CEO: You guys have a lot of data, don’t you?

CIO: (er…) Well, basically yes Can we make better use of them?

What for?

You know, taking better decisions, being more efficient, transparency, accountability, and all that stuff

A funny story (any resemblance to reality is purely coincidental)

We can try… When do you say we need it?

What like in a few months this bundle, and in a couple of years the whole lot?

(ahem) And which additional resources do we have?

What for? Don’t we have the data already? It is just using them, isn’t it?
The Questions
General Frame

- University of Zaragoza
- Spanish Scenario
- Governance Challenges
- Is BI a Solution?
- Goals

The Answers
The BI Process

- Premises
- BI Approach
- Organization
- Bottom-Up BI Vision
- BI Architecture
- BI Project
- Results
- Benefits
University of Zaragoza

- Established 1542
- Within Spanish Top 10 in all rankings
- >50 EHEA grade courses + master/doc + along-life
  - Engineering & Architecture
  - Sciences
  - Biomed's
  - Social
  - Arts & humanities
- ~ 40k students & 4k academic staff
- ~ 700 in / 900 out Erasmus students/year
- >200 structured research teams
The Questions

Decreasing students & grants
Increasing Fees
Increasing Competitiveness

The Answers

Decreasing Budget
Increasing Quality levels required
Improving control tools

University

- Governance
- Faculties
- Activity
- Data
- Quality
- Knowledge
- Info

Official KPIs
- Assessment
- Funds
- Reporting
- Statistics

Spanish Scenario

Official Organisms

- Spanish General State Administration
- Autonomous Communities (Regions) Administration

Report the following aspects for better understanding:

- The Spanish Scenario
- Official Organisms
- University
- Decreasing students & grants
- Increasing Fees
- Increasing Competitiveness
- Decreasing Budget
- Increasing Quality levels required
- Improving control tools

Detail the roles and responsibilities of each entity:

- Governance: Overseeing the overall direction and strategic planning.
- Faculties: Managing specific academic departments.
- Activity: Monitoring and evaluating operational performance.
- Data: Collecting and analyzing information.
- Quality: Ensuring standards and continuous improvement.
- Knowledge: Fostering research and educational advancements.
- Info: Providing accurate and timely data.

Illustrate the interdependencies:

- The flow from Governance to Faculties influences Activity, which in turn affects Data, Quality, Knowledge, and Info.
- The feedback loop from Quality to Reporting, Funds, and Statistics highlights a circular evaluation and improvement cycle.

Highlight the thematic areas:

- Autonomous Communities (Regions) Administration: Focusing on regional educational policies and initiatives.
- CRUE: Central organization for university coordination and evaluation.
- Spanish General State Administration: National层面的政策制定与监控．
University Governance

Different players in the University are requesting information to facilitate their decision-making process:
- Rector
- Vice Rectors
- Heads of Faculties
- Etc.

Governance challenges

- Increasing number of inquirers (inside & outside the university)
- Different criteria when demanding information
- Data analysis from different information systems
- Generation of official statistics
- Transparency / Accountability
But there are some difficulties:
• Quality of the data
• Lack of transparency of data owners
• Poor data integration across systems
• Global view of data, complex and interconnected

They must be faced, otherwise:
• Too complicated and not always satisfying BI solutions
• Finally needing extra specific queries, reports, Excel files …
Increasing Quality levels required & Improving control tools

Decreasing Budget

Increasing Fees

Decreasing students and grants

The Questions

UNIVERSITY GOVERNANCE

The Answers

BI System

Support Decision-Makers

Optimize Organization

Reduce Costs

Increase Quality of Teaching

Recruit Students

Improve Reputation

Retain Students

More Competitive

Goals

Requirements

Avoids

Avoids

Avoids

Optimize Organization

Reduce Costs

Increase Quality of Teaching

Recruit Students

Improve Reputation

Retain Students

More Competitive

Requirements

Avoids

Avoids

Avoids
The Questions General Frame

- University of Zaragoza
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The Answers The BI Process

- Premises
- BI Approach
- Organization
- Bottom-Up BI Vision
- BI Architecture
- BI Project
- Results
- Benefits
**Full functionality?**
→ cover all main areas of the University:
  • Academic (students)
  • Human Resources
  • R+D+i
  • Financial
  • Teaching

**Transparency + Collaboration?**
→ give extensive access to the system

**Time reduction, Autonomy & Control?**
→ Agile development & acquiring expertise

**Cost reduction?**
→ Open Source
The Questions

Collaborative solution

Home made solution

Closed solution

High-level institutional compromise

The Answers

Collaborative Process

Specialized partner

BI Expertise
- BI Process
- Methodology
- Tools

Domain Expertise
- Academic,
- Teaching, HR
- Financial, R+D+i

University Staff

Benefits
- Time reduction
- Autonomy
- Control
The Questions | The Answers

Organization

IT Skills
- IT Director
- Project leader
- IT developpers
- Tech Support

Analysis Skills
- Quality&Rationalization Office

Business Skills
- Organic Unit Managers
- Organic Unit Users & Technicians
- Tech Support

Governance
- Board
  - Rector
  - Vice-rectors
  - CIO

IT Skills
- Governance

Analysis Skills
- Governance

Business Skills
- Governance
Progressive question-driven process, applying data quality in origin, to provide right answers to increasingly complex inquiries.
The system architecture includes a general DWH which serves the different datamarts for OLAP analysis and also allows report generation.
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<td>Global Analysis</td>
<td>Development R+D+i</td>
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<td>Develop. Academic (students)</td>
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<td>Analysis R+D+i</td>
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<tr>
<td>Q4</td>
<td>Development R+D+i</td>
<td>To be defined</td>
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</table>

### Academic (students)
- Admission
- Registration
- Performance
- Graduated
- Cohorts

### HR
- Researchers
- Staff
- Work place
- Position

### R+D+i
- Groups & Institutes
- Projects & contracts
- Intellectual property
- Scientific production
- Entrepreneurship
- Mobility of researchers
Universidad de Zaragoza – Open Analytical Solution
Results

~2.5/5 areas covered (academic – HR – R+D+i) > 100 KPIs 3 Dashboards with KPIs

> 6k users with access to the system:
  4 admin
  >10 advanced
  >200 area-specialized
  >6k general (potential)
• **Institutional alignment** in all the process
• Close **collaboration** between different areas of the University
• Consolidated **BI Competency Center** (BICC)
• **Information transparency**
• Collateral **improvement of data quality and integration**