

MI toolset to support evidence-based decisions for Defence Evaluation Capabilities

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- Operational Analysis Consultant
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- Previous roles in internet software and FMCG
- MChem Chemistry

Introduction

- Upwards of £1bn spent on T+E capabilities
- Timely and effective decisions must be made
- MOD sponsoring an activity to develop a software toolset
- How can we reconcile very large datasets with COTS
- Data availability and maturity
- Enabling confidence in decisions made



Client and Project Overview

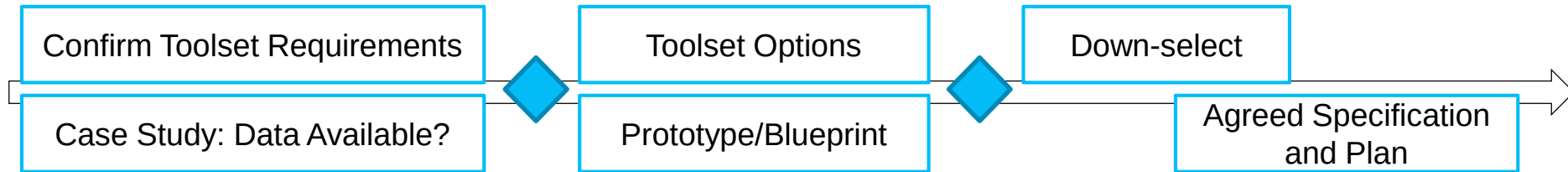
Dstl and FMC WECA

- (Test &) Evaluation Capabilities
- Future Evaluation Requirements
- Status of Evaluation Capabilities
- Strategic investments and opportunities
- Pan defence programmes

Scope of Work

- Design and develop a Management Information Toolset to support Decision Makers
- Host and use by MOD (FMC WECA)
- Populate with data
- Highlight confidence
- Support ongoing reviews

QinetiQ approach to the project: Phase 1: Design



Toolset Requirements

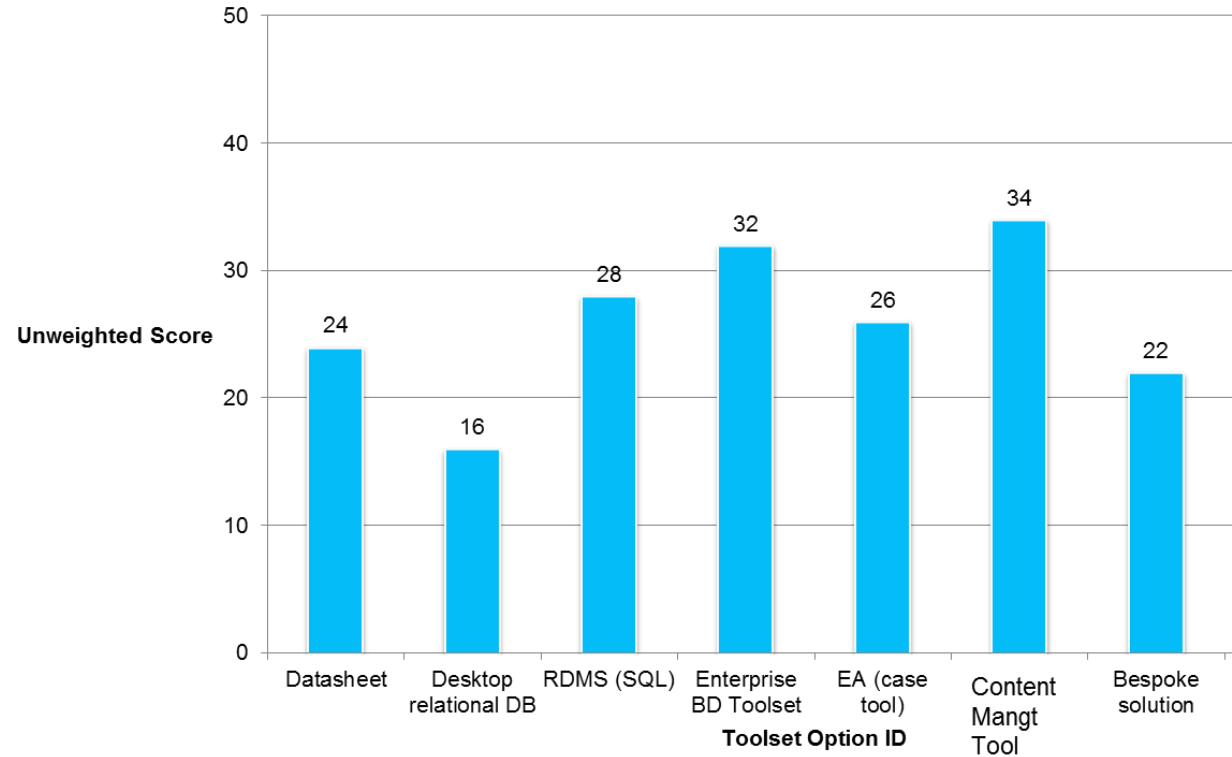
- Bounding Assumptions
- Analytical Use Cases
- IT Requirements
- # End Users
- Classification
- Others....

Toolset Options

1. Datasheet (Excel)
2. Desktop Relational Database (Access)
3. Relational Database Management System (SQL Server)
4. Enterprise Business Development Tool (MooD 15)
5. Enterprise Architecting Tool (MEGA, Rational System Architect)
6. Enterprise Content Management Tool (SharePoint)
7. Bespoke (ASP.NET, C#)

Down-Select Evaluation Scores

Evaluation Criteria	General compliance
	Delivers use cases
	Broader Opportunities
	User burden
	Data burden
	Flexibility to change
	Development effort
	Through life support

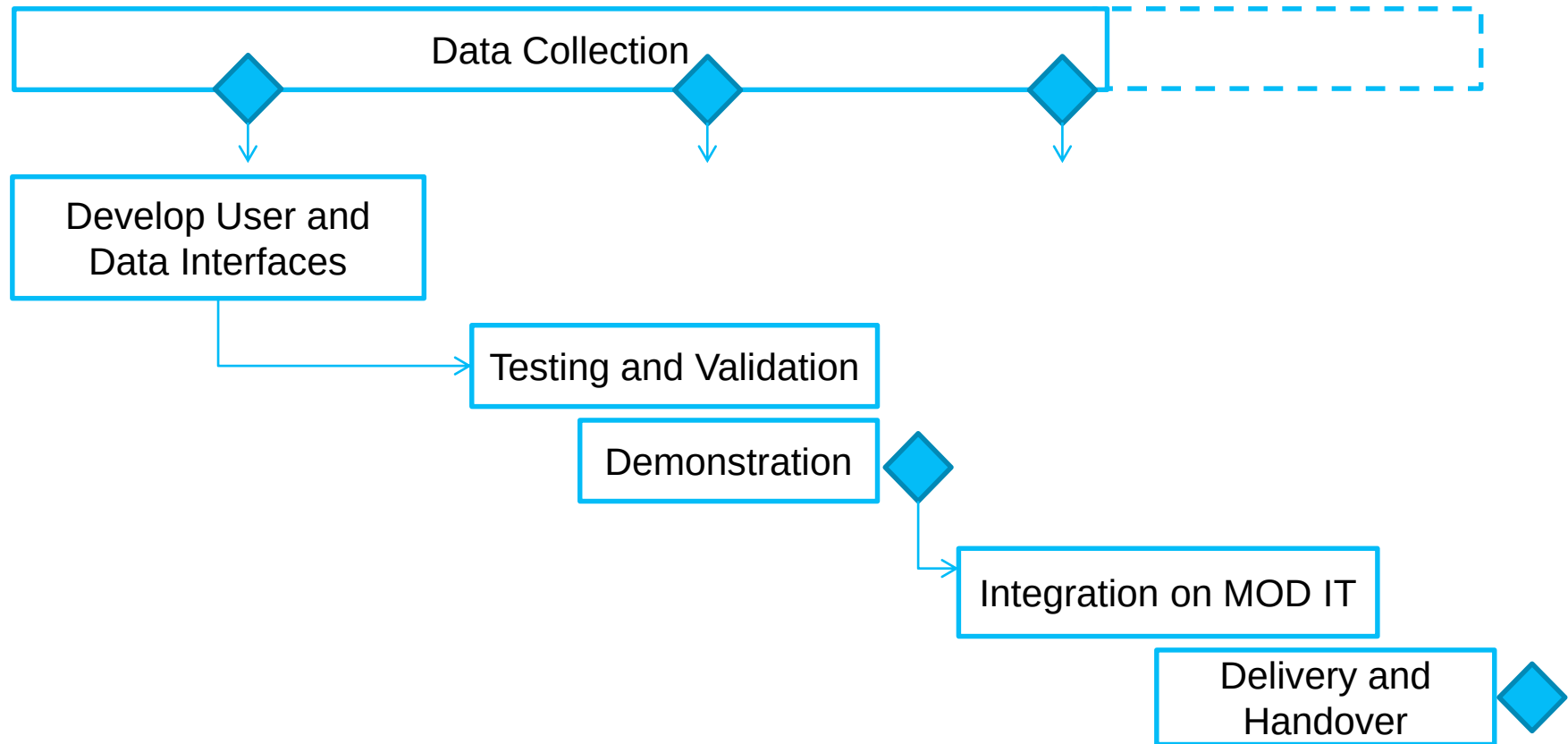


Down-Select Result

- Based on the evaluation scores, 2 options suggested themselves
- **MooD 15** became the preferred option



QinetiQ approach to the project: Phase 2: Develop and deliver

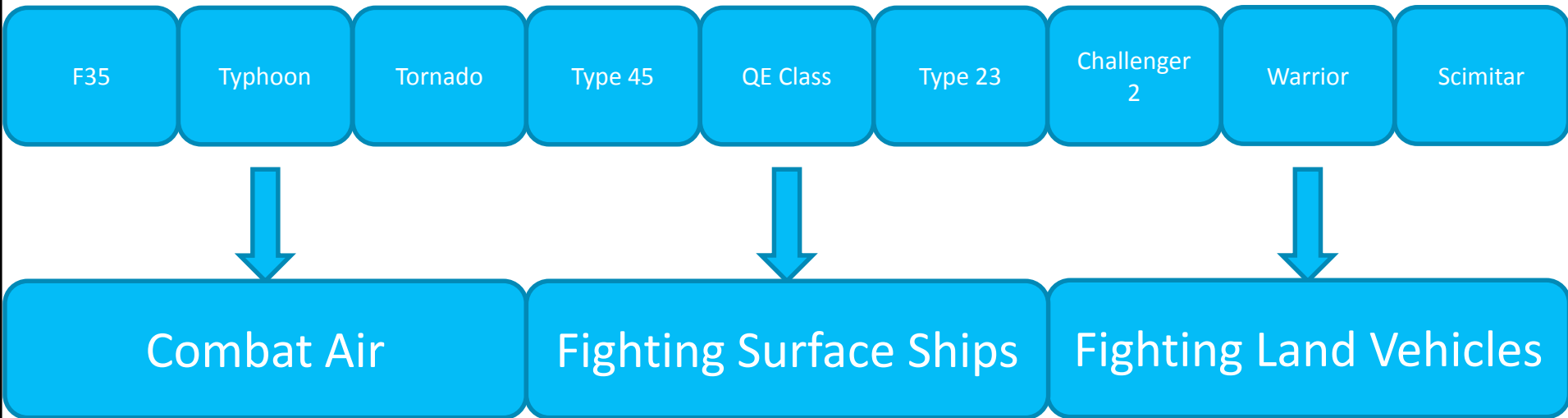


Toolset Data

- Hundreds of military programmes to reconcile
- Is there a way we could make our lives easier?
- **GSR** – Generic System Representation



Toolset Data - Generic System Representations

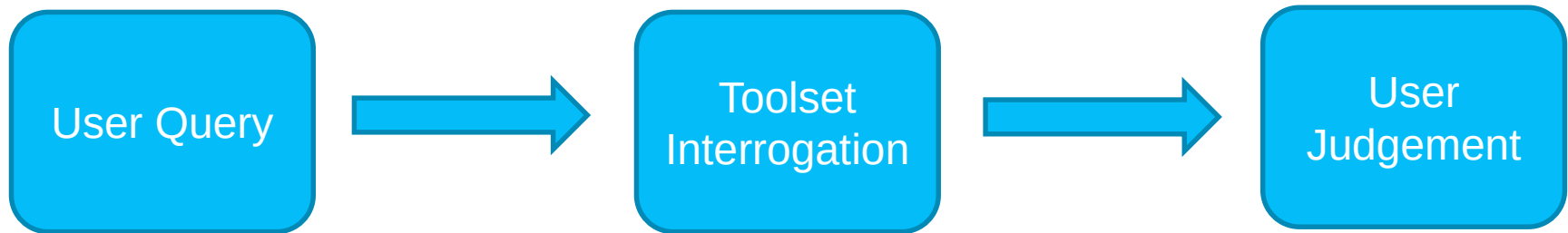


- 200+ military programmes represented by 21 GSR

Toolset Construct

1. Defence Programmes	2. Evaluation Requirements	3. Evaluation Major Assets Classes	4. Specific Evaluation Providers	5. Status of Evaluation Assets	6. Investment Plans
Type of Data Current Committed And Future	Integrated System and S of S activities (Safety, Compliant, Fit for Purpose)	List of the main assets needed for evaluation - "performance metrics"	Capture main providers of evaluation assets	Status report, metrics, availability, obsolescence, risks etc.	Set of investment opportunities per each asset
Sources of Data DE&S and Command Plans – Genesis Options, R&T etc.	GSR + augmented or unique elements, Standards etc.	GSR, ITEAP and SME guidance on elements used in evaluation	Filtered T&E Catalogue, LTPA, CATS, MSCA, NCSISS and other major contracts	Routine programme reports or specific investigation	Routine programme reports or specific investigation
Simple Example Air to Surface Weapon	Environmental evaluation, JSP "999"	Environmental Test Chamber (ETC) -50 to +50 deg c	LTPA (Boscombe Down)	Status Report	Investment Plan

Toolset Method of Use

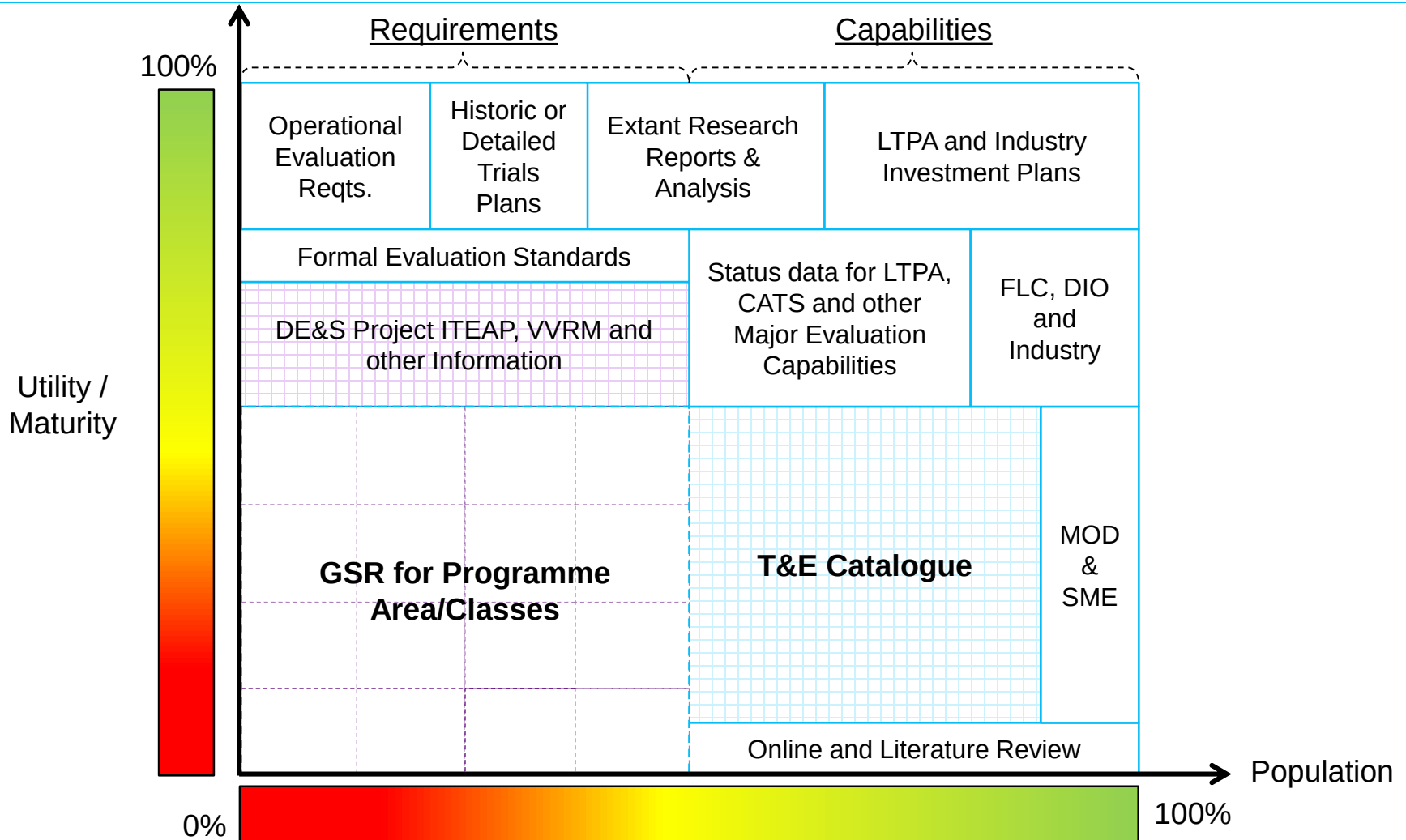


- Not a “black box” optimiser...
- Toolset displays the “raw facts” and prompts where further analysis may be required
- User judgement key – avoid “Sat-Nav Syndrome”

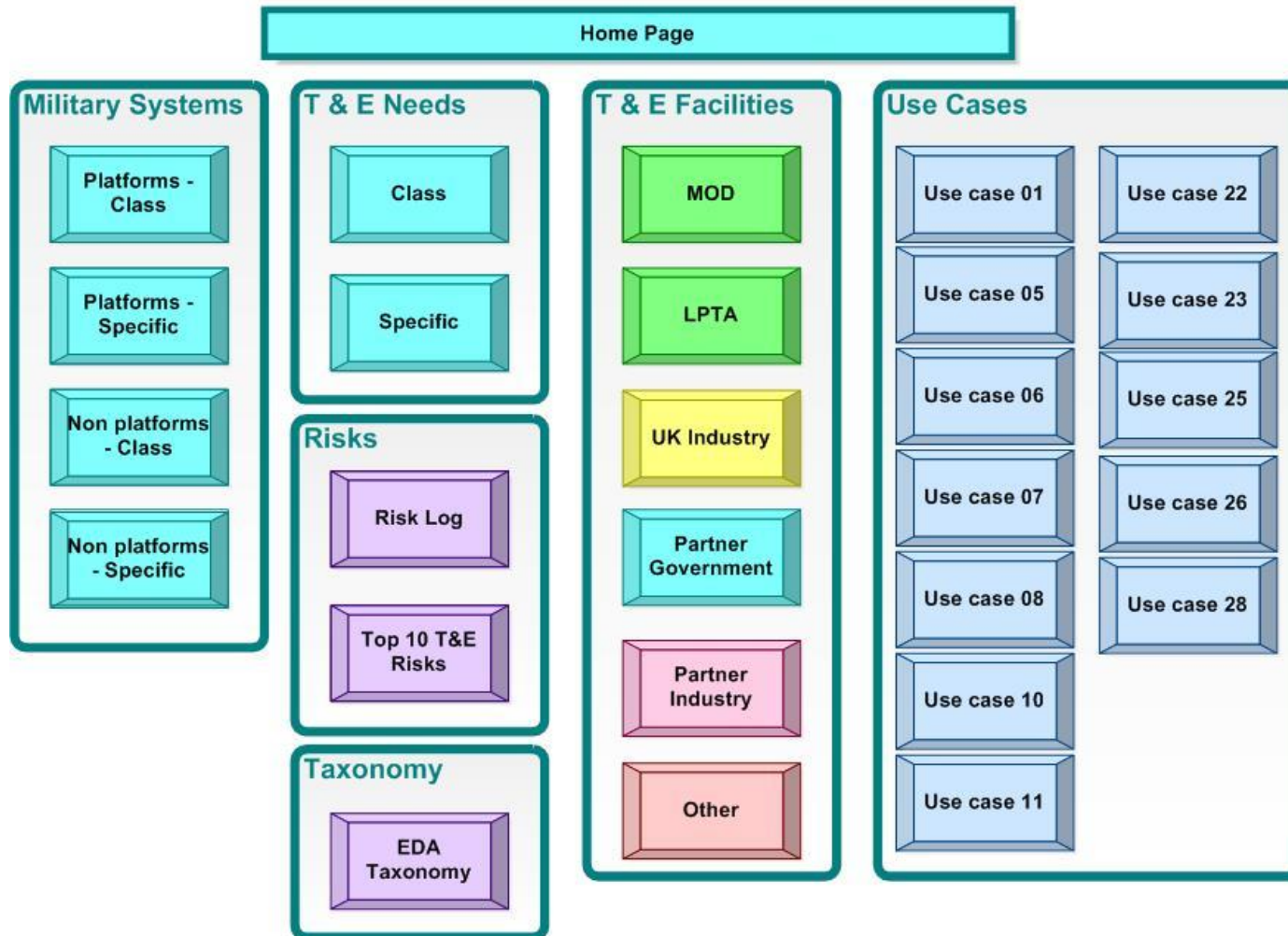
Data Maturity

Class 1	Class 2	Class 3	Class 4	Class 5
Detailed Trials and Evaluations plan	Detailed ITEAP	Relevant ITEAP, but slightly lacking	Data from a similar/analogous programme	Rough estimate from SME
<6 months	<12 months	<12 months	<5 years	>5 years
Complete, with dependencies and options	Complete, related to programme	Linked to programme, but not complete	Passing references to programme	No link to overarching programme requirements

Toolset Data



Toolset – Prototype Front Page



Toolset – Now and the future...



- Continue to increase breadth and depth of data
- Further develop functionality to answer the “exam questions”
- Increase usability and performance of the toolset

Summary of Challenges and Success

Simple but powerful toolset

- Balance granularity/abstraction with data burden and delivering useful analysis
- Avoid attempts to integrate “live/dynamic” interfaces with other tools

Data Availability and Maturity

- Broad, full data set that can be enriched and enhanced

Increase Confidence of Decision Maker

- Data maturity scales
- Avoided black box logic or mathematics

Integration onto MOD IT

- Considered as part of toolset design and down-selection
- Authority has helpers

Lessons learned and shared

<u>Phased approach:</u>	Set the bar high, but manage reality
<u>Explore options:</u>	Conduct prototype activities and review
<u>Stakeholder engagement:</u>	Active user involvement during design and development
<u>Data:</u>	Is always a risk
<u>Reuse existing work:</u>	Previous research and data sets
<u>Keep it simple:</u>	Build confidence in smaller data sets
<u>Flexibility:</u>	Be prepared to consider refinement of approach

Questions?



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