



Reframing Data Stewardship Education in Denmark

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Reframing Data Stewardship Education in Denmark

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Objectives

Whether employed in the corporate or in the university realm, a Data Steward's (DS) role is to ensure the data activities of the organisation follow and contribute to the development of established governance policies, standards or best practices and optimize data. As of yet, there is no formal university education in Denmark to train persons to fill this vital position. **We aim to provide input and point towards a possible prequalification of a DS education in Denmark.**

Methods

Our methodology included the following four steps of analysis:



DS educations/certifications: Investigate differences and commonalities between current DS educational programmes in Denmark and abroad → **we reviewed 24 DS programmes.**



LinkedIn profiles: Knowledge of how DS work and which skills are considered important for their profession → **we scraped the profiles of 74 DS on LinkedIn.**



Job vacancies: Learn more about frequently requested skills and functions of DS by employers → **we analysed 119 DS job vacancies.**



Stakeholder expectations: Determine the expectations to future DS from various key stakeholders in society → **we forwarded a national questionnaire to 350 stakeholders from Danish industry, public sector and universities.** Assess differences between academic and industry expectations to DS → **we conducted 4 interviews with stakeholders from the public and private sector.**

The methodological strategy included using: text mining, content analysis and topic modelling with the use of R to explore a corpus of job vacancies for DSs from international job-seeking databases and LinkedIn profiles describing the roles and competencies of DS in Denmark, as well as interviews and systematic literature search.

Conclusion

- Collaboration between academia and industry result in relevant educations that have a stronger recognition in stakeholder communities, including potential employers, thus improving the student's employability.
- Course design based on experiential learning creates motivation and presents the student with real-life requirements to data stewardship.
- DS work in a multitude of contexts, primarily functioning as bridge between different stakeholders.
- Skills and competencies must not be limited to technical proficiency alone. Hard skills such as coding, software and system knowledge must be supported with Soft skills like the ability to communicate, teach, and assess the value of DS.
- Disciplinary knowledge, teamwork and project management are requirements for curricula.
- Certification should be renewed regularly and further education should be offered to ensure skill maintenance.

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The 4 roles of a Data Steward



THE ADMINISTRATOR

- Team player
- Can-do attitude
- Implement solutions and educating end-users about them
- Focus on execution in strategic development
- Structured and analytical mindset
- Passion for policy and IT security
- Establish good practices in compliance & data privacy
- Risk assessments
- Fast learner



THE ANALYST

- Programmer
- Statistical & data analyst
- Fast learner and innovative on building custom software and databases
- Ensure data quality
- Enthusiasm in cloud solutions
- Seek challenges, have positive attitude towards reporting



THE DEVELOPER

- Process optimization via good project management
- FAIR principles advisor
- Data planner
- Focus on collaboration and knowledge sharing to raise business intelligence
- Innovative
- Develop procedures & guidelines



THE AGENT OF CHANGE

- Client & customer oriented
- Mediate processes & operations
- Passionate to implement solutions via project & change management
- User empathy
- Focus on execution of policy and strategy awareness
- Agile mindset
- Enthusiastic

The 3 models for Data Stewardship Education

Students with BACHELOR degree

Directed corporate employment

- **One-year master programme**
For students who fulfill requirements to basic programming skills, study skills, subject knowledge and academic language level.
- **Two year master programme**
For students who do not meet the requirement for programming and study skills follow a *pre-master's year before the master's* and then continue with the one-year master.
- **Two-year candidatus**
Traditional university candidatus combining theory, methods and internships. A dissertation in the area of DS is required.

Students with a PH.D. or equivalent

Directed corporate or academic employment

- For PhDs from any field at university faculties or part of research teams in industry. Educational programmes are a collaborative endeavor between faculties, library or knowledge centers, Centers for Information Security, Data Steward Community, Research coordinators, Project PI's, System Developers, Communication and Teaching teams, the Graduate School (for PhD training) & Human Research Ethics Committees.
- **Requirements:** Short courses, workshops, mentorships, online modules, summer school programmes & MOOCs, that immerse the student in the DS Community.

VET-students (Vocational Education & Training)

Directed corporate or academic employment

Flexible master programme

- For students who have professional experience and wish to improve their DS skills but keep working full-time, or already have a master's degree in any field.
- The programme is a part-time vocational education with a prescribed period of study, that the student individually plans, and a total of 60 ECTS-points.
- The student combines elements from established programmes, thus it is a requirement that DS courses, such as the one year master and two year candidatus, are available through the Open University.

