# Data Stewardship Competence Framework: Instrumental in Organisational Skills Management, Career Path building and Training

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Competences and skills for data governance and management are critical for the wide adoption of Open Science practices and effective use of the data in research, industry, business and other economic sectors. The FAIR (Findable – Accessible – Interoperable - Reusable) data management principles and data stewardship provide a foundation for effective research data management. Throughout Europe and beyond, many organisations, projects and initiatives work on providing training on FAIR data competences. Wider adoption of the FAIR data culture can be achieved by including FAIR competences into university curricula.
However, the education and training of Data Stewards should not be limited to the general data management or FAIR data principles. The presented research identified a number of competences, skills, and knowledge areas covering technology and data management that are required from the Data Stewards for successful work in their future organisation. Besides data-related competences and knowledge, the Data Stewards are required to have an understanding of project management and organisational processes (research or business, depending on organisation). The Data Steward role in organisations is acting as a bridge between operational organizational units and IT and applications development departments, in particular translating user needs in data management into requirements to applications and tools.
At the present time, most of the existing university curricula and training programs cover a limited set of competences and knowledge and falls short of what is required for multiple Data Science and Data Stewardship professional profiles and organisational roles within research and industry. In conditions of continuous technology development and shortened technology change cycles, Data Science and Data Stewardship education requires an effective combination of theoretical, practical and workplace skills.
This paper will present the Data Stewardship Professional Competence Framework (CF-DSP) [1], what is the result of the FAIRsFAIR project [2], and will provide recommendations for implementing this framework in the university curricula by means of defining the Data Stewardship Body of Knowledge and Model Curricula.
The proposed Data Stewardship Professional Competence Framework (CF-DSP) is based on the EDISON Data Science Framework (EDSF) [3] and defines the main competences required from the Data Steward in their work in different organisations. CF-DSP is also complemented by the DSP Body of Knowledge (DSP-BoK) that is defined as a subset of the Data Science Body of Knowledge. The EDSF provides the methodology for linking competences, skills, knowledge, and intended learning outcomes when designing curricula. This allows reusing the whole EDSF toolkit developed for customised curriculum design [4].
The proposed approach and identified competences and knowledge topics are supported by a job market analysis, which was done at the initial stage of the CF-DSP development and repeated to verify the proposed CF-DSP. Reference dataset of the job vacancies collection from indeed.com has been published on Zenodo [4].
The follow on development at the University of Amsterdam is focused on the job candidates CV assessment, customized training based on CV-vacancy gaps analysis, optimal career path building for data stewards and researchers, and customized curricula design for target professional profiles and practitioners. This development is coordinated by the university Data Science Center and based on the experience of the EDISON Data Science Framework (EDSF) development and methodology to use it in Data Science curriculum profiling for different

units have been developed along CF-DSP and Data Stewardship Body of Knowledge (DSP-BoK) with enriched Data Management Knowledge Area.
The paper will also present experience of developing learning modules on Data Governance and Management, targeting industry demand for data management competences, and Research Data Management addressing research and academic community needs, and their embedding into different Computer Science programs, Business Administration programs, and other multi-disciplinary programs.

References

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