturity Survey

- European perspective of 9 countries
- Questionnaire addressed to: IT Directors/CIO (mostly), or BI Managers, or Rectory level
- Promoters: Local members of EUNIS BITF in each country
- AlmaLaurea (from Italy) survey platform was used
2013 BI Maturity Survey

• Assessment questions required by two maturity models:
  o TDWI BI MM (TDWI Research, 2012)
  o Institutional Intelligence White Book MM (OCU 2013)

• Original TDWI survey was used with its 40 questions in 8 dimensions. Only minor changes were introduced to better reflect the HE terminology.

• One new HE-specific MM, representing a lean approach to maturity assessment with 9 questions + 9 dimensions
Profile of respondents

- Global response: 66
- 9 countries
- Sector: mostly Public HEI (92%)
- System for PT and IT: only Universities (not Polytechnics)

Number of answers per country:

- Finland: 1
- France: 12
- Germany: 6
- Ireland: 8
- Italy: 6
- Portugal: 10
- Spain: 6
- Sweden: 4
- United Kingdom: 13

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Profile of respondents

- When did your HEI start a BI/DW initiative?

Not started yet: 18%
Less than one year: 11%
1 to 2.5 years: 12%
2.5 to 5 years: 14%
5 to 10 years: 33%
10 to 20 years: 11%
20+ years: 0%
Don't know: 2%

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Profile of respondents

- Number of full-time equivalent BI/DW staff members (including contractors)

- None: 26%
- 1: 18%
- 2 to 5: 42%
- 6 to 10: 9%
- 11 or more: 2%
- Don't know: 3%

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TDWI BI Maturity Model

- 8 dimensions

- 5 stages of maturity

Source: (TDWI Research 2012)
TDWI BI MM: dimensions

- **Scope.** To what extent does the BI/DW program support all parts of the organization and all potential users?

- **Sponsorship.** To what degree are BI/DW sponsors engaged and committed to the program?

- **Funding.** How successful is the BI/DW team in securing funding to meet business requirements?

- **Value.** How effectively does the BI/DW solution meet business needs and expectations?

Source: (TDWI Research 2012)
TDWI BI MM: dimensions

- **Architecture.** How advanced is the BI/DW architecture, and to what degree do groups adhere to architectural standards?

- **Data.** To what degree does the data provided by the BI/DW environment meet business requirements?

- **Development.** How effective is the BI/DW team’s approach to managing projects and developing solutions?

- **Delivery.** How aligned are reporting/analysis capabilities with user requirements and what is the extent of usage?

Source: (TDWI Research 2012)
TDWI BI Maturity Model: stages

Source: (TDWI Research 2012)

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TDWI BI Maturity Model: stages

- Nonexistent: operational reporting + spreadmarts (user-created isolated reports)
- Preliminary: first attempt to DW/BI (narrow scope)
- Repeatable: consolidation of data marts; a BI program rather than ad hoc projects
- Managed: Unified DW architecture; fully loaded DW; predictive analytics
- Optimized: Organizations use BI/DW to provide customers and suppliers with tailored, interactive reports, dashboards, and other information services

Source: (TDWI Research 2012)
### TDWI MM: levels of maturity for each dimension

<table>
<thead>
<tr>
<th>Category/Stage</th>
<th>Nonexistent</th>
<th>Preliminary</th>
<th>Repeatable</th>
<th>Managed</th>
<th>Optimized</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
<td>Individual</td>
<td>Department</td>
<td>Division</td>
<td>Enterprise</td>
<td>Inter-enterprise</td>
</tr>
<tr>
<td><strong>Sponsorship</strong></td>
<td>Non-existent or uncommitted</td>
<td>Somewhat committed &amp; accountable</td>
<td>Very committed &amp; accountable</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td>None</td>
<td>Departmental budget</td>
<td>Divisional budget</td>
<td>Corporate IT budget</td>
<td>Self-funding</td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td>Cost Center</td>
<td>Tactical</td>
<td>Mission critical</td>
<td>Strategic</td>
<td>Competitive differentiator</td>
</tr>
<tr>
<td><strong>Architecture</strong></td>
<td>Spreadmarts</td>
<td>Non-integrated data marts</td>
<td>Non-integrated data warehouses</td>
<td>Central DW with or without data marts</td>
<td>BI or data service via service-oriented architecture</td>
</tr>
<tr>
<td><strong>Data</strong></td>
<td>Not trustworthy, not timely, not comprehensive</td>
<td>Somewhat trustworthy, timely, and comprehensive</td>
<td>Fully trustworthy, timely, and comprehensive</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Development</strong></td>
<td>Non-standardized processes</td>
<td>Somewhat standardized processes</td>
<td>Fully standardized processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>View static reports</td>
<td>Analyze trends and issues</td>
<td>Monitor processes</td>
<td>Predict outcomes</td>
<td>Automate processes</td>
</tr>
</tbody>
</table>

Source: (TDWI Research 2012)
2013 BI Maturity Survey

- A first picture of the use of BI in European HE Institutions
- Lack understanding of BI key concepts
- Result interpretation requires participation of each country

Elsa.Cardoso@iscte.pt
Survey analysis: aggregated view

HE BI Maturity overview ()

- Nonexistent
- Preliminary
- Repeatable
- Managed
- Optimized

Category

Elsa.Cardoso@iscte.pt
Survey analysis

HE BI Maturity overview (de)

HE BI Maturity overview (pt)

HE BI Maturity overview (it)

HE BI Maturity overview (es)

- Elsa.Cardoso@iscte.pt

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Survey analysis

HE BI Maturity overview (se)

HE BI Maturity overview (fr)

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Elsa.Cardoso@iscte.pt
Survey analysis

HE BI Maturity overview (IE)

HE BI Maturity overview (UK)
Business Intelligence and CSF in Higher Education

An overview

Elsa.Cardoso@iscte.pt
Defining Business Intelligence

• BI encompasses a broad category of applications and technologies for gathering, storing, analyzing, sharing and providing access to data to help enterprise users make better business decisions

• Highly linked to achieving organizational goals
Business Intelligence

Source: (Watson & Wixom, 2007)
• Data Warehousing: Getting data in

Integrating data from different source systems into a central repository, the DW
DW/BI Systems

- Business Intelligence: Getting data out

Business users and applications accessing data from the DW to perform enterprise reporting, OLAP, querying, and predictive analytics
Critical Success Factors (CSF) of BI Initiatives

- A DW/BI program is an expensive and risky endeavor, but when successful is a high return initiative.

- CSF for DW are most often described in the literature using factors of failure.
As business users mature to performing analysis and prediction, the level of benefits become more global in scope and difficult to quantify.

Source: (Watson & Wixom, 2007)
Critical Success Factors (CSF) of DW/BI Initiatives

- Literature review:
  - Existent studies focus on anecdotal evidence gathered from the experience of a small set of companies
  - Contributions from practitioners
  - Very little information about CSF of DW/BI in Higher Education

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Most common reasons of DW/BI failure

- Weak sponsorship and management support
- Insufficient funding
- Inadequate user involvement
- Organizational politics

Source: (Watson et al., 1999)
A model of Data Warehousing success

• Proposed by Wixom & Watson (2001)

• Cross-sectional survey performed in 111 organizations (90% from the US, other 10% from South Africa, Canada and Austria)

• Most respondent were DW managers

• 225 surveys were sent (mostly contacts from the TDWI conferences)

Source: (Wixom and Watson, 2001)
A model of DW success

Table 1. Respondents by Industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of Respondents</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Healthcare</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Retail/ Wholesale</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Financial Services/ Banking</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Insurance</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Government</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Utilities</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Education/ Publishing</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Petrochemical</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Other*</td>
<td>15</td>
<td>14</td>
</tr>
</tbody>
</table>

*Other industries included Transportation, Market Research, Reseller, Travel, Defense, Distribution, and Consumer Products

Source: (Wixom and Watson, 2001)
A model of DW success

Source: (Wixom and Watson, 2001)
A model of DW success

Source: (Wixom and Watson, 2001)
A model of DW success

Source: (Wixom and Watson, 2001)
Concluding remarks

• Data gathered from this project constitutes the first European assessment of the maturity level of BI programs in Higher Education institutions.

• The survey enables each participating institution to perform a benchmark of its BI maturity level against the total average score.

• The survey is anonymous; however, individual institutions can use the TDWI score calculations to perform a self-assessment evaluation.
Concluding remarks

• BITF national events are being promoted to foster the discussion and analysis of survey results

• Training/communication is required to ensure that maturity model and CSF concepts are fully understood by academic stakeholders (IT Directors/ CIO, BI managers, Rectory)
References


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Elsa Cardoso
EUNIS Business Intelligence Taskforce
Assistant Professor, PhD
Director of the Business Intelligence Master Program of ISCTE – University Institute of Lisbon

Email: Elsa.Cardoso@iscte.pt
Website: http://home.iscte-iul.pt/~earc/
• Send an email (Elsa.Cardoso@iscte.pt) and register on the site to access contents