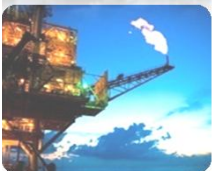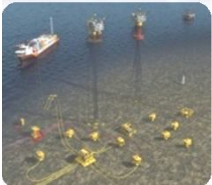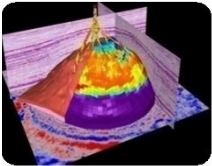# Establishing IM Competency and Profession in the EP Business

**25th October 2012**

*Fariha Md Yusoff*
*Philip Lesslar*

**Information Management Governance**
**Technology Information Management**
**PETRONAS Carigali**

- Background & Objective

- Issues

- Benchmarking

- Findings

- Skillgroup Establishment

- Competency Matrix Structure

- Learning Ladder

- Career Progression Path

- Next Steps

## Background

- A career benchmarking on Information Management in oil & gas industry was internally conducted by Technology Information Management (TIM), a division in PETRONAS Carigali.

- The findings showed that most benchmarked companies have established 'skillgroup' for data/IM.

## Objective

- Highlight issues we experienced in the management of Technical Data for PETRONAS Carigali.

- Share the benchmarking findings and seek your input on the way forward.
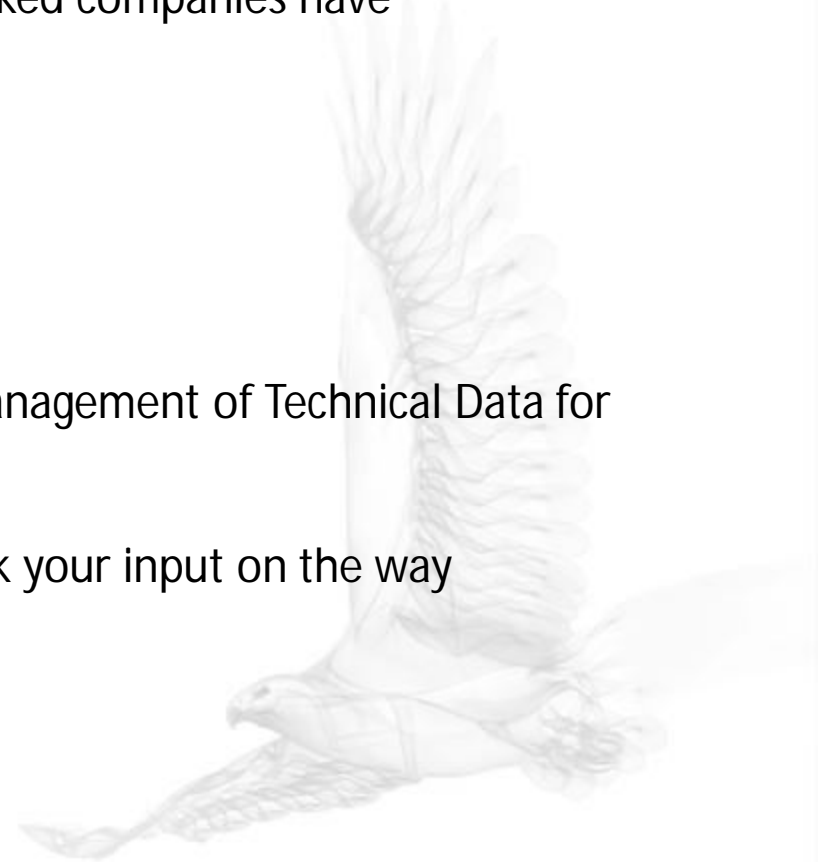
- **Higher demand by EP business groups** for more efficient access to data/information for timely decision making
  - More global E&P ventures
  - Complex business environment and process
  - Technology advancement
  - Exponential growth of data/information volume
  - Tight regulatory compliance

- **Unclear career plan**

- **Ageing IM staff**

- **Scarcity of IM expertise**

- There is **no formal education producing E&P IM practitioners.**
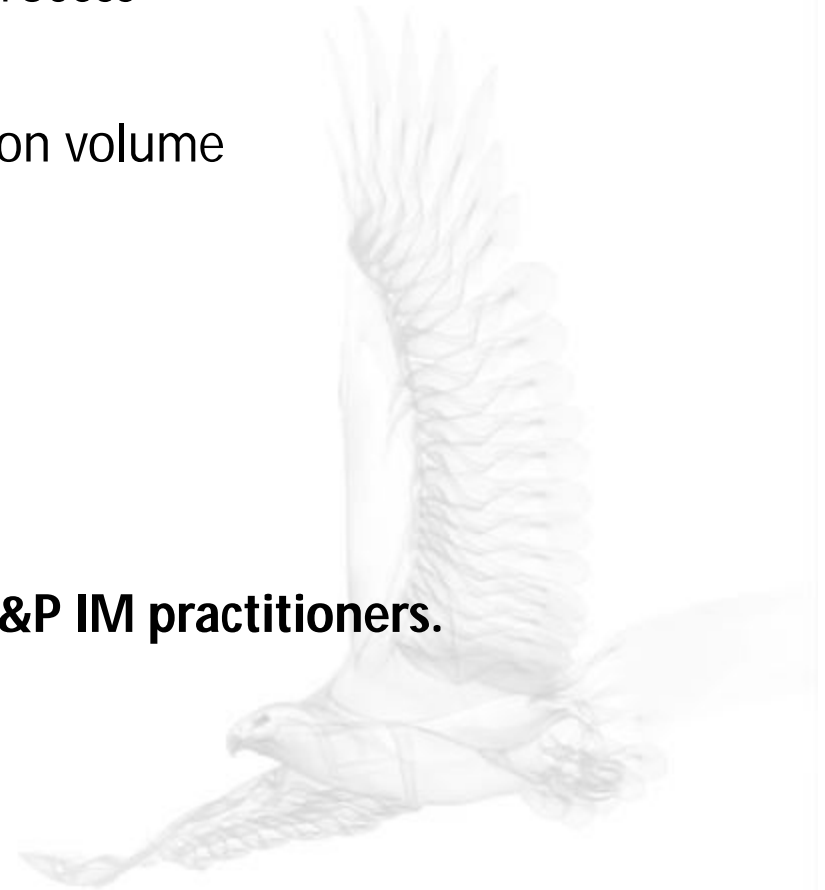
- All these issues will need to be addressed as we need to have a good base of competent staff.

- All these issues will keep compounding.

- All these issues will results in our inability to support the business in an optimal way.

# Benchmarking

**PETRONAS**

## Objectives of the Benchmark

- To find out how other companies manages Information Management practitioners on:
    - Skill group
    - Competency map
    - Learning ladder
    - Career progression path

## Approach

- Leverage on people network to obtain input on specific questions via email or phone
- Collate replies, analyze and re-visit for clarification, when required
- Compile published information from internet and available contacts

## Timeline

| March 2012 | April 2012 | May 2012 | June 2012 | July 2012 |
|---|---|---|---|---|
| • Planning<br>• Requirement Study | • Develop questions<br>• Contact respondents and collate replies | • Conclude benchmarking<br>• Present to Management | • Develop a business case<br>• Initiate steps for SKG establishment | |
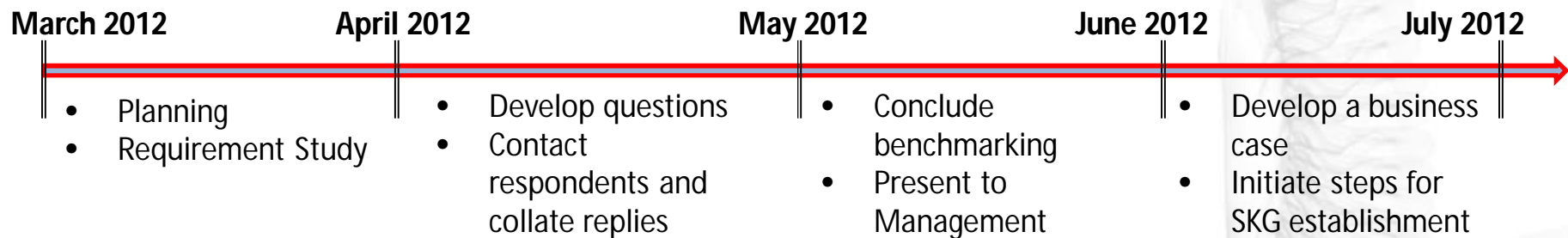
## Companies in benchmarking

- We benchmarked 6 oil companies and 3 service companies

- Oil majors recognized the need for having a dedicated IM Skillgroup.

- The effective management and development of such a skillgroup requires a competency map, learning ladder and career progression.

- A structured career progression option for IM allows staff to move into different areas of the IM business.

- 2 of the sample companies have implemented self-driven career development tools that also collate data for resource planning.

- Entry requirements for IM positions require technical knowledge and or IT knowledge.

- The professionalization of IM/DM as a career is also being pursued by industry bodies.
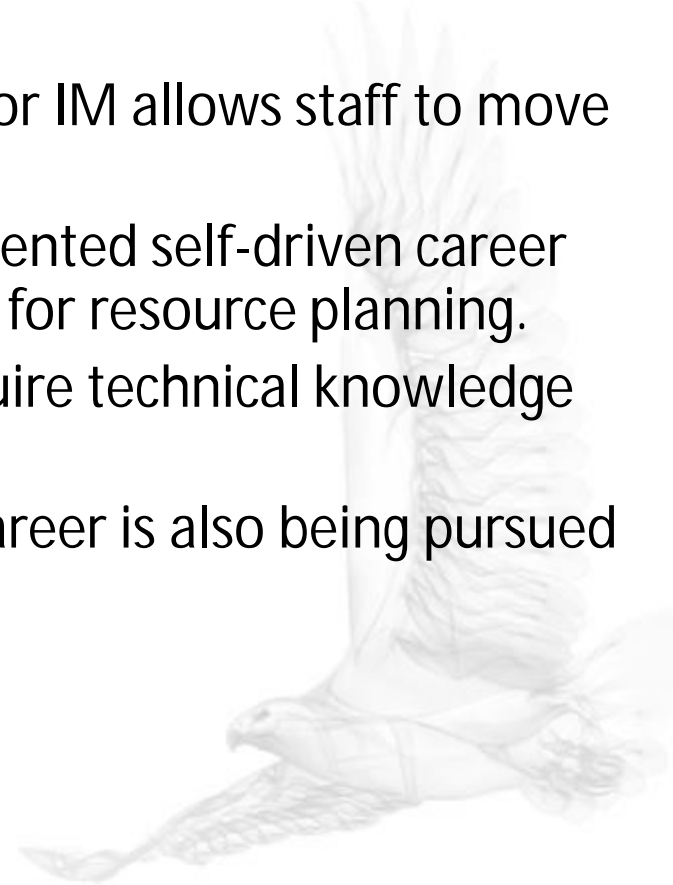
# Post Benchmarking

We are currently working on the following areas:

- Developing the structure and details required for a competency matrix

- Identifying what is needed for a learning ladder

- Putting in place the framework to allow for career options in information management – the Employee Value Proposition (EVP)

- Synthesizing all the above into a business case for establishing a skillgroup for information management
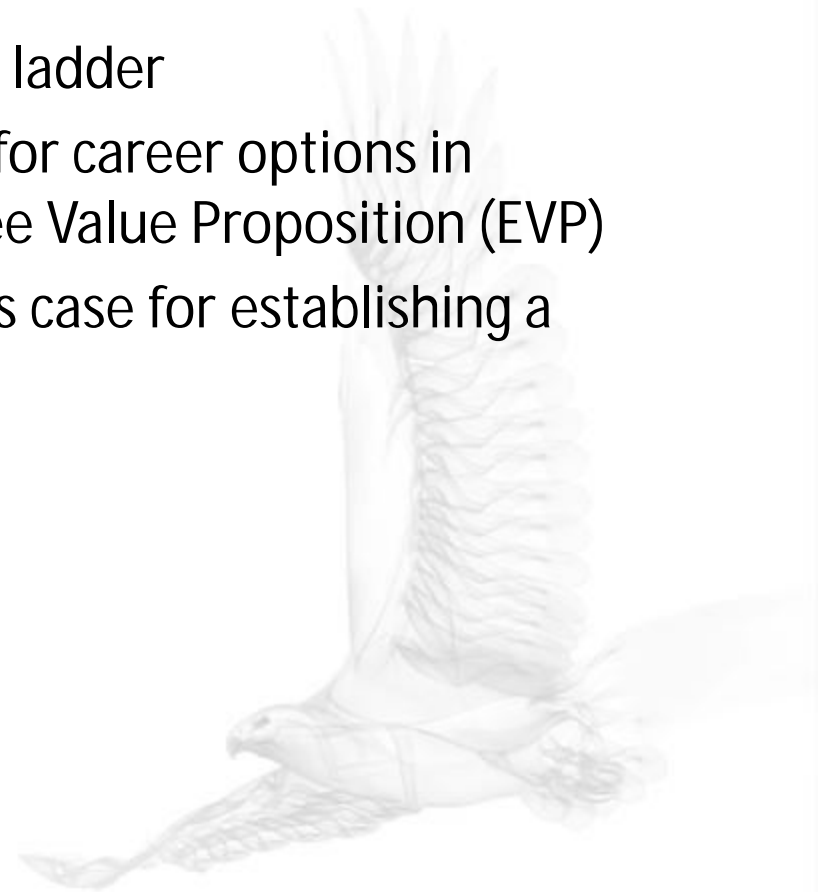
# Competency

## IM Practitioner Competency Map

IM Functional Areas (6 areas)

+

Management of Domain Specific Data

+

Domain Specific Data Groups (1 or more groups)

# COMPETENCY MATRIX

PETRONAS CARIGALI

**Units of competence** describe the types of activities that are important and relevant for the IM practitioner to carry out his or her work effectively

**Skill Levels** are used to assess how well the person is able to carry out the activity described, and enables target levels to be set for different job levels

Skill levels per Unit of Competence (PCSB)

| Unit of Competence | Awareness 1 | Knowledge 2 | Skill 3 | Advanced 4 | Expert 5 |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

IM Functional Units

| | | | | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Domain specific units relevant to IM staff

## Information Management Functional Areas

Adapted from DAMA

| Functional Area | Units of Competence |
|---|---|
| Data Governance | Data policies, Data strategy, Data standards, Data architecture, Data roles, Data procedures, Compliance strategies, Data life cycle |
| Data Architecture Management | Enterprise model, Model integration, Database architecture, Database inventory, Data integration elements, Taxonomy |
| Information Security Management | Security requirements, Security standards, Access control, Asset protection, Business continuity, Sharing safely, Risk identification & management |
| Data Quality Management | Data quality standards, Data quality rules , Monitoring & reporting, Data quality issue resolution, Addressing legacy data |
| Reference and Master Data Management | Integration requirements,  Architecture & methodologies, Solution options, Reference Data Management, Corporate Data Management, Publishing, Delivery strategies |
| Metadata Management | Understand MD requirements, Define MD architecture, Identify inventory, Standards, Implementation strategy, Manage, monitor & track |

## Information Management Domain Areas (EP Data)

| Functional Area | Units of Competence | |
|---|---|---|
| Management of Domain Specific Data | Understanding of Business Issues, Customer Orientation, Operational Support, Planning and Design of Data Solutions, Implementing Standards and Standard Approaches | |

⬆ Basic requirements for all practitioners dealing with business domain data

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⬇ One or more of the following domain specific requirements

| Domain Specific Data Groups | 1) General Reference Data<br>2) Company & Concession Data<br>3) Play, Prospect & Field Data<br>4) Spatial Data<br>5) Seismic Data<br>6) Well Drilling Data<br>7) Well Deviation Data<br>8) Well Geological Data<br>9) Well Petrophysical Data<br>10) Well Completion Data<br>11) Production Test Data<br>12) Production Volume Data | 13) Production Operations Data<br>14) Reservoir Geological Model Data<br>15) Fluid Properties Data<br>16) Reservoir Volumes Data<br>17) Reservoir Performance Model Data<br>18) Reservoir Production Technology Data<br>19) Development Project Planning Data<br>20) Operational Schedules Data<br>21) Corporate Forecast Data<br>22) Facilities Data<br>23) Economic and Financial Data |

## Information Management Domain Areas (EP Data) - Examples

| Data Categories | Data Types covered | Skill Levels | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 8) Well Geological Data | **Raw Geological Data**<br>-Mud logging data<br>-Cuttings Lithology<br>-Chromatography & Hydrocarbon show<br>-MWD Formation analysys (non-logs)<br>-Well Core Samples & Analysis | | | | | |
| | **Interpreted Geological Data**<br>-Well Pick<br>-Well Fault Observation<br>-Well Fluid Contact<br>-Well Computed Lithology<br>-Well Paleontology<br>-Well zonation, well interval<br>-Cross section interpretation<br>-Well correlation | | | | | |
| 9) Well Petrophysical Data | **Well Log Curve Data**<br>-Raw curves<br>-Processed and Interpreted curves | | | | | |
| | **Dipmeter / Borehole image Data**<br>-Raw dipmeter /BHI data<br>-Processed dipleter / BHI data<br>-Dip interpretation | | | | | |

## IM Practitioner Competency Map

IM Functional Areas (6 areas)

+

Management of Domain Specific Data

+

Domain Specific Data Groups (1 or more groups)

# Learning Ladder

Learning opportunities are classified into a number of areas. These are:

| Learning Type | Description |
|---|---|
| Workplace learning | Learning on the job. Work experiences. Application of theory to practice. |
| Coaching and mentoring | Coaching - work-focused, via supervisor<br>Mentoring - a longer-term relationship, aimed at helping people develop themselves. The mentor is a more experienced colleague or role model. |
| Knowledge sharing | Sharing of personal knowledge within the context of tools and systems. Semi – structured framework. |
| Learning events | Courses, classroom lectures, workshops, online study, virtual collaboration, self-study, syndicate work, and work-based assignments. |
| Conferences & workshops | Expertise sharing, new technologies awareness, networking opportunities. |

**The Learning Ladder is designed to include events on the yearly calendar** (courses, conferences, workshops), and forms a structured approach to developing staff skills and competencies, in conjunction with the other learning opportunities that are available.

## Structure

| | |
|---|---|
| Optional Training | |
| Recommended Training | |
| **Advanced** | **Years 6++** |

| | |
|---|---|
| Optional Training | |
| Recommended Training | |
| **Intermediate** | **Years 4-5+** |

| | |
|---|---|
| Optional Training | |
| Recommended Training | |
| **Fundamentals** | **Years 2-4+** |

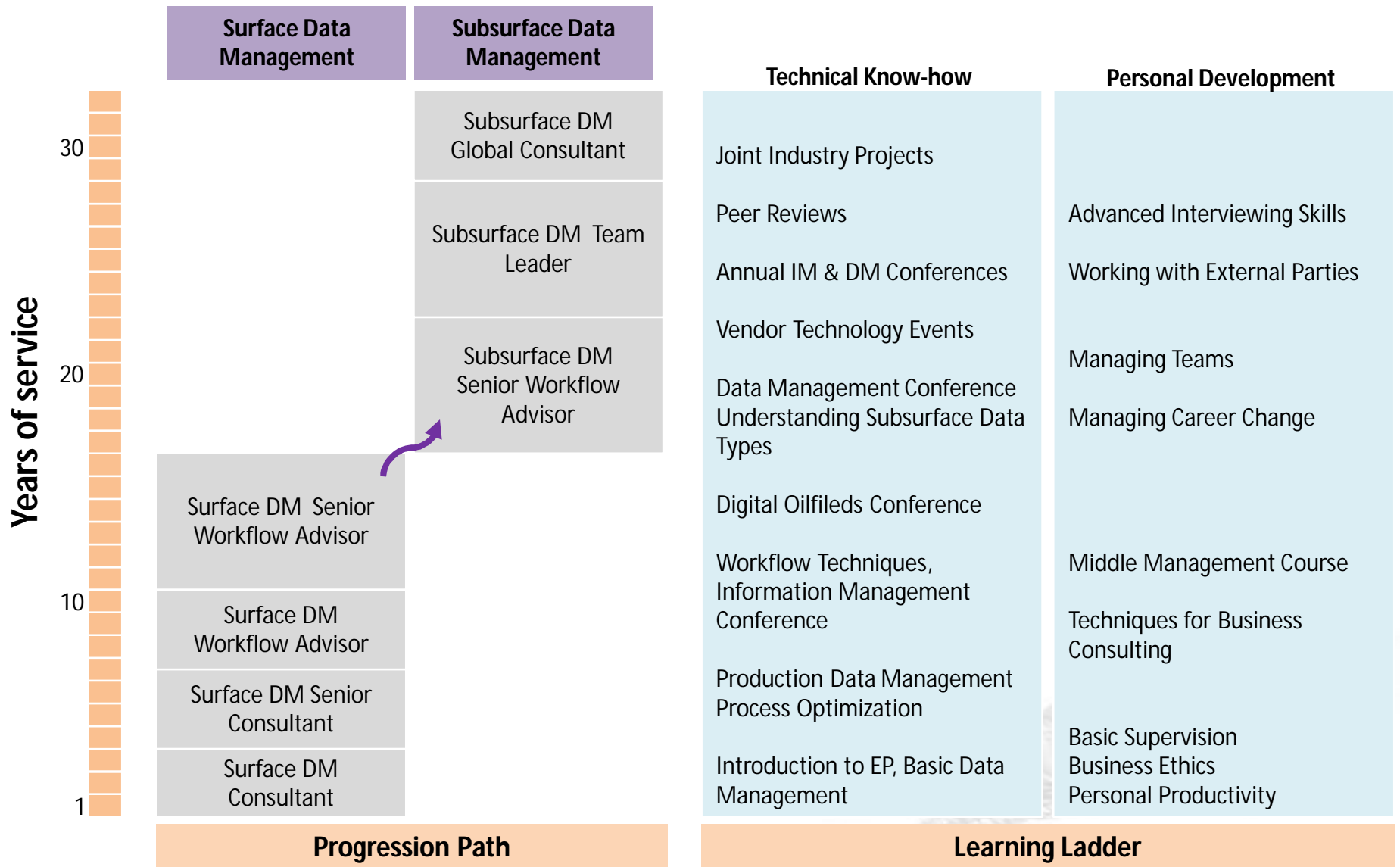| | |
|---|---|
| Optional Training | |
| Recommended Training | |
| **Foundation** | **First year** |

Develop list of learning events for staff at different stages in their career in IM.

Note:
IM staff supporting business areas need to attend business (data) related events
Eg. Basic Petrophysics

# Career Path

# Example combining the learning ladder and progression path..



| | Surface Data Management | Subsurface Data Management | Technical Know-how | Personal Development |
|---|---|---|---|---|
| 30 | | Subsurface DM Global Consultant | Joint Industry Projects | |
| | | Subsurface DM Team Leader | Peer Reviews | Advanced Interviewing Skills |
| | | | Annual IM & DM Conferences | Working with External Parties |
| 20 | | Subsurface DM Senior Workflow Advisor | Vendor Technology Events | Managing Teams |
| | | | Data Management Conference Understanding Subsurface Data Types | Managing Career Change |
| | Surface DM Senior Workflow Advisor | | Digital Oilfileds Conference | |
| 10 | Surface DM Workflow Advisor | | Workflow Techniques, Information Management Conference | Middle Management Course |
| | Surface DM Senior Consultant | | Production Data Management Process Optimization | Techniques for Business Consulting |
| 1 | Surface DM Consultant | | Introduction to EP, Basic Data Management | Basic Supervision Business Ethics Personal Productivity |

**Years of service**

**Progression Path**

**Learning Ladder**

- Develop the competency matrix to clearly illustrate its purpose
- Conceptualize the learning ladder and requirements
- Extend work on the career options – the Employee Value Proposition (EVP)
- Finalize the business case for establishing a skillgroup for Information Management

# THANK YOU