Data Science Competences to Understand Big Data Analysis from a Management Perspective
- a Top Down View -

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EGI Community Forum
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EDISON – Education for Data Intensive Science to Open New science frontiers
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Personal Background

- **University**
    - Master Thesis: Situation Based Sensor Fusion for Mobile Robots (Institute of Software Development and Data Communication)

- **Industry**
  - 11/2014 – today: Department Head Server Rooms DACH, Integration & Performance Management (Bilfinger Global IT GmbH)
  - 11/2014 – today: Capacity, Availability & Continuity Management Specialist (Bilfinger Global IT GmbH)
  - 10/2012 – 10/2014: IT Project Manager (Bilfinger SE)
  - 10/2011 – 09/2012: Trainee IT Infrastructure / Security (Bilfinger SE)
Big Data Perspectives in Industry
Knowledge Management and Decision Structure

Different contextual levels and perspectives

Managing Director

Area Manager

Department Manager

System Owner

Questions

Recommendations
Big Data Perspectives in Industry
Knowledge Management and Decision Structure

- Managing Director
  - Global perspective and highest contextual level
  - Business development, global resource planning, market challenges, etc.

- Area Manager
  - High perspective and high contextual level
  - Customer development, service level quality, etc.

- Department Manager
  - Medium perspective and medium contextual level
  - Running costs, resource planning, etc.

- System Owner
  - Low perspective and low contextual level
  - System state, health checks, etc.

→ Big Data analysis is based on different perspectives and their intentions.
Industry needs Business Intelligence
- Innovation strategies, competitiveness, strategic positioning, service optimization, etc.

- Big Data analysis can support Business Intelligence
  - Turn raw, low-level data into actionable knowledge
  - Uncover hidden patterns, unknown correlations and other useful information

→ Business processes built on Big Data analysis processes.

Market Orientation “Market Pull” (W. E. Scouder 1989)
Management Functions in Industry needs Business Analysts

- Big Data consumers in Business Intelligence scenarios **have to perceive and understand** what Big Data analysis result stand for, without an understanding of Big Data itself.

- An organizations’ technical ability for Big Data analysis, does not automatically result in human resources for Big Data analysis.

Data Analysts are filling the gap between Big Data consumers and Big Data technologies.

Data Analysts need a technical understanding of Big Data as well as a professional understanding of their customers contextual levels and perspectives.
The ability to make sustainable decisions is a required core competence for every Management Function.

- Data Analysts need to understand their customers intentions support this decision process as well as a strong technology watch.

- Data Analysts are not the same like developers, because they care about having impact on the business.

- Social Skills (creativity, flexibility, etc.) as well as technical know-how are important to support different Management Functions.

**POSDCoRB** (Luther Gulick 1937)
Data Analyst Competences to Support Management Functions in Industry

Management Functions
- planning, organizing, staffing, directing, coordinating, reporting and budgeting

Social Skills
- creativity, diversity, self-assurance, eloquence and flexibility

Technical Competences
- data mining, analytics, information visualization, communication, statistics, engineering and computer science [EU15]

Industrial Requirements for Data Analysts
Summary of Data Analyst Competences to Support Management Functions in Industry

- Data Analysts...

  - are filling the gap between Big Data consumers and Big Data technologies.
  
  - need a technical understanding of Big Data as well as a professional understanding of their customers contextual levels and perspectives.
  
  - need to understand their customers intentions to support the decision process of management functions as well as a strong technology watch.
  
  - are not the same like developers, because they care about having impact on the business.

→ Data Scientists’ education must be based on more than “just technology”.

→ Industry often fills this existing gap with specialized Trainee Programs to enrich the qualification of graduates.
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Backup
References


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POSDCoRB Management Functions

- **Planning**: working out in broad outline the things that need to be done and the methods for doing them to accomplish the purpose set for the enterprise.
- **Organizing**: Establishment of the formal structure of authority through which work subdivisions are arranged, defined, and coordinated for the defined objective.
- **Staffing**: Whole personnel function of bringing in and training the staff and maintaining favorable conditions of work.
- **Directing**: Continuous task of making decisions and embodying them in specific and general orders and instructions and serving as the leader of the enterprise.
- **Coordinating**: All important duty of interrelating the various parts of the work.
- **Reporting**: Keeping those to whom the executive is responsible informed as to what is going on, which thus includes keeping himself and his subordinates informed through records, research, and inspection.
- **Budgeting**: All that goes with budgeting in the form of planning, accounting and control.

POSDCoRB (Luther Gulick 1937)
Discussion