UN Task Team on Training, Competencies and Capacity Development
Work streams in the Task Team

• Curriculum development
  • Guidance on training development

• Big Data Competency Framework

• NSO Big Data Maturity Matrix

• Big Data Training catalog
Curriculum development

• Provide basis for consistent development of training courses
• To provide maximum needed impact, identify:
  • General Big Data competency area
    • Specific competency area (e.g. Classification algorithms)
  • Job behaviours
  • Learner / persona (e.g. Senior managers, Project managers, Data scientists)
  • Instruction level (e.g. Foundation, Intermediate, Advanced)
• Linking to Competency Framework
• Clear setting of learning objectives

• Discussions with each task team have taken place to define competencies needed and develop corresponding curricula (with above considerations)
  • Rapid Needs Learning Analysis sessions
Curriculum development

• Development of guidance for course development
  • To assist other task teams
  • Includes practical aspects of course delivery

• “drop-in / coaching sessions” for other task teams, covering:
  • Selection of most appropriate type of training delivery
  • Information architecture
  • Tone and wording
  • Use of videos
  • Activity building
  • Construction/importing/selection of activities in a course
Big Data Competency Framework

• General guidance on building Big Data skills
• Extensive (yet not exhaustive) set of skills and knowledge useful for acquiring and processing big data
• Recognition that:
  • different NSOs run different projects
  • different types of data specialists (e.g. data analyst, data engineer, data scientist, etc.) require different compositions of skills and knowledge
  • not each data specialist must possess all of the skills listed in the framework

• Two approaches:
  • Competency areas approach
  • (Simplified) statistical production process approach
Competency areas approach - core competencies

- Ethics and Privacy
- Mathematics
- Data Management
- Programming
- Statistics
- Machine Learning
- Data Visualization
<table>
<thead>
<tr>
<th>Dimension 1</th>
<th>Data management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td>Dimension 2</td>
<td></td>
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<tr>
<td></td>
<td>To possess data management knowledge in a range of below-listed issues:</td>
</tr>
<tr>
<td>Competence title and description</td>
<td>1) Database systems: database management systems, data models – definition and types, entity relationship model, models implementation (pre-relational, relational and object-oriented models)</td>
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<tr>
<td></td>
<td>2) Basics of cryptography: hash function, binary tree</td>
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<td></td>
<td>3) Database: relational database, tabular data, data frames and series, shard, on-line analytical processing, data warehousing, data lakes, data vaults, logical multidimensional data model, extract, transform and load (ETL), NoSQL</td>
</tr>
<tr>
<td></td>
<td>4) Varied data formats: (Json, shp, XML, csv)</td>
</tr>
<tr>
<td>Dimension 3</td>
<td>A - Foundation</td>
</tr>
<tr>
<td>Proficiency levels</td>
<td>Demonstrate knowledge and understanding of basic data management skills.</td>
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<tr>
<td>Dimension 4</td>
<td></td>
</tr>
<tr>
<td>Knowledge examples</td>
<td>• Know the basic concept of SQL and NoSQL databases (such as table, column, field, field type, primary and foreign key)</td>
</tr>
<tr>
<td>Skills examples</td>
<td>• Able to create database structures in selected database management systems (e.g. MySQL, MongoDB, more in annex)</td>
</tr>
<tr>
<td>Attitude examples</td>
<td>• Systematically supplement knowledge of new trends in the field of computer science on the subject of computer data storage</td>
</tr>
</tbody>
</table>
Generic (soft) skills

Indispensable and inherent part of Big Data competencies catalogue

Span all stages of the statistical production process

*Not the main focus of this Competency Framework

Source: cleanpng.com
Simplified production process approach

CORE COMPETENCIES

DATA ACQUISITION
DATA PROCESSING
DATA ANALYSIS
DATA VISUALIZATION

GENERIC (SOFT) SKILLS
Data acquisition:
- Ethics and privacy
- Data management
- Machine Learning
- Programming

Data processing:
- Ethics and privacy
- Data management
- Mathematics
- Programming
- Machine Learning

Data analysis:
- Ethics and privacy
- Mathematics
- Statistics
- Programming
- Machine Learning

Data visualization:
- Ethics and privacy
- Statistics
- Programming
- Data visualization

Core competencies:
- product understanding
- critical thinking
- business acumen
- curiosity
- team player
- agile project management

Generic skills:
- business acumen
- critical thinking
- communication
- team player
- agile project management
NSO Maturity Matrix

• Self-assessment tool for the NSO to determine where it is now and where it wants to be

• The NSO will set its own target!

• Through answering a set of questions, the NSO will be provided with a picture of where it currently is on its big data journey, considering several dimensions:
  • Legal and Policy framework
  • IT infrastructure
  • Human resources
  • Application

• Any gaps will be identified and should inform an NSO strategic plan

• The online version of the Maturity Matrix will also provide a list of training resources that can be used to bridge existing gaps
NSO Maturity Matrix

Results

You have completed the assessment!

Legal & Policy Framework
- Pre-Foundation
- Foundation
- Practitioner
- Expert

IT Infrastructure
- Pre-Foundation
- Foundation

Human Resources
- Pre-Foundation
- Foundation

Application
- Pre-Foundation
- Foundation

Recommendations

Below you may find training opportunities that could be useful if, for any aspect of a dimension, your organization's current maturity does not match its goal.

Legal & Policy Framework
- 8 Courses

Ethics and Integrity at the United Nation
- Launch Course

UNDP Policies and procedures
- Launch Course

UNDP Accountability Policies and procedures
- Launch Course

IT Infrastructure
Big Data training catalogue

• Competency framework, Maturity Matrix and Curriculum Development are supported by the development of a Big Data Training Catalogue

• Includes training courses and materials
  • Developed by UNCEBD task teams and other entities

• Will support individual development
### Keyword search

Enter keywords to search for relevant courses/materials. Leave the field blank to show all courses/materials.

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<th>Language</th>
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<td>Español</td>
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<td>English</td>
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<td>Privacy and Standardisation Specialization</td>
<td>EIT Digital</td>
<td>Español</td>
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<td>Understanding the GDPR</td>
<td>University of Groningen by FutureLearn</td>
<td>English</td>
<td>Details</td>
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### Welcome to the Personal Learning Path

1. To the left you will see some options. This is where we build your personal profile. Please follow the steps below.
2. First you select what kind of user you are (e.g. "Manager" or "Data Scientist").
3. Next you must identify which core skills you are looking to learn about.
4. Next you need to assess your level of knowledge in your selected core topics and select from the available options. If you are already at the "Advanced" level, no courses will be available to guide you further.
5. Next, using the same skill level scale, enter what level you would like to achieve by the end of this training.
6. Click Search

Once you have filled out this personal profile and clicked Search, your results will appear in the "Course options" tab. From here you will be able to select courses for your personal profile.
Thank you