Updated Learning paths - draft

EUROPEAN COMMISSION
DIGIT D2 – Interoperability Unit

Interoperability Academy

ISA^2 action 2019.01

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Interoperability
Academy
by European Commission

ISA^2

TRASYS

1. The Learner Profiling research and the resulting Learner Canvasses, revealed that the Interoperability Academy can expect to be used by a variety of user-types, with varying degrees of technical knowledge, and a variety of professional backgrounds.

2. It is likely that users will range from professional implementers, with a high degree of IT skills, to senior managers with generalist, strategic needs, to business professionals (project managers, policy managers) who may not be expected to have a high degree of technical knowledge.

3. The delivery of meaningful learning experiences will therefore need to be modelled on learning paths that are flexible and adaptable, and can be adapted to each learners requirements.

To develop a model that is adaptable to a wide range of requirements, we have looked to a variety of factors:

1. Motivation and learning objectives
2. Learning styles
3. Learning context
4. Curriculum structure and requirements

CIO

"I want to know about industry best practice as it happens. I need to know what compliance issues my organisation faces."

Systems architect

"I want to know how interoperability standards will affect systems design. I need to be able to design interoperable frameworks."
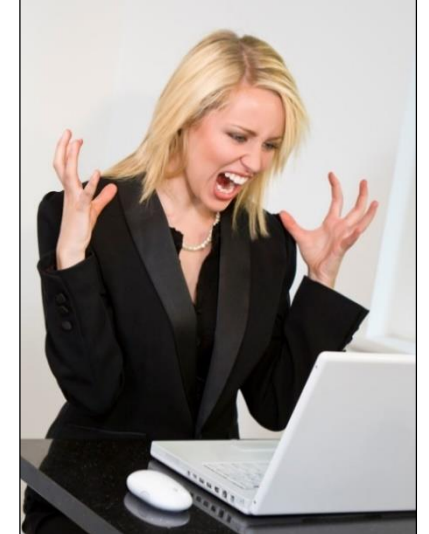
Developer

"I need to be able to implement interoperable code solutions. I need to understand the relevant standards and specifications."

Policy manager

"I want to know how interoperability affects my organisational vision. I need to know the policy requirements."

Project manager

"I want to know the technology priorities for project success. I need to be able to speak the language."

Public Administration Manager

"I want to know how interoperability can help me make public services more efficient. I need a top level guide to the interoperability standards" "

Town/City Councillor

"I need top-level insights into interoperability for integrated public services. I need an overview of EIF principles."

Legal Advisor

"I need to understand 'interoperability' and how it can ensure harmony between different legal frameworks, policies and strategies."

Civil Engineer

"I have specific civil and public projects that involve technologies and components reliant on data and connectivity standards (like GIS)."

Financial Manager

"I need to understand how I can make financial operations more efficient and less wasteful."

CIO

"I want to know about industry best practice as it happens. I need to know what compliance issues my organisation faces."

Systems architect

"I want to know how interoperability standards will affect systems design. I need to be able to design interoperable frameworks."

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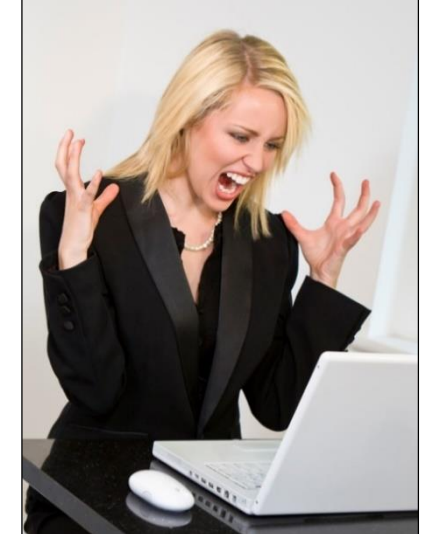
Policy manager

"I want to know how interoperability affects my organisational vision. I need to know the policy requirements."

Project manager

"I want to know the technology priorities for project success. I need to be able to speak the language."

SKILL

SKILL

KNOWLEDGE

6

Public Administration Manager

"I want to know how interoperability can help me make public services more efficient. I need a top level guide to the interoperability standards" "

Town/City Councillor

"I need top-level insights into interoperability for integrated public services. I need an overview of EIF principles."

SKILL

Legal Advisor

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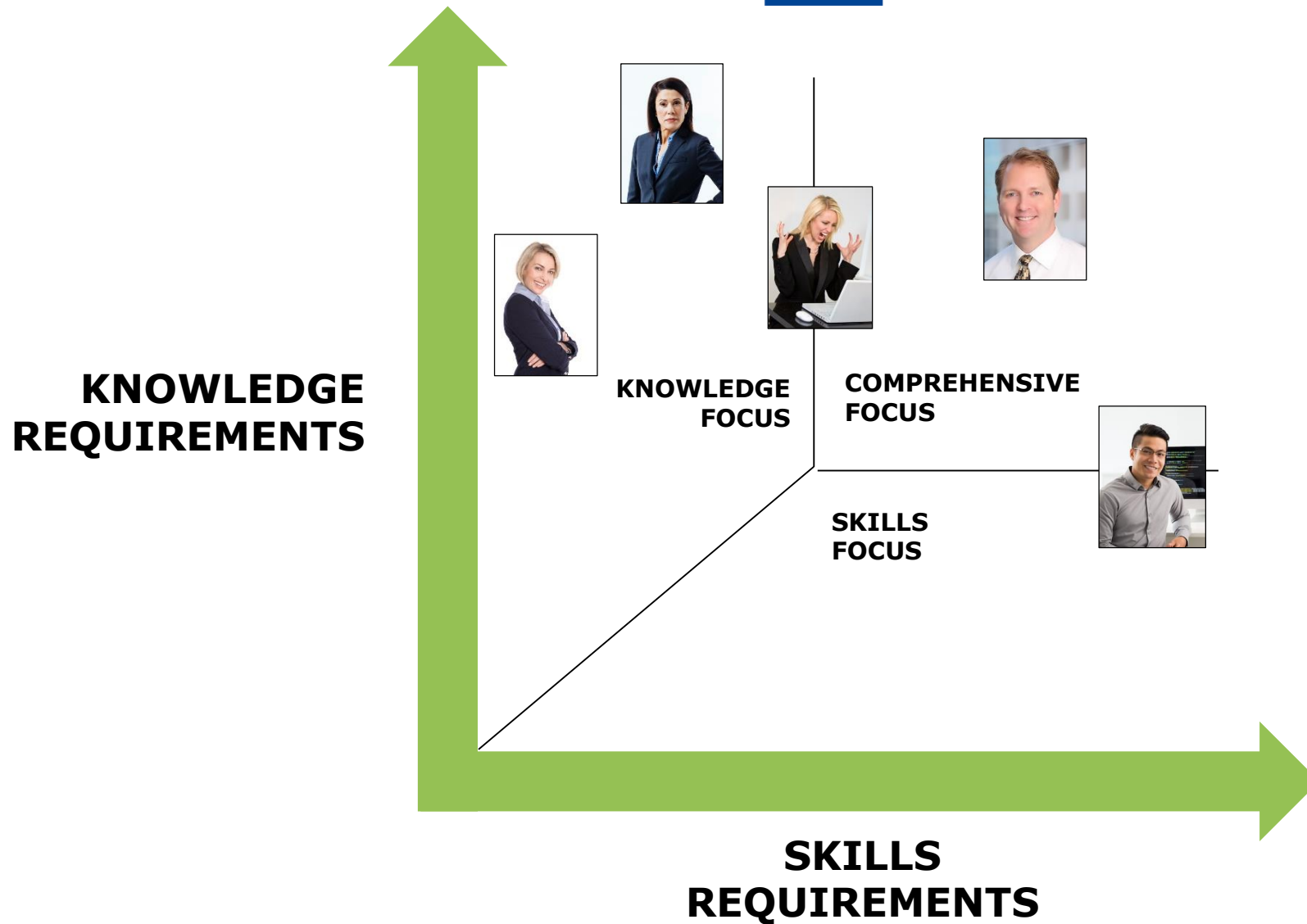
SKILL

Financial Manager

"I need to understand how I can make financial operations more efficient and less wasteful."

SKILL

KNOWLEDGE REQUIREMENTS

KNOWLEDGE FOCUS

COMPREHENSIVE FOCUS

SKILLS FOCUS

SKILLS REQUIREMENTS

Diverging

These people are able to look at things from different perspectives. They are sensitive. They prefer to watch rather than do, tending to gather information and use imagination to solve problems. They are best at viewing concrete situations from several different viewpoints.

Converging

Can solve problems and use their learning to find solutions to practical issues. They prefer technical tasks, and are less concerned with people and interpersonal aspects. Best at finding practical uses for ideas and theories. Can solve problems and make decisions by finding solutions to questions and problems.

Assimilating

Involves a concise, logical approach. Ideas and concepts are more important than people. These people require good clear explanation rather than a practical opportunity. They excel at understanding wide-ranging information and organizing it in a clear, logical format.

Accommodating

'Hands-on' and relies on intuition rather than logic. Use other people's analysis, and prefer to take a practical, experiential approach. They are attracted to new challenges and experiences, and to carrying out plans. Commonly act on 'gut' instinct rather than logical analysis.

Diverging

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There are three basic paradigms for curriculum design based on learning styles:

- o Subject-Centred
- o Learner-Centred
- o Problem-Centred

Formal, curriculum based, subject-focussed, sequenced

Learning path: subject-based

MOTIVATORS → ENGAGEMENT → CURRICULUM → CONTENT → OUTCOMES

Learning requirement →

LMS →

Subject 1

| Topic |
| Topic |

→

Course

| Module 1 | Module 2 |

Evaluation

→

| Knowledge |
| Competence |
| Certification |

PRIOR LEARNING REQUIREMENT

Subject 2

| Topic |
| Topic |

→

Course

| Module 1 | Module 2 |

Evaluation

→

| Knowledge |
| Competence |
| Certification |
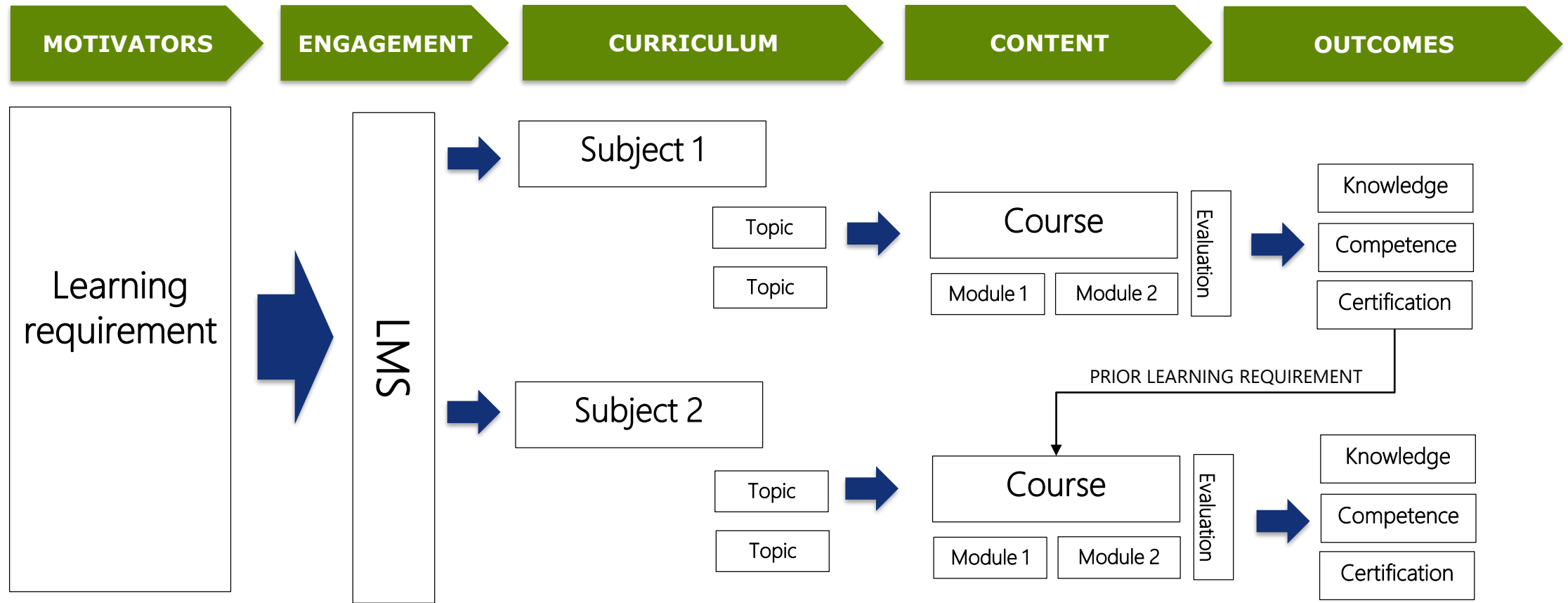
PROBLEM-BASED, LEARNER FOCUSED, NON-SEQUENTIAL

Learning path: problem-based

MOTIVATORS → ENGAGEMENT → CONTENT → OUTCOMES

Problem statement → Web Search

Topic 1 → Case study, Paper, Nano learning

Topic 2 ⇢ E-learning

Topic 3 → Specification, Forum thread, E-learning

Topic 4 → Case study

→ Application, Implementation, Collaboration
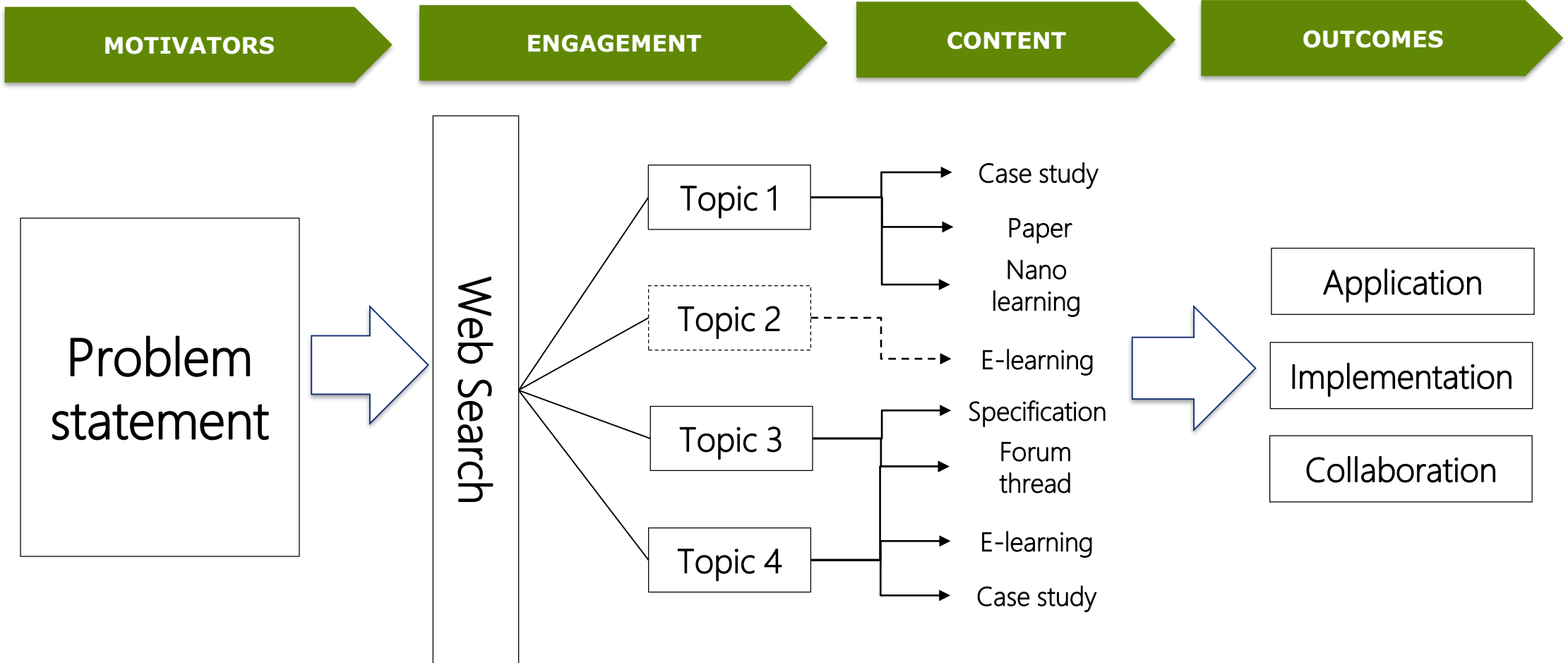
Formal, sequenced

Learning path: learner-driven

MOTIVATORS	ENGAGEMENT	METHOD	CONTENT	OUTCOMES

Personal development goals

Web Search

LMS

Community

Topic-based results → Case study, Paper, Nano learning → Application, Implementation

Curriculum search → Course (Module 1, Module 2) Evaluation → Knowledge, Competence, Certification

Professional association → TVET (Module 1, Module 2) Evaluation → Accredited qualification

Learning map

Role: Software Developer

LEARNING STYLE

Assimilating: concise, logical approach. Ideas and concepts are more important than people. Requires good clear explanation rather than a practical opportunity. Excels at understanding wide-ranging information and organizing it in a clear, logical format.

MOTIVATORS

CONTEXTUAL NEEDS
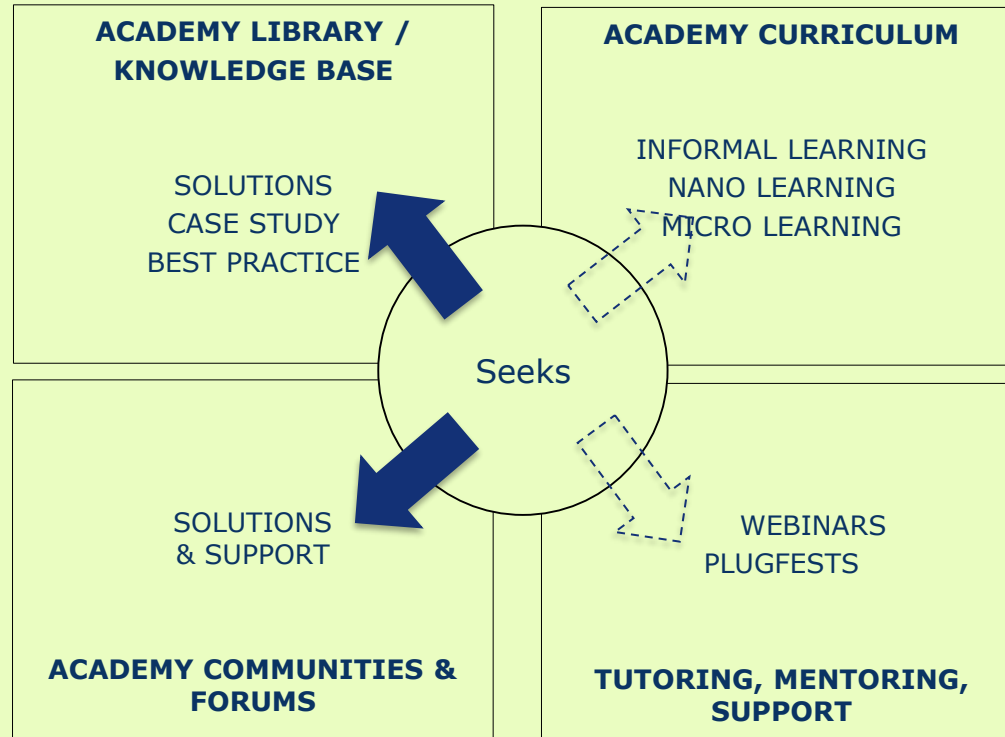Project deliverables and definitive deadlines to deliver coded solutions.

PROBLEM STATEMENT
I need to be able to implement interoperable code solutions. I need to understand the relevant standards and specifications.

PRIOR LEARNING

Experienced ICT technician, programmer.
Knowledge of computer programming, language(s)/paradigms, engineering principles, engineering processes.
Competencies include: Application Development, Component Integration, Testing, Documentation Production

LMS ENGAGEMENT

ACADEMY LIBRARY / KNOWLEDGE BASE

SOLUTIONS
CASE STUDY
BEST PRACTICE

ACADEMY CURRICULUM

INFORMAL LEARNING
NANO LEARNING
MICRO LEARNING

Seeks

SOLUTIONS
& SUPPORT

ACADEMY COMMUNITIES & FORUMS

WEBINARS
PLUGFESTS

TUTORING, MENTORING, SUPPORT

LEARNING OUTCOMES

Competencies
Positive learning outcomes are evidenced by successful implementation of code and frameworks, documented and tested.

The developer is likely to contribute back to the base of good practice with critical narrative of successful implementations.

As a social and collaborative learner, the Developer is likely to pass on skills and knowledge via peer networks, communities and fora.
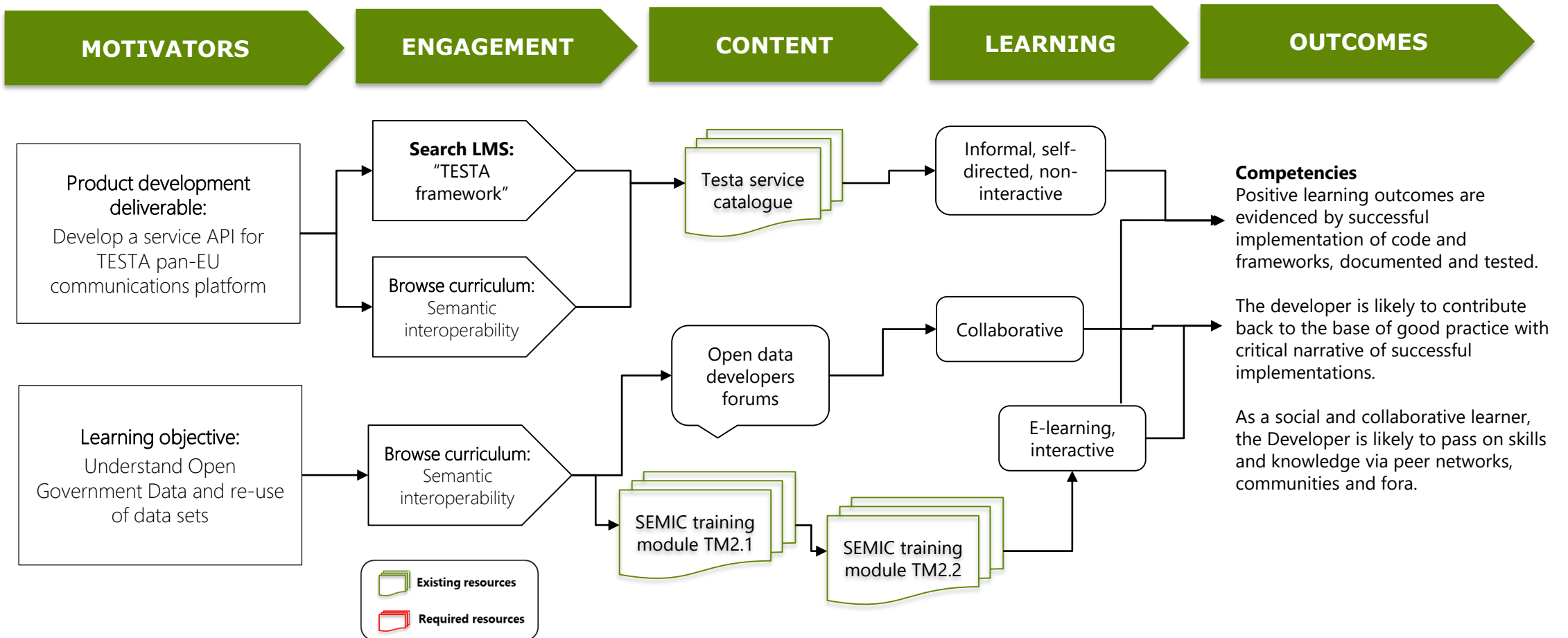
Role: Software Developer

The Developer will approach the curriculum from a needs driven basis and will look for specific learning activities that can solve work-based problems and challenges. They will look for disaggregated, short-form learning objects that can be accessed and undertaken quickly and remotely.

Learning path

PROBLEM-BASED, LEARNER FOCUSED, NON-SEQUENTIAL

| MOTIVATORS | ENGAGEMENT | CONTENT | LEARNING | OUTCOMES |

Product development deliverable:
Develop a service API for TESTA pan-EU communications platform

Search LMS:
"TESTA framework"

Browse curriculum:
Semantic interoperability

Testa service catalogue

Informal, self-directed, non-interactive

Learning objective:
Understand Open Government Data and re-use of data sets

Browse curriculum:
Semantic interoperability

Open data developers forums

SEMIC training module TM2.1

SEMIC training module TM2.2

Collaborative

E-learning, interactive

Competencies
Positive learning outcomes are evidenced by successful implementation of code and frameworks, documented and tested.

The developer is likely to contribute back to the base of good practice with critical narrative of successful implementations.

As a social and collaborative learner, the Developer is likely to pass on skills and knowledge via peer networks, communities and fora.

Existing resources

Required resources

Learning map

Role: Chief Information Officer

LEARNING STYLE

Diverging: able to look at things from different perspectives. They are sensitive. They prefer to watch rather than do, tending to gather information and use imagination to solve problems. They are best at viewing concrete situations from several different viewpoints.

MOTIVATORS

LEARNING GOALS
I want to know about industry best practice as it happens. I need to know what compliance issues my organisation faces.

INFLUENCE
I need to maintain my position of influence and authority across senior management and stakeholders.

PRIOR LEARNING

Highly **experienced** senior manager. Top-level **knowledge** of decision support systems, information architecture, information structure, markets, software architecture models Established **competencies** in IS and Business Strategy Alignment, Business Plan Development, IS Governance.

LMS ENGAGEMENT

ACADEMY LIBRARY / KNOWLEDGE BASE

White papers
Policy papers
Strategy and vision
News/updates

ACADEMY CURRICULUM

Formal and informal e-learning
JIT learning and micro

Seeks

Mentoring

ACADEMY COMMUNITIES & FORUMS

TUTORING, MENTORING

LEARNING OUTCOMES

Skills
Interoperability skills fulfil goals within the CIO's personal development plan, and contribute to their professional portfolio. Certification and evidence of learning is likely to be important.

Competencies
Successful learning outcomes will enable the CIO to implement key organisational requirements such as industry and legislative compliance.

Knowledge
Increased knowledge about strategic imperatives of interoperability, industry best practice and market structure enables authoritative contribution to senior management team and organisation governance.
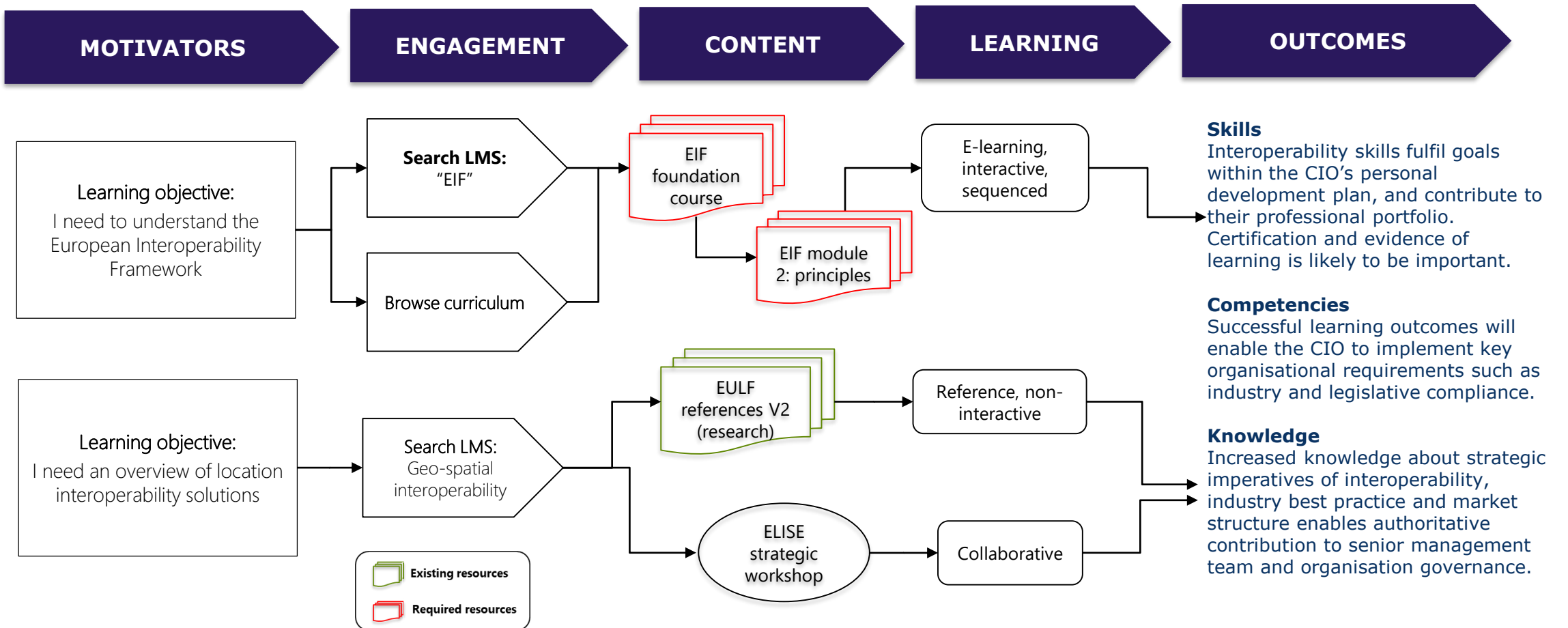
Role: Chief Information Officer

Learning path

LEARNING STYLE

Diverging: able to look at things from different perspectives. They are sensitive. They prefer to watch rather than do, tending to gather information and use imagination to solve problems. They are best at viewing concrete situations from several different viewpoints.

CONTEXT-DRIVEN, FORMAL, SEQUENTIAL

MOTIVATORS → **ENGAGEMENT** → **CONTENT** → **LEARNING** → **OUTCOMES**

Learning objective:
I need to understand the European Interoperability Framework

Search LMS: "EIF"

Browse curriculum

EIF foundation course

EIF module 2: principles

E-learning, interactive, sequenced

Skills
Interoperability skills fulfil goals within the CIO's personal development plan, and contribute to their professional portfolio. Certification and evidence of learning is likely to be important.

Competencies
Successful learning outcomes will enable the CIO to implement key organisational requirements such as industry and legislative compliance.

Learning objective:
I need an overview of location interoperability solutions

Search LMS: Geo-spatial interoperability

EULF references V2 (research)

Reference, non-interactive

ELISE strategic workshop

Collaborative

Knowledge
Increased knowledge about strategic imperatives of interoperability, industry best practice and market structure enables authoritative contribution to senior management team and organisation governance.

Existing resources

Required resources

Learning map

Role: Systems Architect

LEARNING STYLE

Converging Can solve problems and use learning to find solutions to practical issues. Prefer technical tasks, and are less concerned with people and interpersonal aspects. Best at finding practical uses for ideas and theories.

MOTIVATORS

LEARNING GOALS
I want to know how interoperability standards will affect systems design. I need to be able to design interoperable frameworks.

CURRENCY
Keeping up with industry best practice and tech innovation. Maintaining awareness of industry standards.

PRIOR LEARNING

Experienced programmer and systems developer.
Knowledge of business process modelling, database development tools hardware platforms, systems. development life-cycle systems theory
Competencies architecture Design, component integration, systems engineering.

LMS ENGAGEMENT

ACADEMY LIBRARY / KNOWLEDGE BASE

Solutions
Case study
Best practice
White papers
Policy papers

ACADEMY CURRICULUM

Learner-driven
Formal and informal e-learning
JIT learning and micro

Seeks

Solutions & support
Developer communities
Special interest groups

ACADEMY COMMUNITIES & FORUMS

Mentoring
1:1 engagements

TUTORING, MENTORING

LEARNING OUTCOMES

Competencies
Positive learning outcomes are evidenced by successful implementation of systems frameworks, documented and tested.

Skills
Successful learning experiences will lead to a portfolio of areas of specialism.

Knowledge
Strategic learning and training will take the SA in a more strategic direction and towards leadership positions. Certification and evidence of learning is likely to be important.
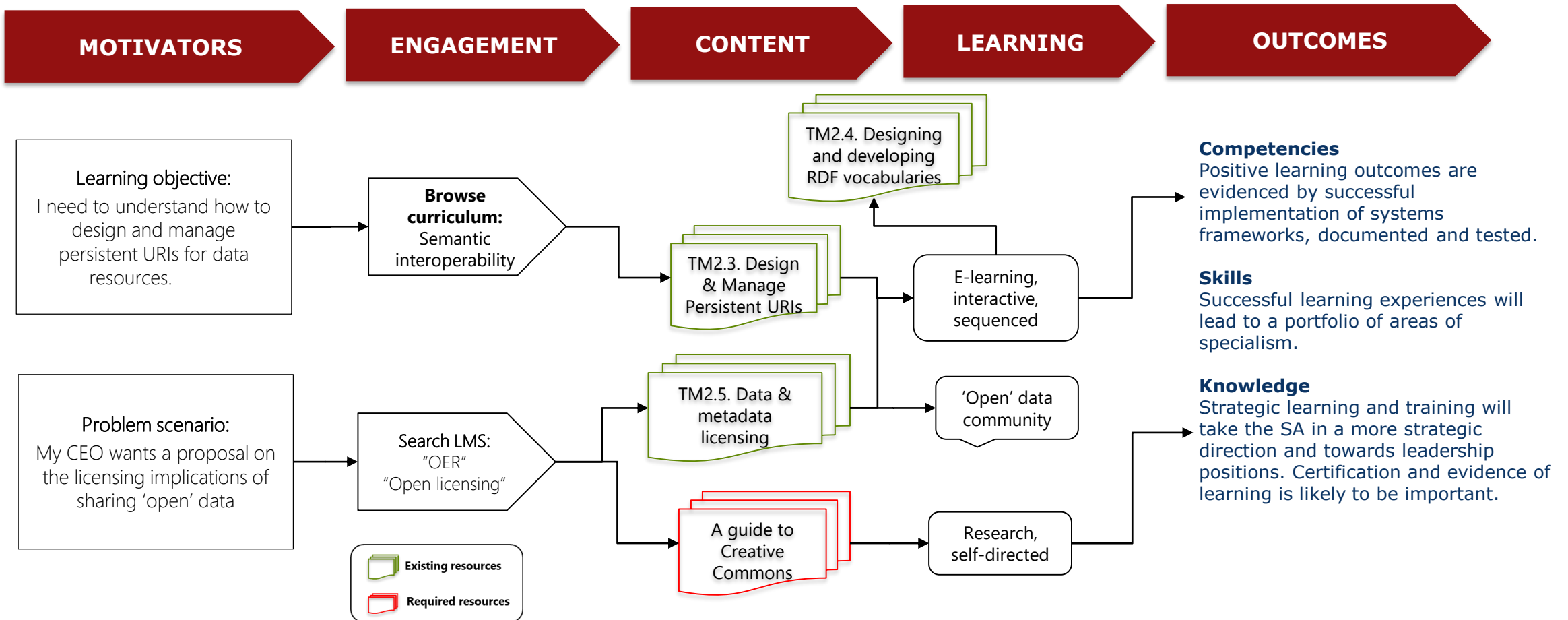
Learning map

Role: Policy Manager

LEARNING STYLE

Diverging: able to look at things from different perspectives. They prefer to watch rather than do, tending to gather information and use imagination to solve problems.
Converging Can solve problems and use learning to find solutions to practical issues. Prefer technical tasks, and are less concerned with people and interpersonal aspects.

MOTIVATORS

WORK CONTEXT
I want to know how interoperability affects my organisational vision. I need to know the policy requirements.
LEARNING GOALS
I need a top level guide to the interoperability standards that will affect organisational planning.

PRIOR LEARNING

Experienced business analyst and planner.
Knowledge of business process modelling, marketing processes, operations processes, quality standards risk management
Competencies Problem management, Relationship management, Business change management.

LMS ENGAGEMENT

ACADEMY LIBRARY / KNOWLEDGE BASE

Solutions
Best practice
White papers
Policy papers

ACADEMY CURRICULUM

Learner-driven/informal
Formal e-learning
JIT learning and micro

Seeks

ACADEMY COMMUNITIES & FORUMS

TUTORING, MENTORING

LEARNING OUTCOMES

Knowledge
Successful learning experiences will be evidenced by a wider knowledge of interoperability as a concept, and specific interoperability standards and frameworks that affect organisational policy.

Competencies
The Policy Manager will be able to discuss interoperability standards in an authoritative way, in papers and in discussions with senior managers.
The Policy Manager will be able to reference specific standards and frameworks that are relevant to organisational vision and strategy.
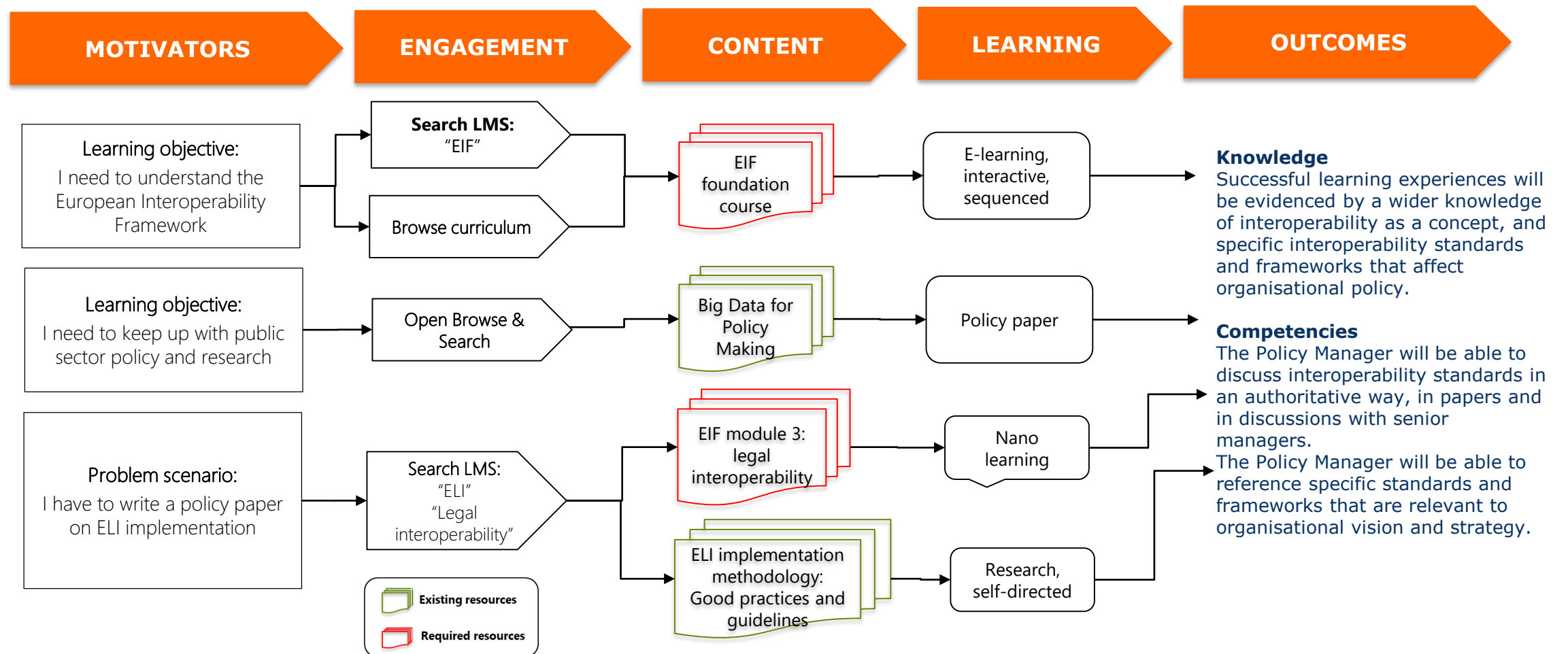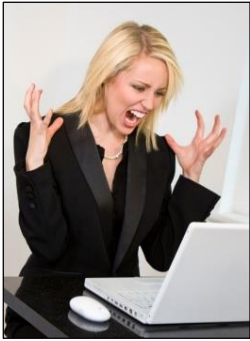
Learning map

Role: Project Manager

LEARNING STYLE

Accommodating 'Hands-on' and relies on intuition rather than logic. Use other people's analysis, and prefer to take a practical, experiential approach. They are attracted to new challenges and experiences, and to carrying out plans. Commonly act on 'gut' instinct rather than logical analysis.

MOTIVATORS

WORK CONTEXT
I want to know the technology priorities for project success.

LEARNING GOALS
I need to understand 'interoperability'.
I need to be able to speak the language.

PRIOR LEARNING

Experienced team worker, project analyst, risk manager.
Knowledge project management methodology, change management, budget management tools, project management tools.
Competencies Product/Service Planning, Project and Portfolio Management, Risk Management, Relationship management.

LMS ENGAGEMENT

ACADEMY LIBRARY / KNOWLEDGE BASE

Case study
Research

ACADEMY CURRICULUM

Formal e-learning
JIT learning and micro

Seeks

Mentoring

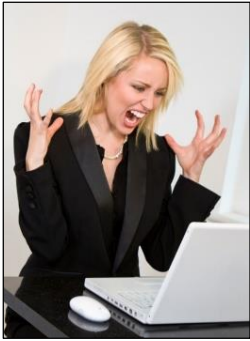**ACADEMY COMMUNITIES & FORUMS**

TUTORING, MENTORING

LEARNING OUTCOMES

Knowledge
Successful learning experiences will be evidenced by a wider knowledge of interoperability as a concept, and confidence that the Project Manager can discuss concepts with specialists.

Competencies
The Project Manager will be able to use knowledge and understanding of interoperability to create practical project plans with realistic objectives.
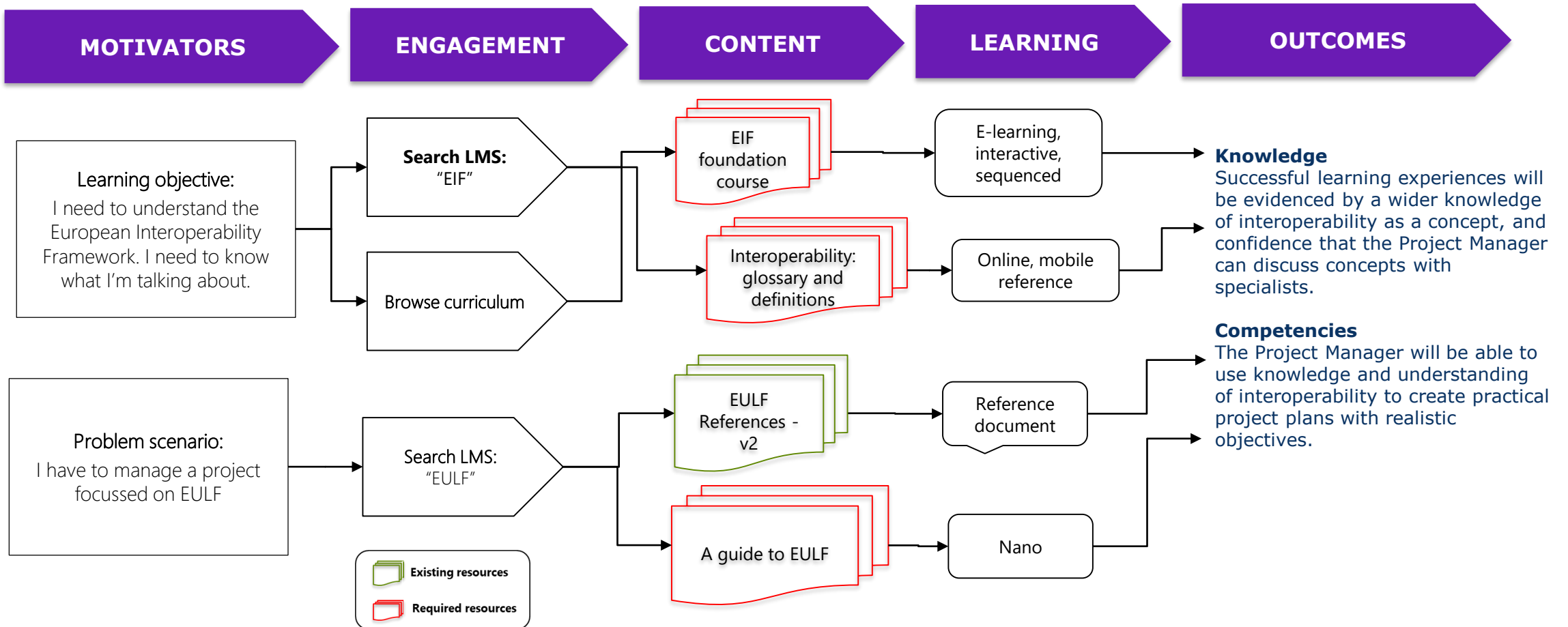
Role: Project Manager

LEARNING STYLE

Accommodating 'Hands-on' and relies on intuition rather than logic. Use other people's analysis, and prefer to take a practical, experiential approach. They are attracted to new challenges and experiences, and to carrying out plans. Commonly act on 'gut' instinct rather than logical analysis.

Learning path

CONTEXT DRIVEN, FORMAL, MICRO

MOTIVATORS	ENGAGEMENT	CONTENT	LEARNING	OUTCOMES

Learning objective:
I need to understand the European Interoperability Framework. I need to know what I'm talking about.

Search LMS: "EIF"

Browse curriculum

EIF foundation course

Interoperability: glossary and definitions

E-learning, interactive, sequenced

Online, mobile reference

Knowledge
Successful learning experiences will be evidenced by a wider knowledge of interoperability as a concept, and confidence that the Project Manager can discuss concepts with specialists.

Competencies
The Project Manager will be able to use knowledge and understanding of interoperability to create practical project plans with realistic objectives.

Problem scenario:
I have to manage a project focussed on EULF

Search LMS: "EULF"

EULF References - v2

A guide to EULF

Reference document

Nano

Existing resources

Required resources

Learning map

Role: Public Administration Manager

MOTIVATORS

WORK CONTEXT
I want to know how interoperability can help me make public services more efficient.

LEARNING GOALS
I need a top level guide to the interoperability standards that will help me join up systems and services.

PRIOR LEARNING

Experienced in the design and delivery of pubic services.

Knowledge of government and public policy implementation, legislation procedure, accounting techniques project management principles.

Competencies stakeholder engagement, financial stewardship, staff & resource management.

LMS ENGAGEMENT

ACADEMY LIBRARY / KNOWLEDGE BASE

Policy papers
Best practice
White papers
News & updates

ACADEMY CURRICULUM

Learner-driven/informal
Formal e-learning

Seeks

Peer networks across public services
Best practice and insights

ACADEMY COMMUNITIES & FORUMS

Mentoring
Remote tutoring

TUTORING, MENTORING

LEARNING OUTCOMES

Knowledge
Successful learning experiences will be evidenced by a wider knowledge of interoperability as a concept, and specific interoperability standards and frameworks that affect public policy implementation and create system-wide efficiencies.

Competencies
The Public Administration Manager will be able to apply relevant interoperability principles to the development of policy and the design of civil/public systems and services.

They will be able to reference specific principles, standards and frameworks that are relevant to the development of public administration vision and strategy.
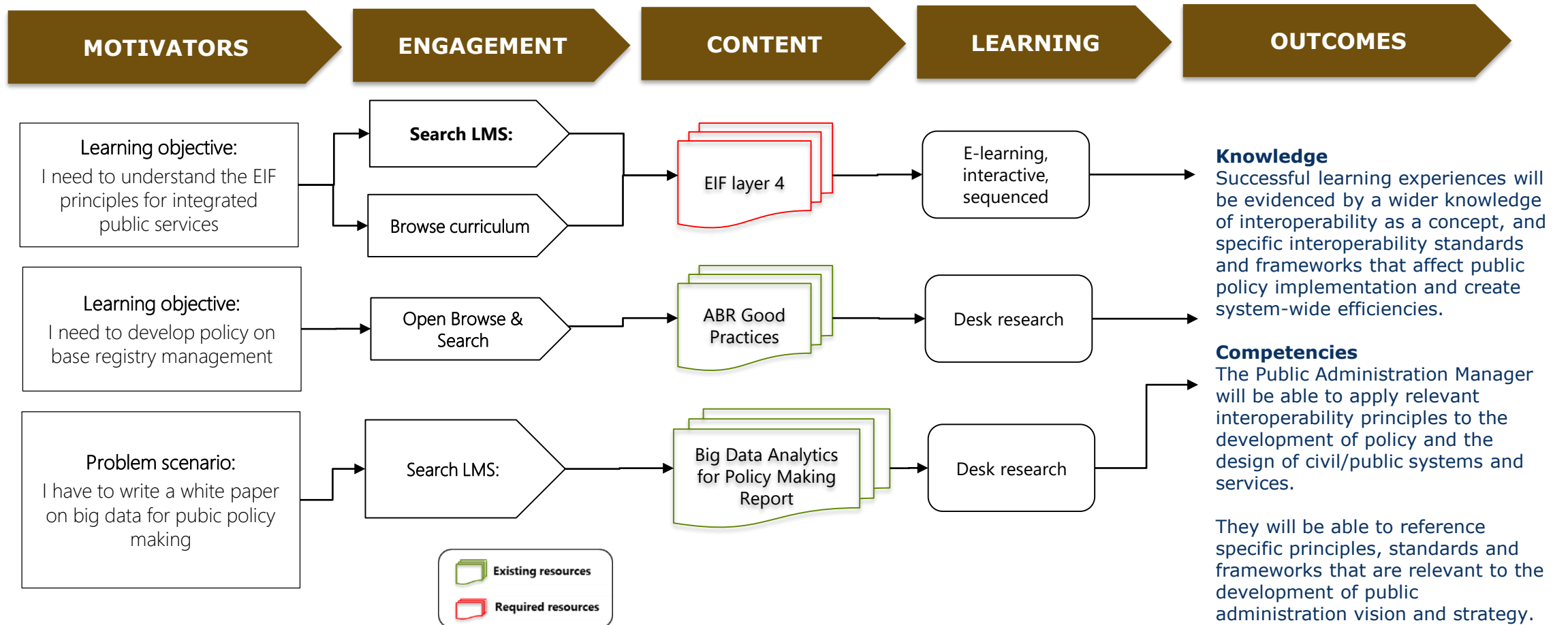
Learning path

Role: Public Administration Manager

LEARNING STYLE

Accommodating 'Hands-on' and relies on intuition rather than logic. Use other people's analysis, and prefer to take a practical, experiential approach. They are attracted to new challenges and experiences, and to carrying out plans. Commonly act on 'gut' instinct rather than logical analysis.

LEARNER-DRIVEN, FORMAL AND INFORMAL LEARNING REQUIREMENTS

MOTIVATORS	ENGAGEMENT	CONTENT	LEARNING	OUTCOMES

Learning objective:
I need to understand the EIF principles for integrated public services

- Search LMS:
- Browse curriculum

EIF layer 4 → E-learning, interactive, sequenced

Learning objective:
I need to develop policy on base registry management

Open Browse & Search → ABR Good Practices → Desk research

Problem scenario:
I have to write a white paper on big data for pubic policy making

Search LMS: → Big Data Analytics for Policy Making Report → Desk research

Existing resources
Required resources

Knowledge
Successful learning experiences will be evidenced by a wider knowledge of interoperability as a concept, and specific interoperability standards and frameworks that affect public policy implementation and create system-wide efficiencies.

Competencies
The Public Administration Manager will be able to apply relevant interoperability principles to the development of policy and the design of civil/public systems and services.

They will be able to reference specific principles, standards and frameworks that are relevant to the development of public administration vision and strategy.

Learning map

Role: Town/City Councillor

LEARNING STYLE

Diverging: able to look at things from different perspectives. They are sensitive. They prefer to watch rather than do, tending to gather information and use imagination to solve problems. They are best at viewing concrete situations from several different viewpoints.

MOTIVATORS

LEARNING GOALS: I need top-level insights into interoperability for integrated public services. I need an overview of EIF.

DECISION-MAKING: I need rapid and JIT learning into specific areas of interoperability governance to support decision-making.

PRIOR LEARNING

Town/city Councillors may come from a variety of backgrounds, with a variety of different skills, competencies and qualifications.

Digital competencies will vary, and may be basic.

Town/city Councillors will have established skills and experience in areas such as community relations and local legislation.

LMS ENGAGEMENT

ACADEMY LIBRARY / KNOWLEDGE BASE

Policy papers
Research
Strategy and vision

ACADEMY CURRICULUM

JIT learning and micro
Formal and informal e-learning

Seeks

ACADEMY COMMUNITIES & FORUMS

TUTORING, MENTORING

LEARNING OUTCOMES

Competencies
Successful learning outcomes will enable the Town/city Councillors to lobby, advise and facilitate local and regional legislation, develop policy based on open governance principles and integrated public services.

Knowledge
Knowledge outcomes will include strategic imperatives of interoperability in public/civil decision-making, knowledge of how interoperability principles affect organisational structures, roles and responsibilities and the decision-making process.

Town/city Councillors should also be able to apply knowledge outcomes to improved relationships between service providers and service consumers.
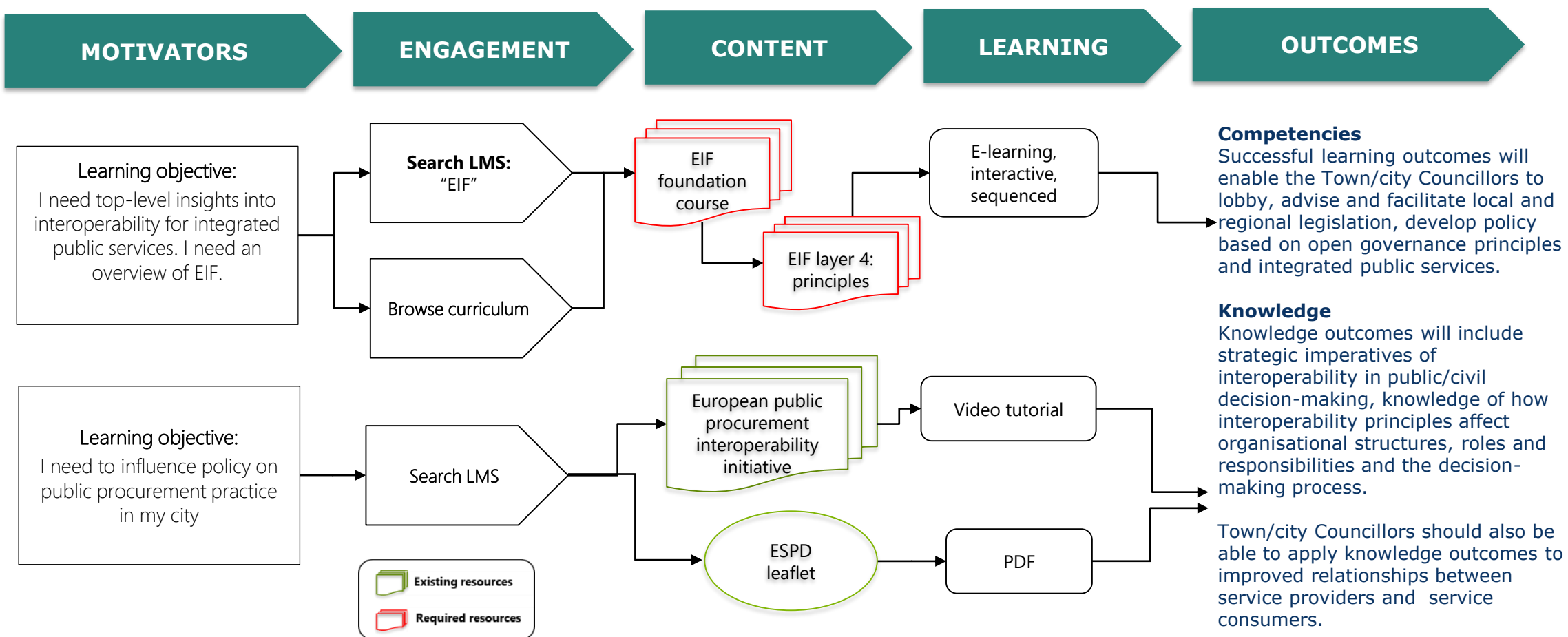
Learning map

Role: Legal Advisor

LEARNING STYLE

Converging Can solve problems and use learning to find solutions to practical issues. Prefer technical tasks, and are less concerned with people and interpersonal aspects. Best at finding practical uses for ideas and theories.

MOTIVATORS

LEARNING GOAL
I need to understand 'interoperability' and how it can ensure harmony between different legal frameworks, policies and strategies.

LEARNING GOAL
I need to be able to speak with authority on interoperability as it relates to legal issues.

PRIOR LEARNING

Experienced team worker, legal consultant, risk manager.
Knowledge business, civil, contract, corporate law, court procedures, legal case management, legal research.
Competencies advising on legal decisions, analysing enforceability, compiling legal documents, ensuring law application, good digital skills and competencies.

LMS ENGAGEMENT

ACADEMY LIBRARY / KNOWLEDGE BASE

Legal precedent
Case study and research

ACADEMY CURRICULUM

Formal and informal e-learning

Seeks

Peer groups and communities

Mentoring

ACADEMY COMMUNITIES & FORUMS

TUTORING, MENTORING

LEARNING OUTCOMES

Knowledge
Successful learning experiences will be evidenced by a wider knowledge of interoperability as it relates to the application of law and legal principles.

Knowledge will be evidenced by a deeper knowledge of the implications of interoperability barriers (data licence models, over-restrictive legal obligations, contradictory requirements for business processes, outdated security and data protection needs, etc).

Competencies
The Legal Advisor will be able to use knowledge and understanding of legal interoperability to support legal advice and decision-making, analysis of enforceability, compiling legal documents, ensuring law application.
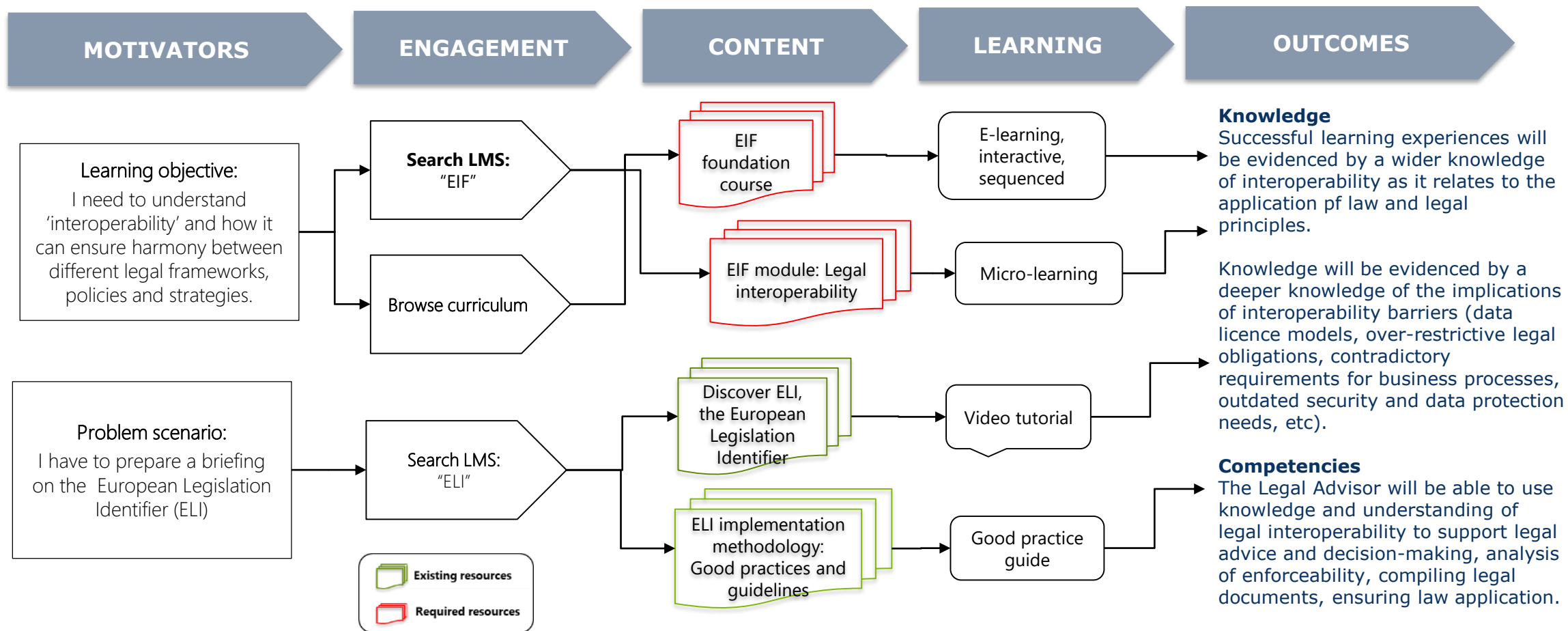
ISA² programme
You click, we link!

Stay in touch: **ec.europa.eu/isa2** or **Joinup.ec.europa.eu**

@ EU_isa2 + @ joinup_eu   **IOP-ACADEMY@ec.europa.eu**

Run by the Interoperability Unit at DIGIT (European Commission) with 131€M budget, the ISA² programme provides public administrations, businesses and citizens with specifications and standards, software and services to reduce administrative burdens.