EDISON
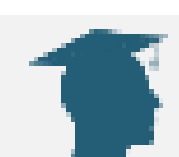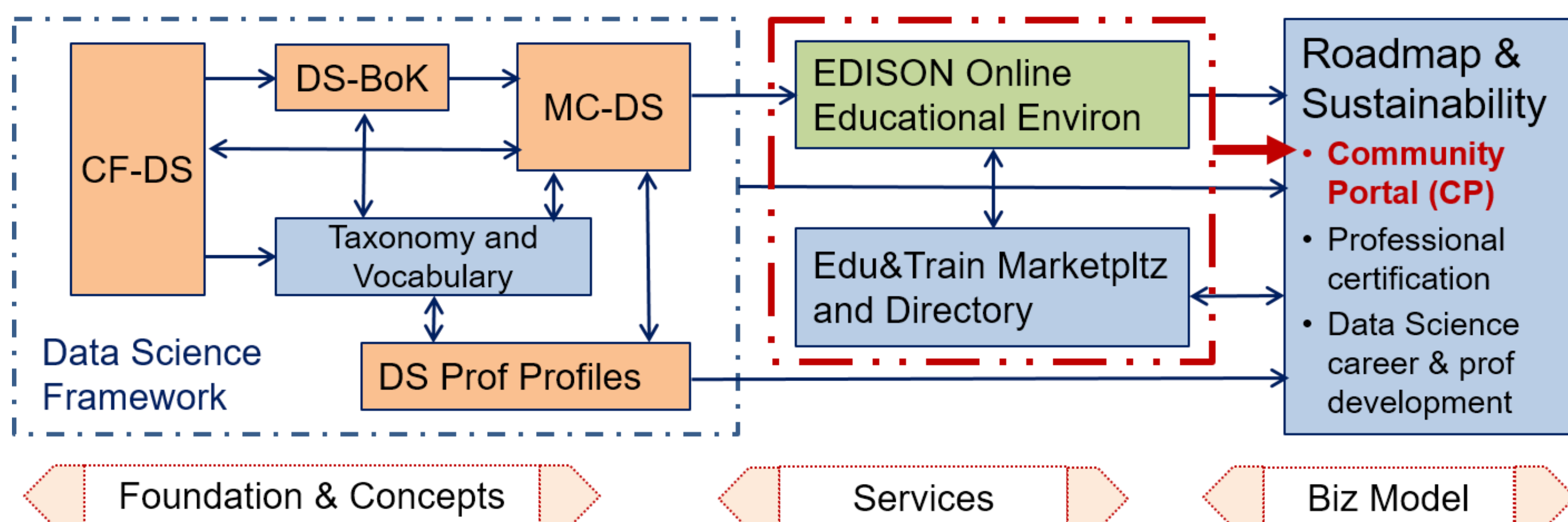## building the data science profession

EDISON Data Science Framework: A Foundation for Data Science Competence Management and Curricula Development

EDISON Data Science Framework (EDSF)

CF-DS → DS-BoK → MC-DS → EDISON Online Educational Environ → Roadmap & Sustainability

- **Community Portal (CP)**
- Professional certification
- Data Science career & prof development

Taxonomy and Vocabulary

DS Prof Profiles → Edu&Train Marketpltz and Directory

Data Science Framework
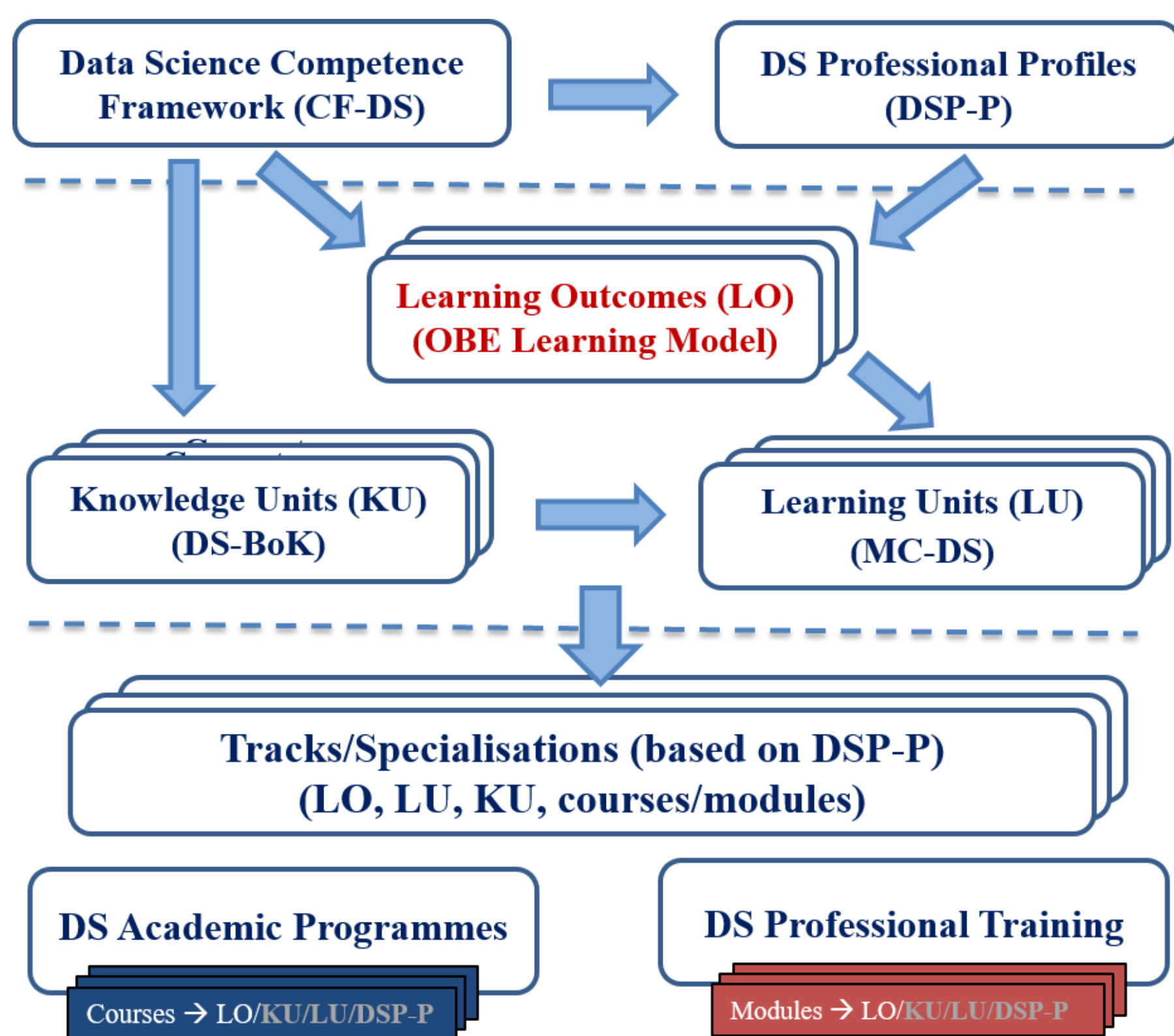
Foundation & Concepts | Services | Biz Model

EDISON Data Science Framework (EDSF) provides conceptual basis for the Data Science profession
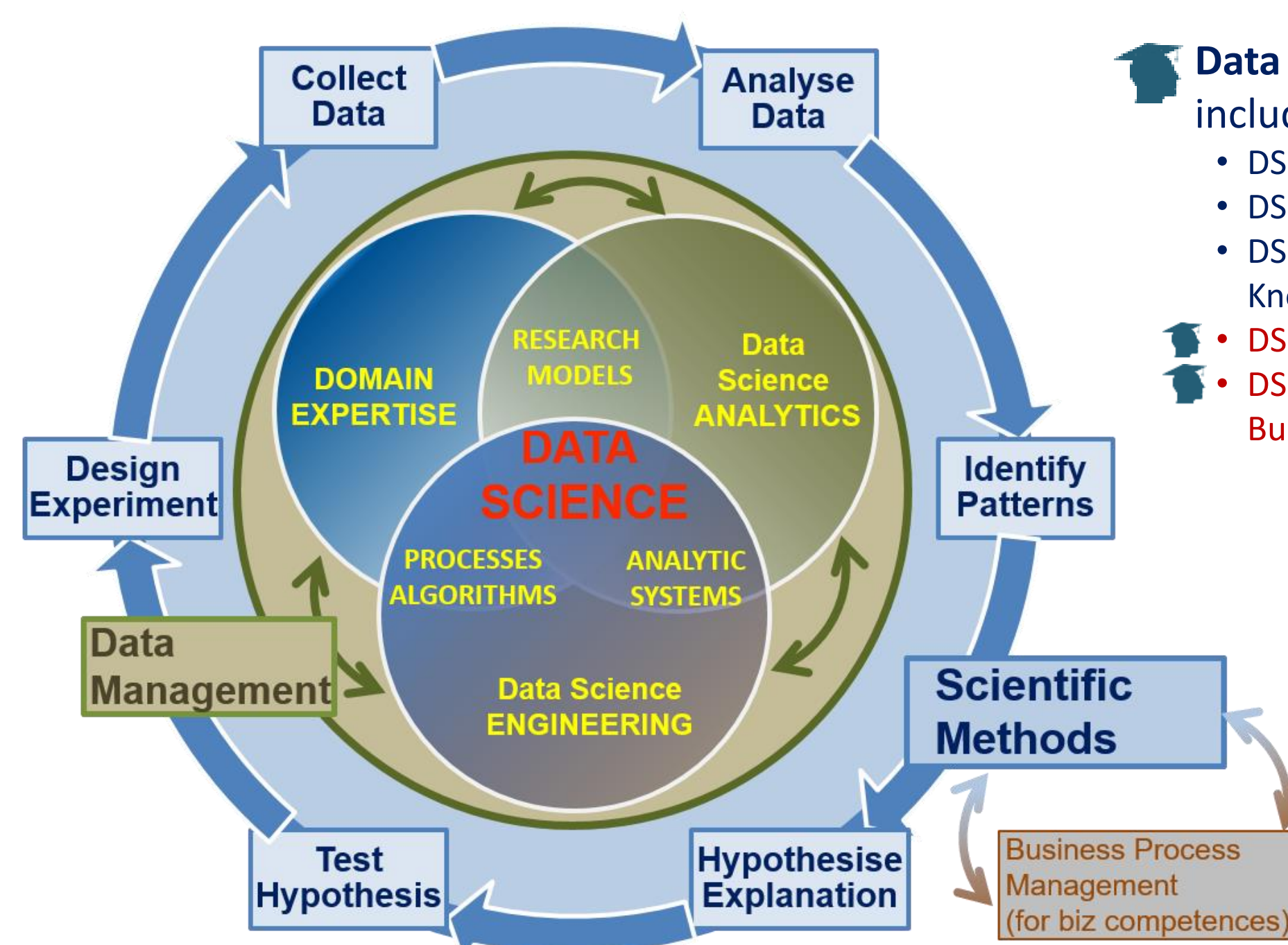- CF-DS – Data Science Competence Framework
- DS-BoK – Data Science Body of Knowledge
- MC-DS – Data Science Model Curriculum
- DSPP - Data Science Professional Profiles
- Data Science Taxonomy and Scientific Disciplines Classification

Service and operational components of the Data Science professional ecosystem
- Community Portal (CP) including
  - EOEE - EDISON Online Education Environment
  - Education and Training Marketplace and Directory
- Professional certification and career development support

Outcome Based Educations and Training Model:
From Competences and DSP Profiles to Learning Outcomes (LO) and to Knowledge Unites (KU) and Learning Units (LU)

Data Science Competence Framework (CF-DS) → DS Professional Profiles (DSP-P)

Learning Outcomes (LO) (OBE Learning Model)

Knowledge Units (KU) (DS-BoK) → Learning Units (LU) (MC-DS)

Tracks/Specialisations (based on DSP-P) (LO, LU, KU, courses/modules)

DS Academic Programmes — Courses → LO/KU/LU/DSP-P

DS Professional Training — Modules → LO/KU/LU/DSP-P

Data Science Body Of Knowledge (DS-BoK)

Data Science Body of Knowledge Area Groups

DS-BoK Knowledge Area Groups (KAG) are defined in compliance with the CF-DS
- KAG1-DSDA: Data Analytics group including Machine Learning, statistical methods, and Business Analytics
- KAG2-DSENG: Data Science Engineering group including Software and infrastructure engineering
- KAG3-DSDM: *Data Management group including data curation, Research Data Management, Open Data, Open Access*
- KAG4-DSRM: *Scientific and Research Methods, use cases/practices*
- KAG5-DSBPM: Business Process Management (data driven)

Includes selected KAG and KU defined in ACM CCS (2012), PMI-BoK, BABOK, SWEBOK, DM-BoK,

Data Science Competence Framework (CF-DS)

Collect Data | Analyse Data | Design Experiment | Identify Patterns | Test Hypothesis | Hypothesise Explanation | Data Management

RESEARCH MODELS | DOMAIN EXPERTISE | Data Science ANALYTICS | **DATA SCIENCE** | PROCESSES ALGORITHMS | ANALYTIC SYSTEMS | Data Science ENGINEERING

Business Process Management (for biz competences)

Data Science Competences includes 5 areas/groups
- DSDA - Data Analytics
- DSENG - Data Science Engineering
- DSDK - Domain Knowledge/Expertise
- DSDM - Data Management
- DSRM - Scientific Methods (or Business Process Management)
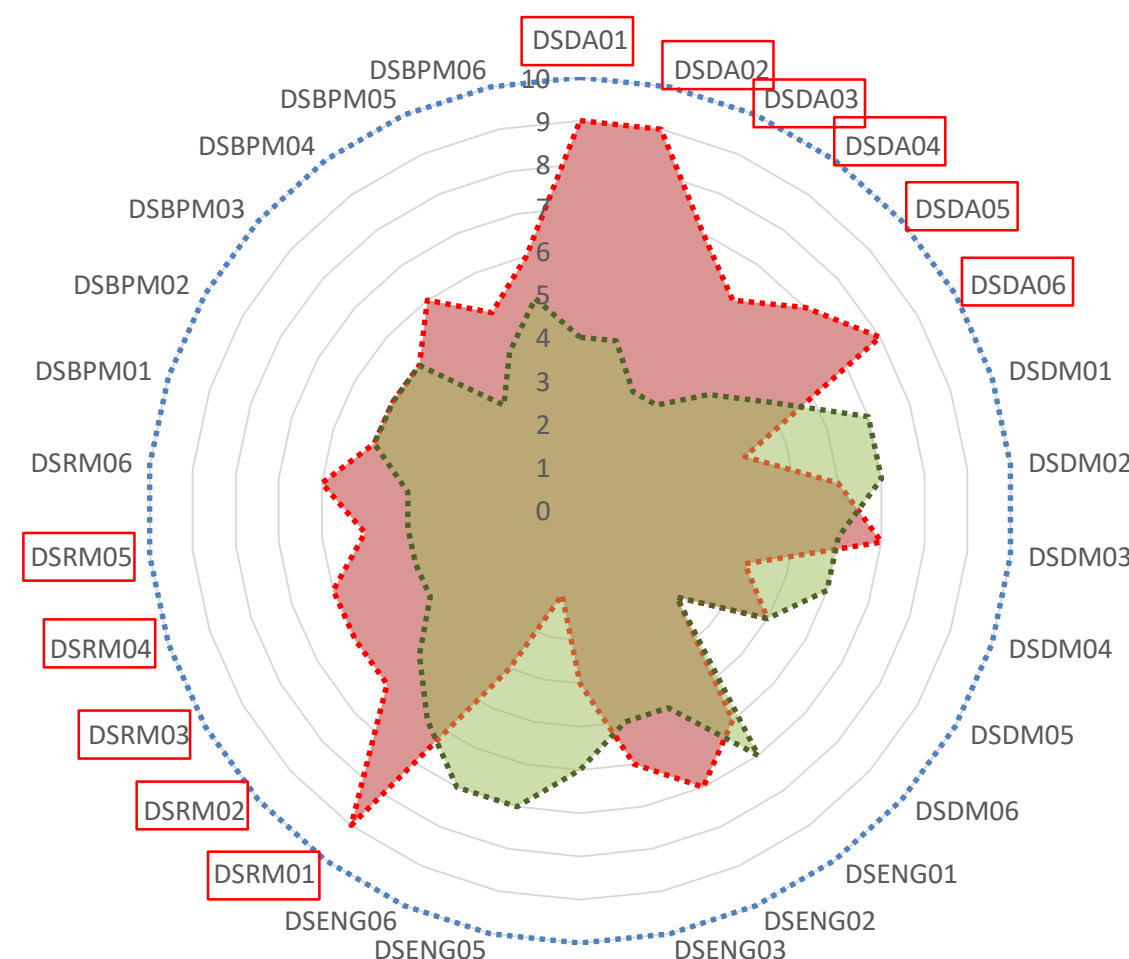
Scientific Methods
- Design Experiment
- Collect Data
- Analyse Data
- Identify Patterns
- Hypothesise Explanation
- Test Hypothesis

CF-DS is defined in compliance with the European e-Competence framework for ICT (e-CFv3.0 - 2015)

MATCHING – COMPETENCE PROFILES

DSP04 - Data Scientist | Candidate - Data Scientist

(radar chart with axes: DSDA01, DSDA02, DSDA03, DSDA04, DSDA05, DSDA06, DSDM01, DSDM02, DSDM03, DSDM04, DSDM05, DSDM06, DSENG01, DSENG02, DSENG03, DSENG04, DSENG05, DSENG06, DSRM01, DSRM02, DSRM03, DSRM04, DSRM05, DSRM06, DSBPM01, DSBPM02, DSBPM03, DSBPM04, DSBPM05, DSBPM06)

Individual Education/Training Path based on Competence benchmarking

Red polygon indicates the chosen professional profile: Data Scientist (general)
Green polygon indicates the candidate or practitioner competences/skills profile
Insufficient competences (gaps) are highlighted in red
- *DSDA01 – DSDA06 Data Science Analytics*
- *DSRM01 – DSRM05 Data Science Research Methods*

Can be use for team skills match marking and organisational skills management

[ref] For DSP Profiles definition and for enumerated competences refer to EDSF documents CF-DS and DSP Profiles.

For more information refer to EDISON documents
EDSF - http://edison-project.eu/edison-data-science-framework-edsf
CF-DS: http://edison-project.eu/data-science-competence-framework-cf-ds
DS-BoK: http://edison-project.eu/data-science-body-knowledge-ds-bok
MC-DS: http://www.edison-project.eu/data-science-model-curriculum-mc-ds
DSP Profiles: http://www.edison-project.eu/data-science-professional-profiles-dsp

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