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Personal Test Maturity Matrix

- the individual's way forward

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The PTMM is a 'Straw Man' with the objective of

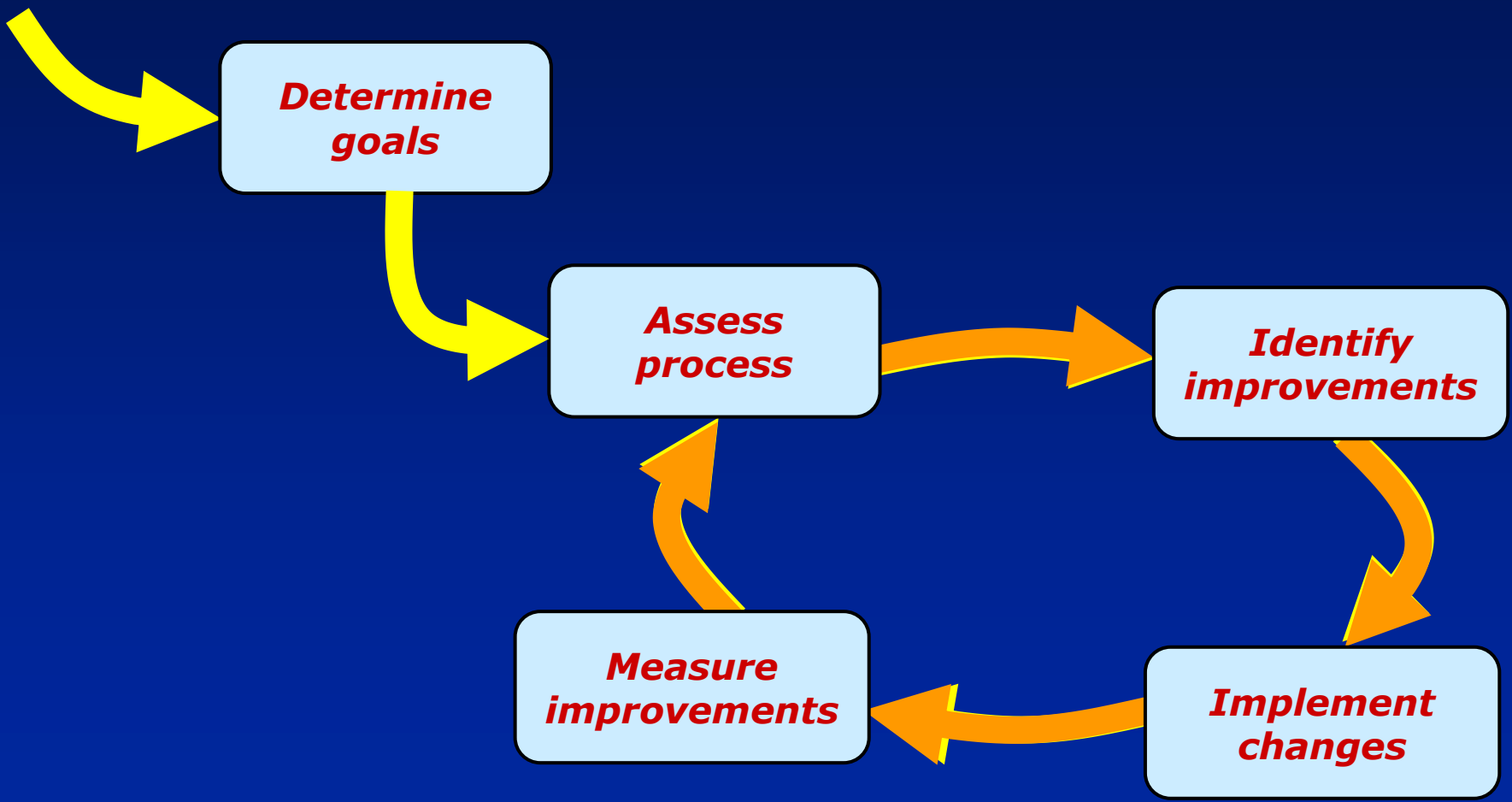
WARNING

generating discussion and provoking the generation of an improved proposal

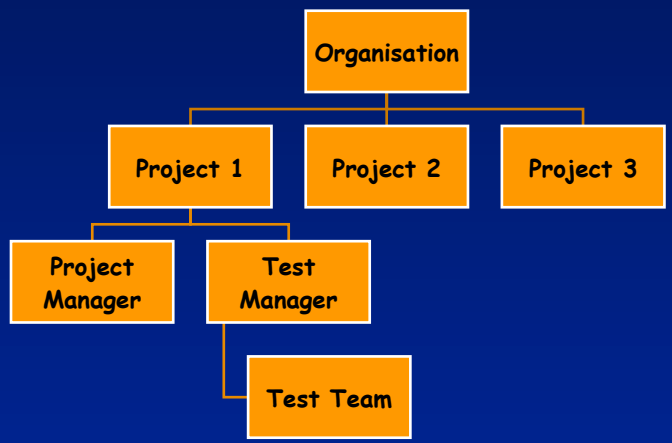
Scope

- Introduction to the Personal Test Maturity Matrix (PTMM)
  - progression for the individual tester rather than the organization
- Identification of the core testing skills required of a professional software tester
  - and how these skills are combined to enable the fulfillment of testing roles
- A 4-D model of tester skills beyond pure testing-specific abilities

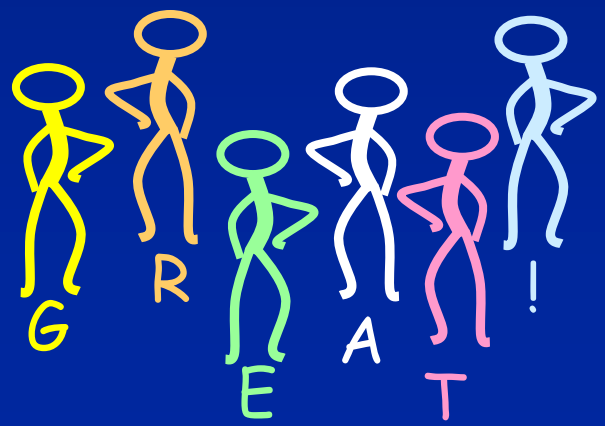
Test Process Improvement - I



Test Process Improvement - II



The typical lowest level 'improvement' is ensuring the correct mix of test roles is available



But, what about

YOU!

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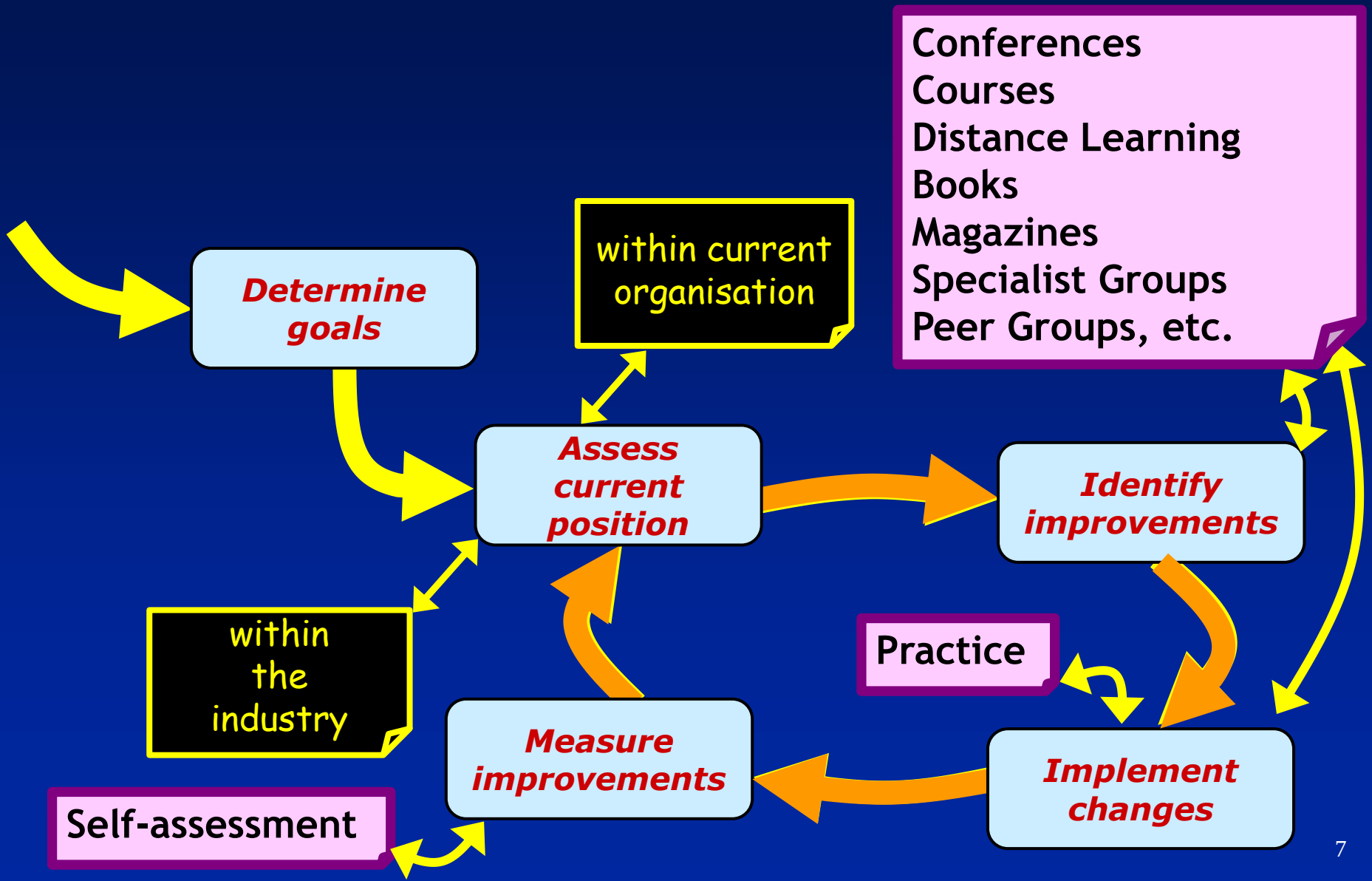
Personal Improvement



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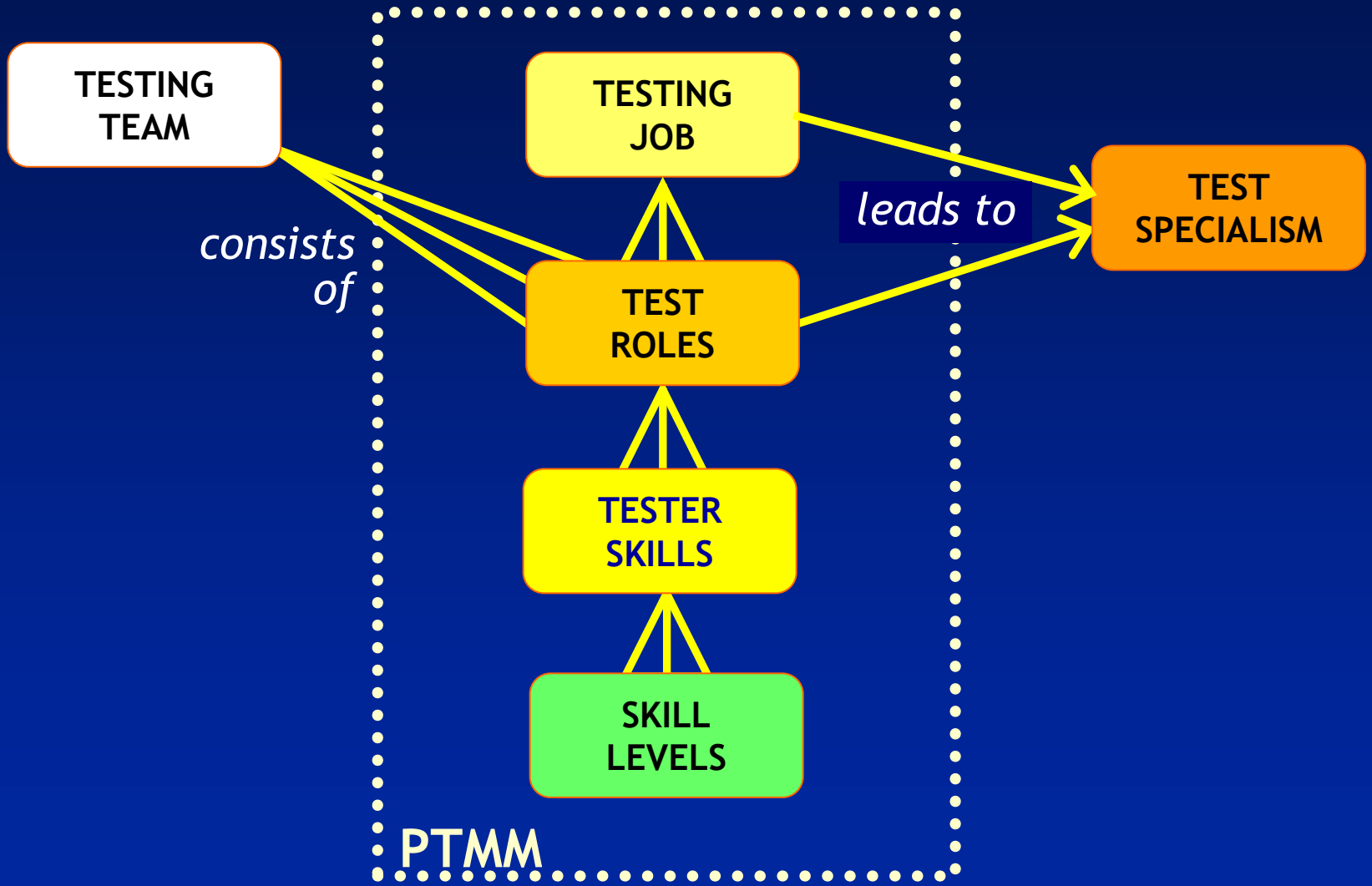
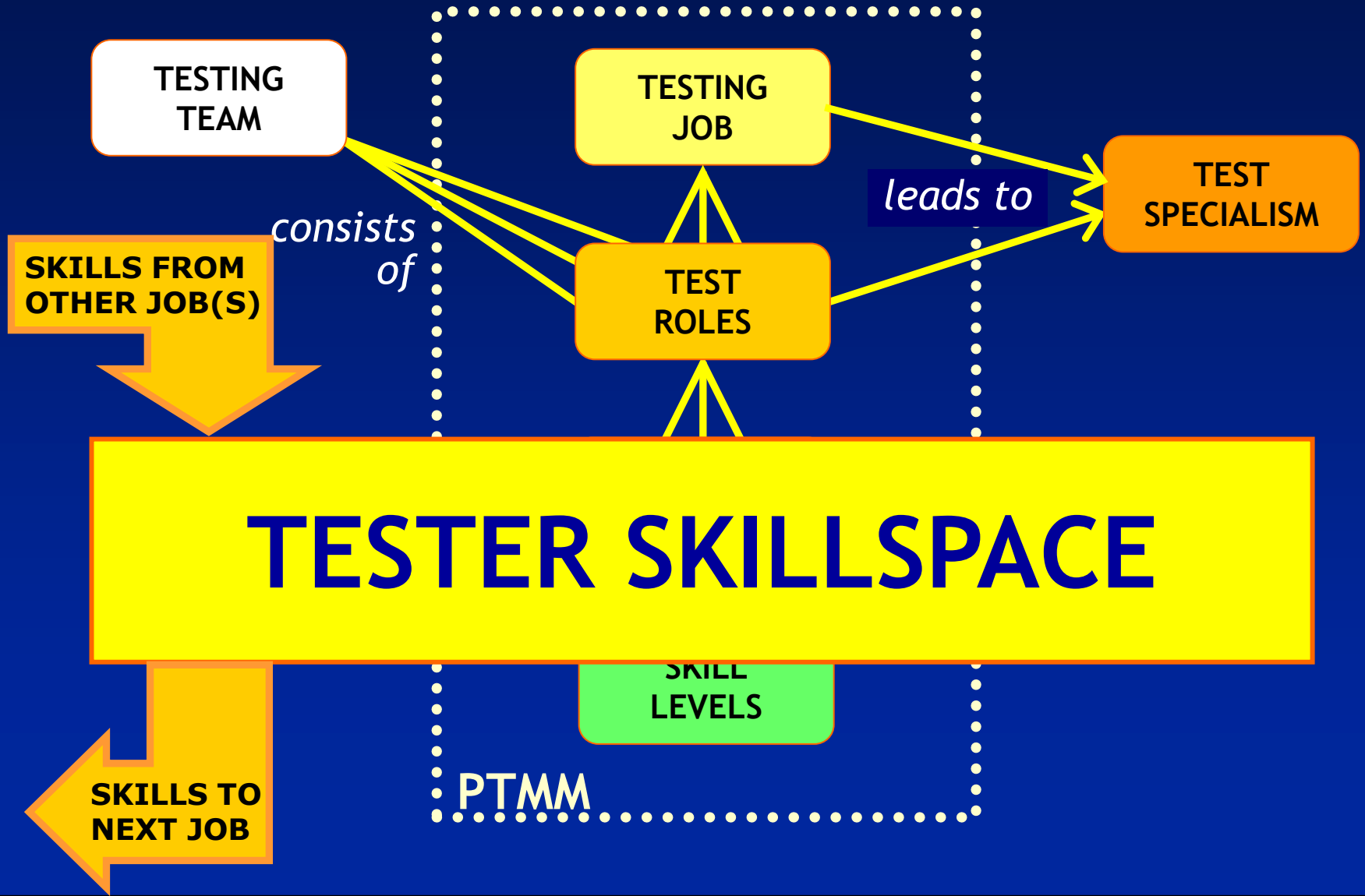
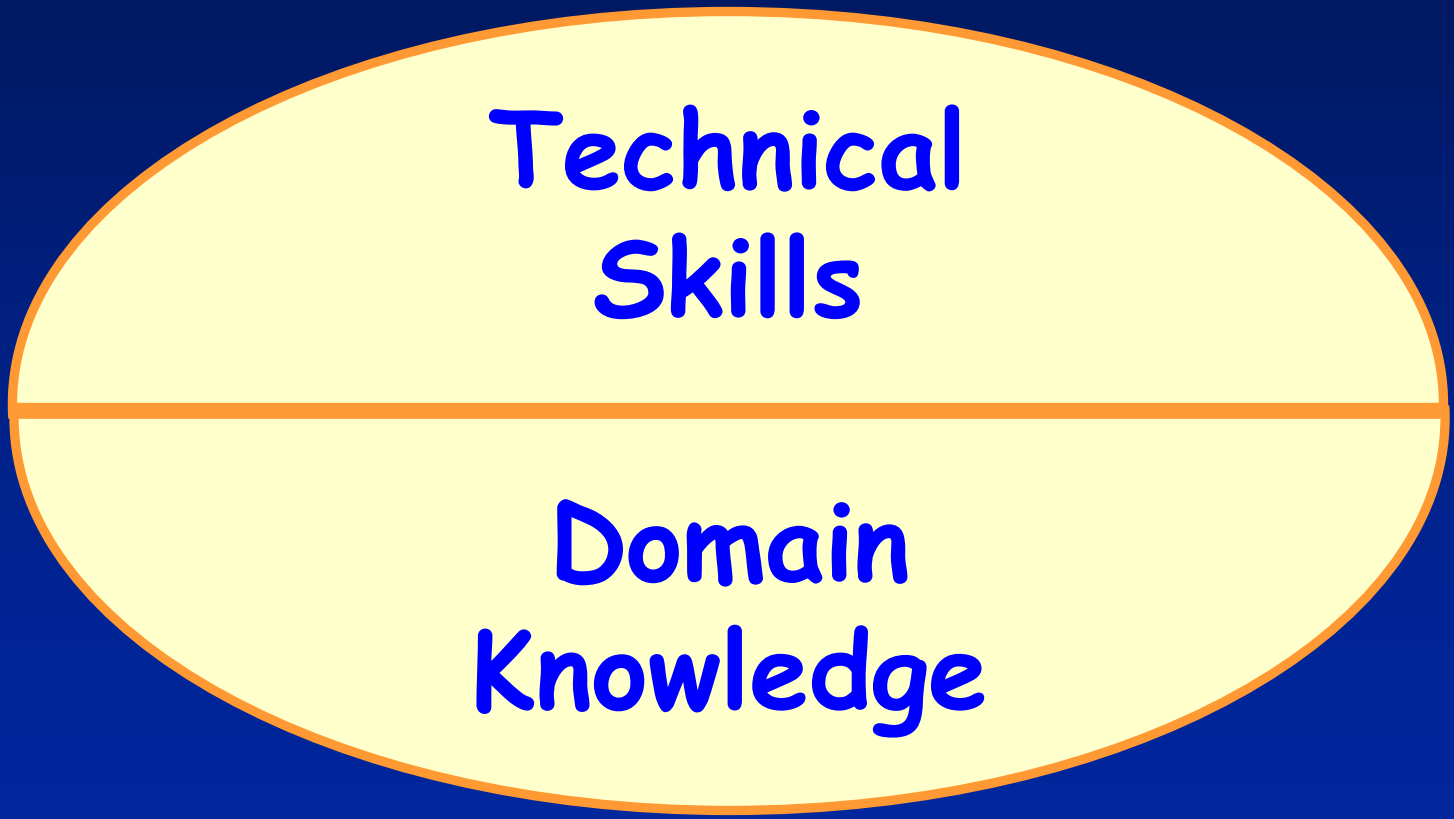
Personal Test Maturity Matrix



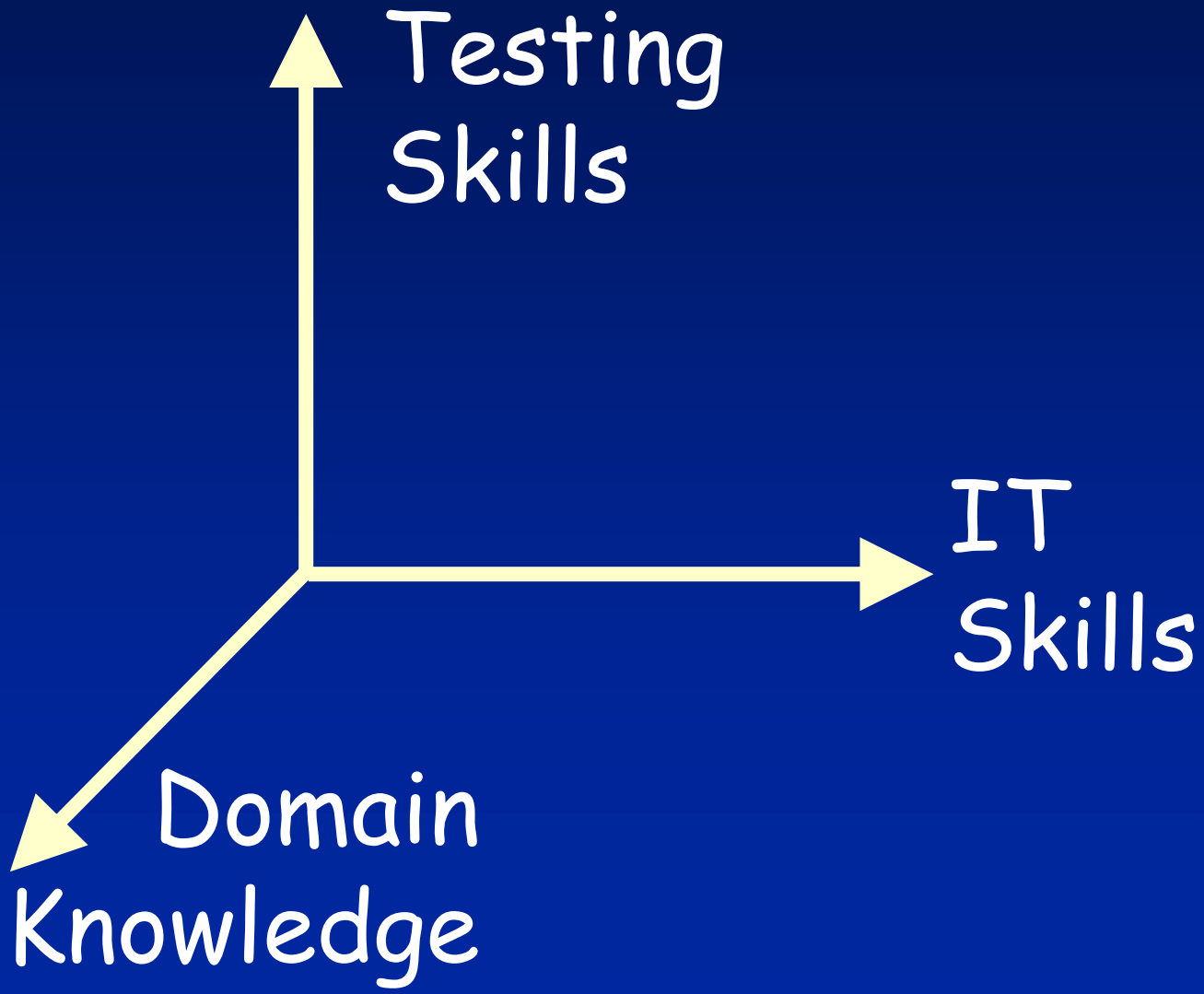
Personal Test Maturity Matrix



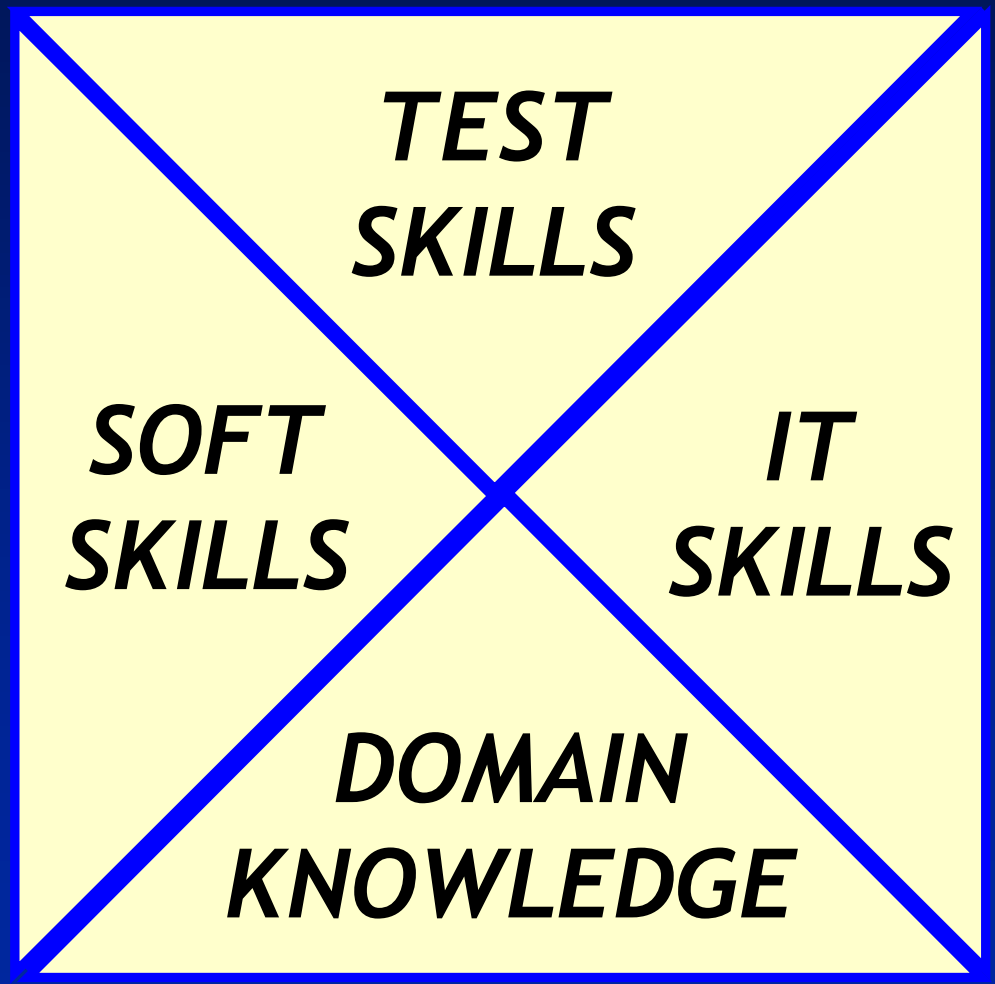
Tester Skillspace – 2D?



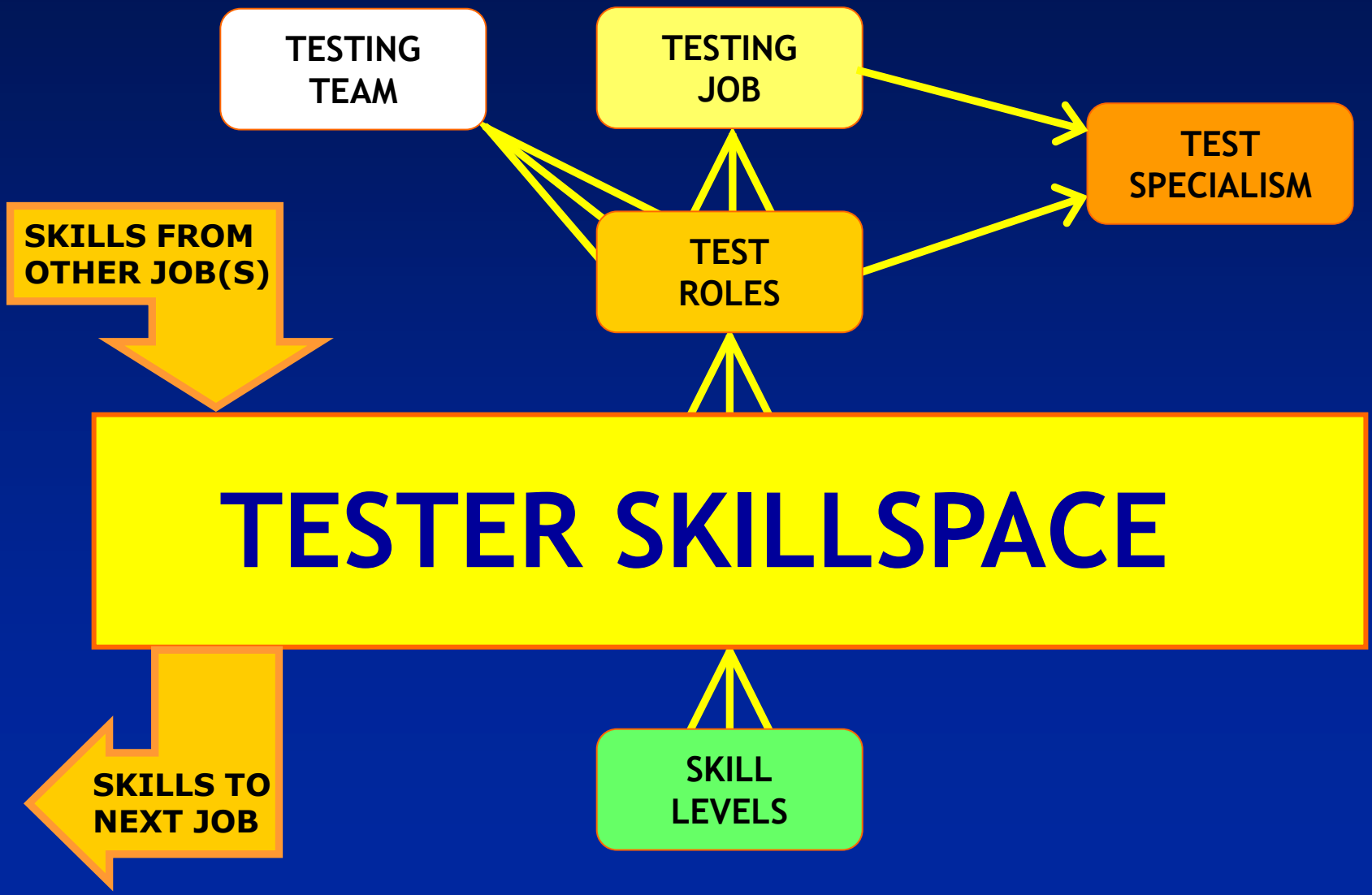
Tester Skillspace – 3D?



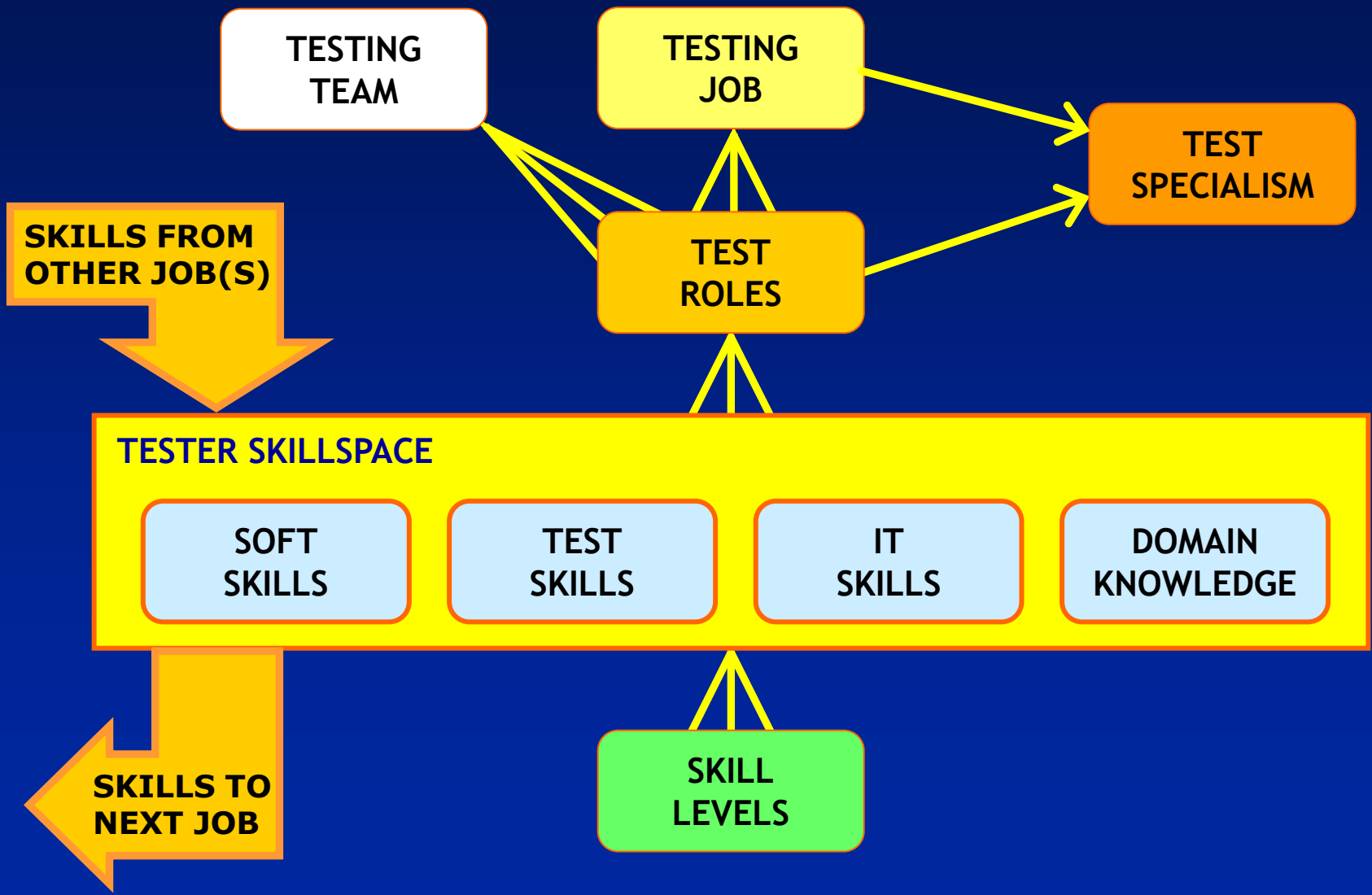
Tester Skillspace – 4D



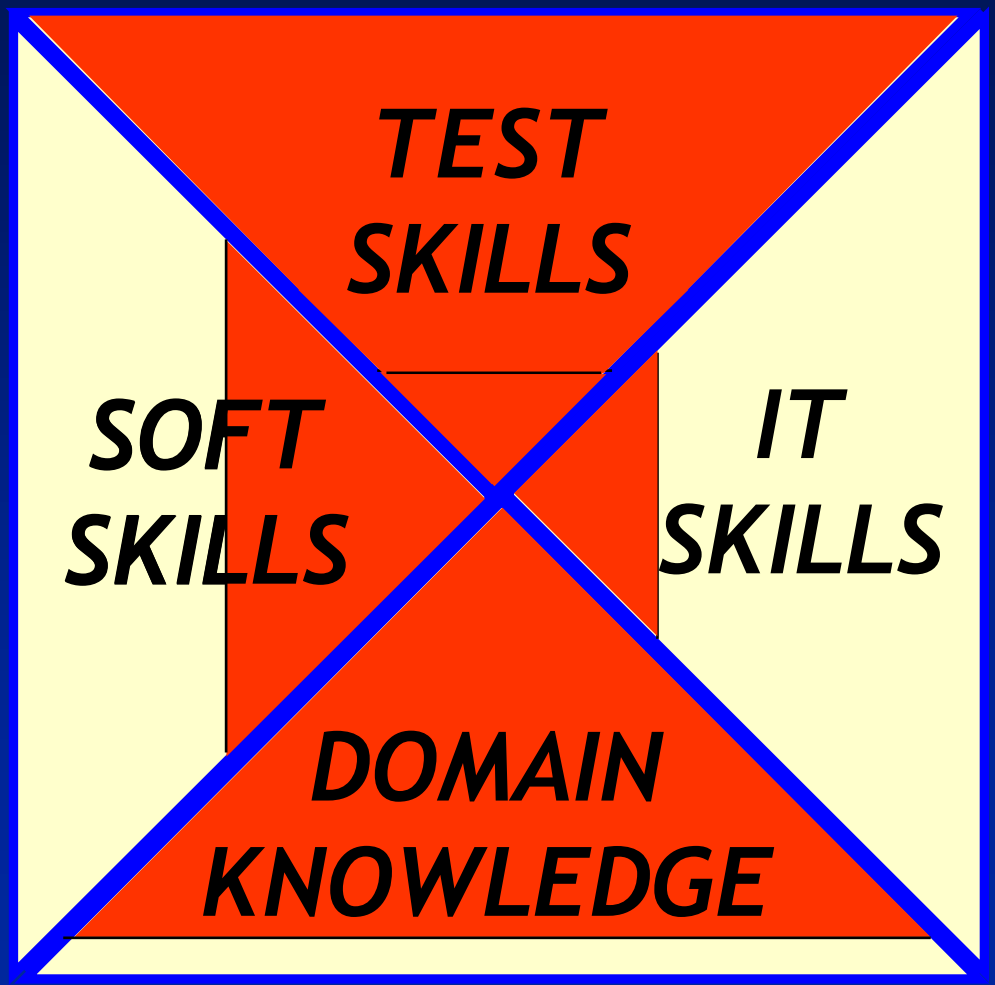
Personal Test Maturity Matrix



Personal Test Maturity Matrix



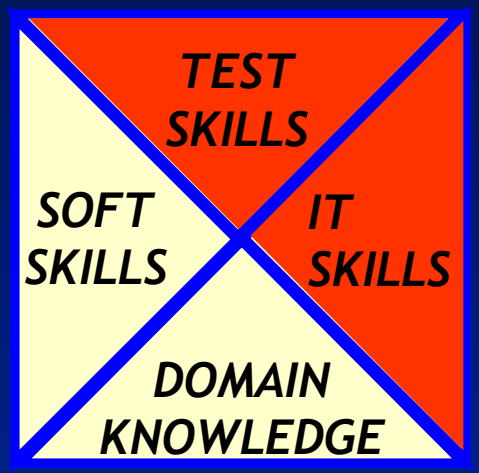
Tester Skill Levels

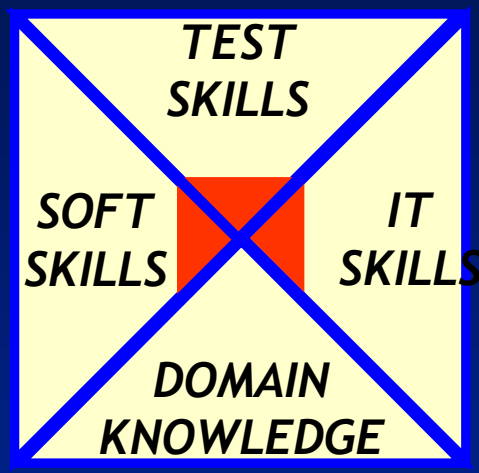


Levels of expertise within each of the four areas can be shown by shading of the relevant area.

E.g. An **ex-user** may have reasonable soft skills and great domain knowledge, but less expertise in the technical areas.

Tester Core Skills

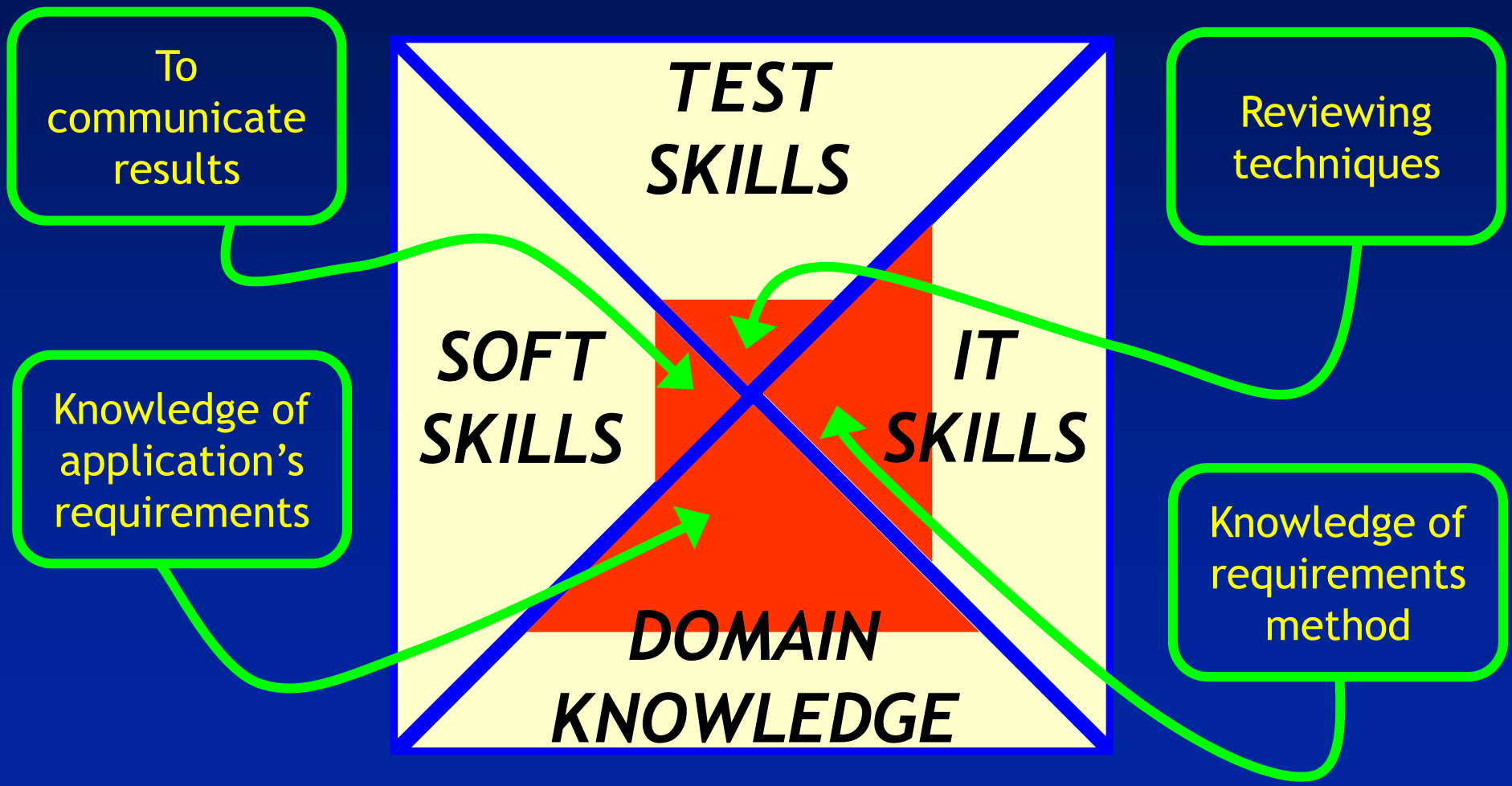




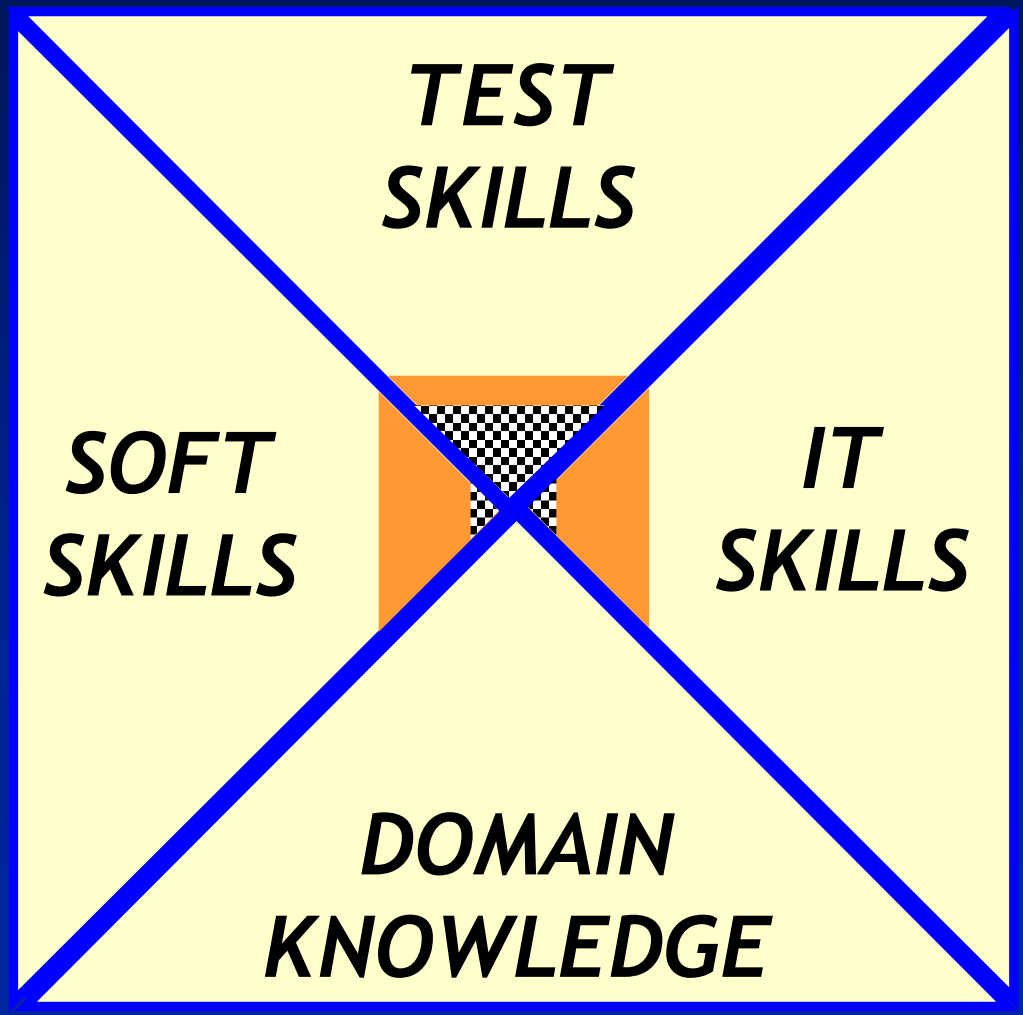
Test Researcher?

Any (non-trainee) Tester

Test Role Example - Requirements Reviewer

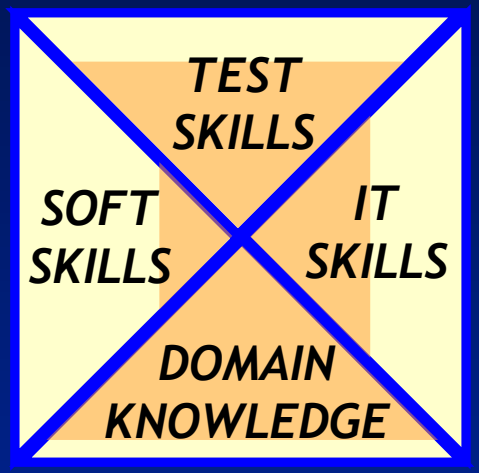


Tester Core Skills and ISTQB/ISEB Qualifications

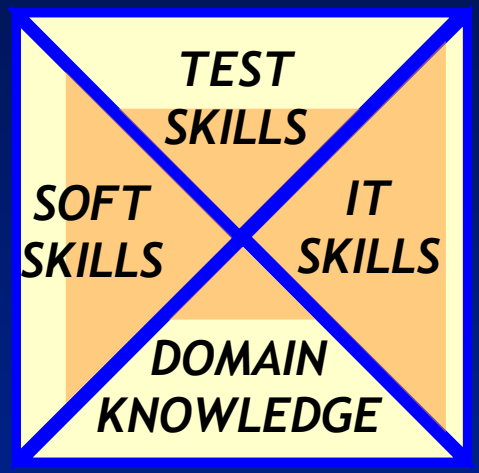


ISTQB/ISEB Foundation skills ( ) are seen to be a subset of the Tester Core Skills.

Transferable Tester Skills



Tester A



Tester B

The two testers have similar overall skill levels, and Tester A is highly-valued at their current employer due to their domain knowledge, but Tester B is more marketable to employers in other industries where different domain knowledge will be required.

Identifying Test Skills

Exploratory Testing	Model-Based Testing	Black Box Test Design	White Box Test Design	Test Execution	Test Reporting	Automated Test Support	Test Env't Support	Reviewing
•Ability to create and/or reason about models (L) •Knowledge of test case design/test coverage (M) •Ability to select test cases •Ability to identify and record anomalies •Ability to present test results	•Ability to create and/or reason about models (H) •Knowledge of test case design/test coverage (H) •Ability to identify and record anomalies •Ability to present test results	•Ability to create and/or reason about models (M) •Knowledge of test case design/test coverage (H) •Ability to select test cases •Ability to specify test cases	•Ability to create and/or reason about models (M) •Knowledge of test case design/test coverage (H) •Coding ability (L) •Ability to select test cases •Ability to specify test cases	•Ability to follow test script	•Ability to identify and record anomalies •Knowledge of test case design/test coverage (L) •Ability to present test results	•Ability to set up test env't •Coding ability (H) •Knowledge of test automation software	•Ability to set up test env't	•Ability to check conform-ance with specificat-ions •Ability to check adherence to standards

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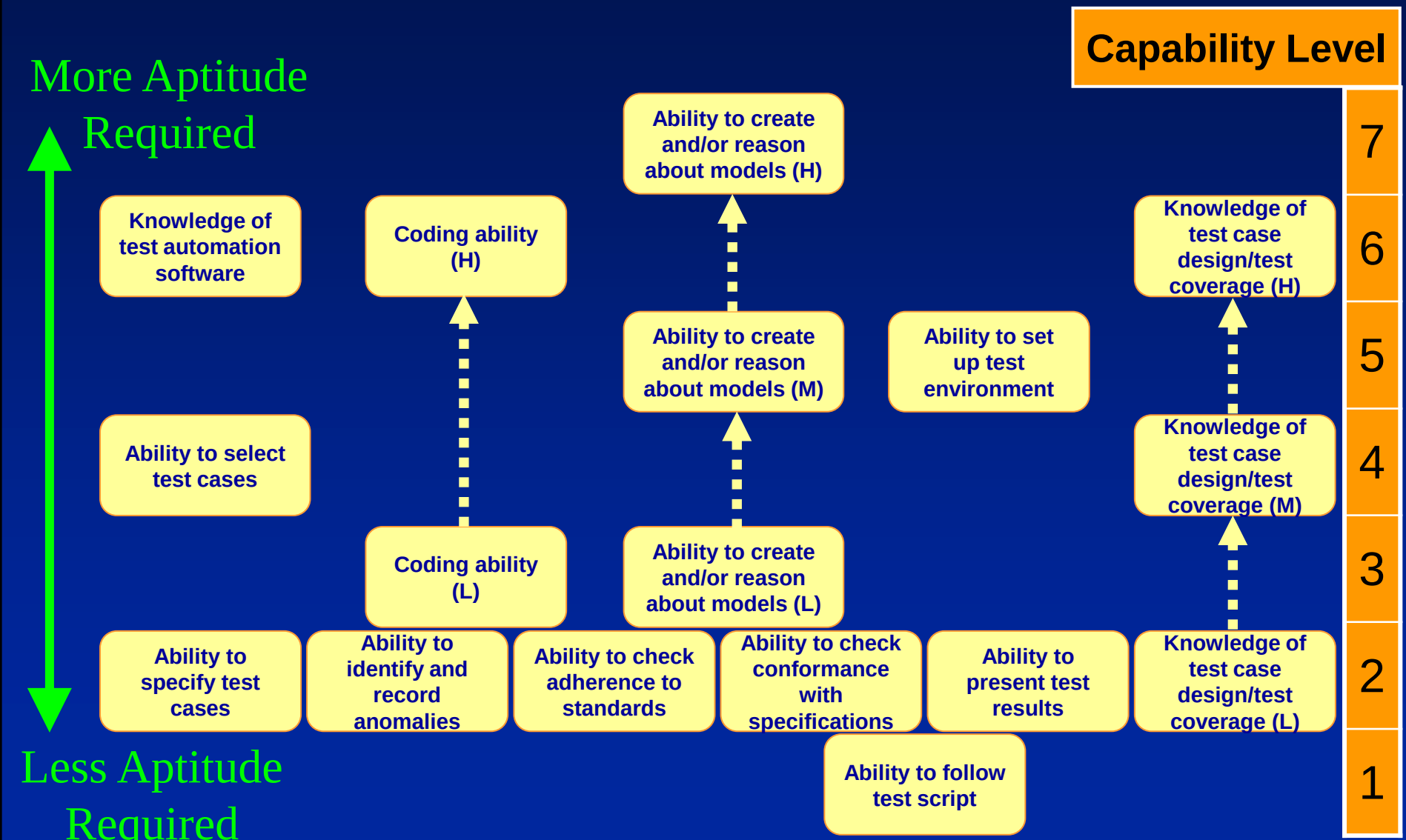
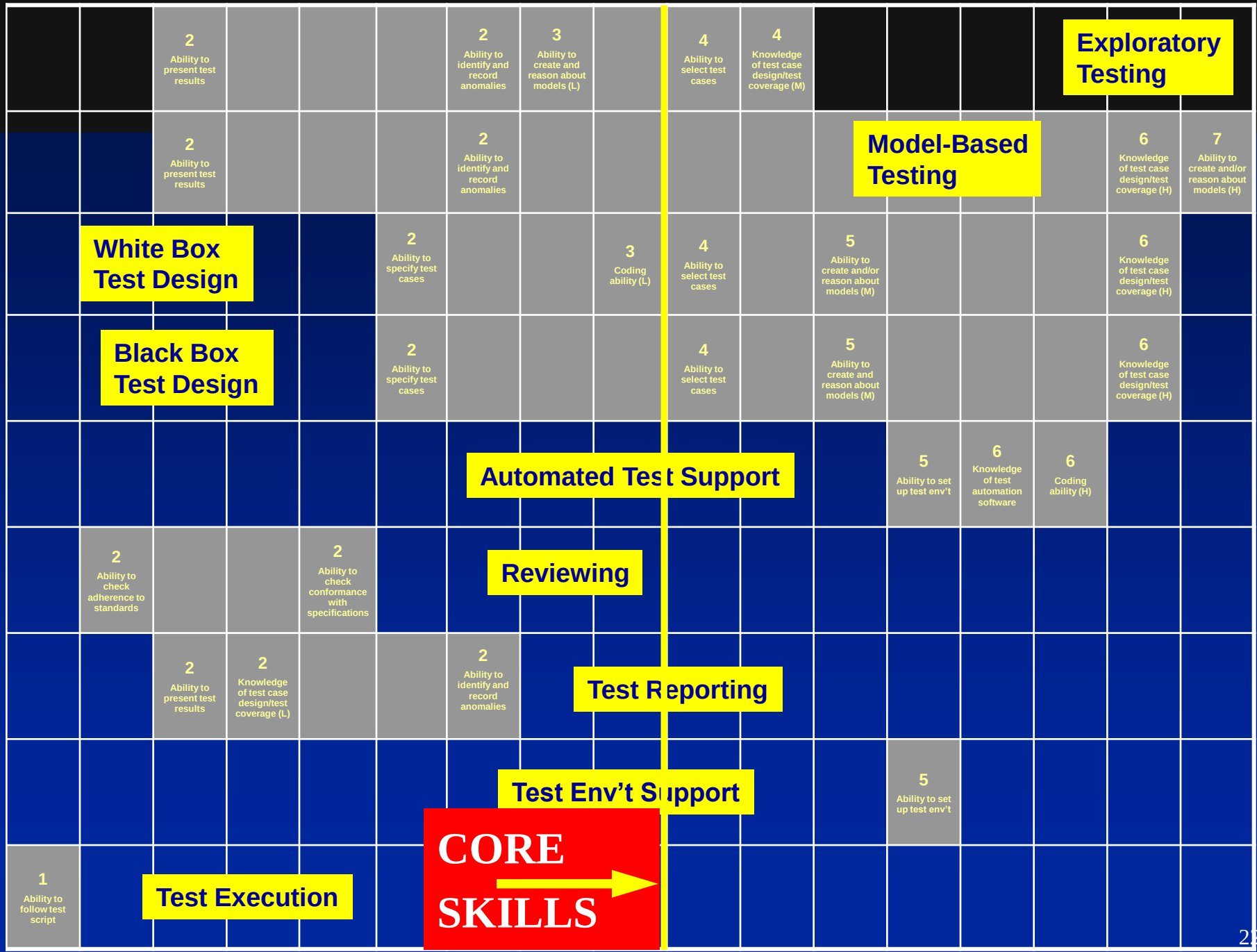
Mapping of Capability to Skills



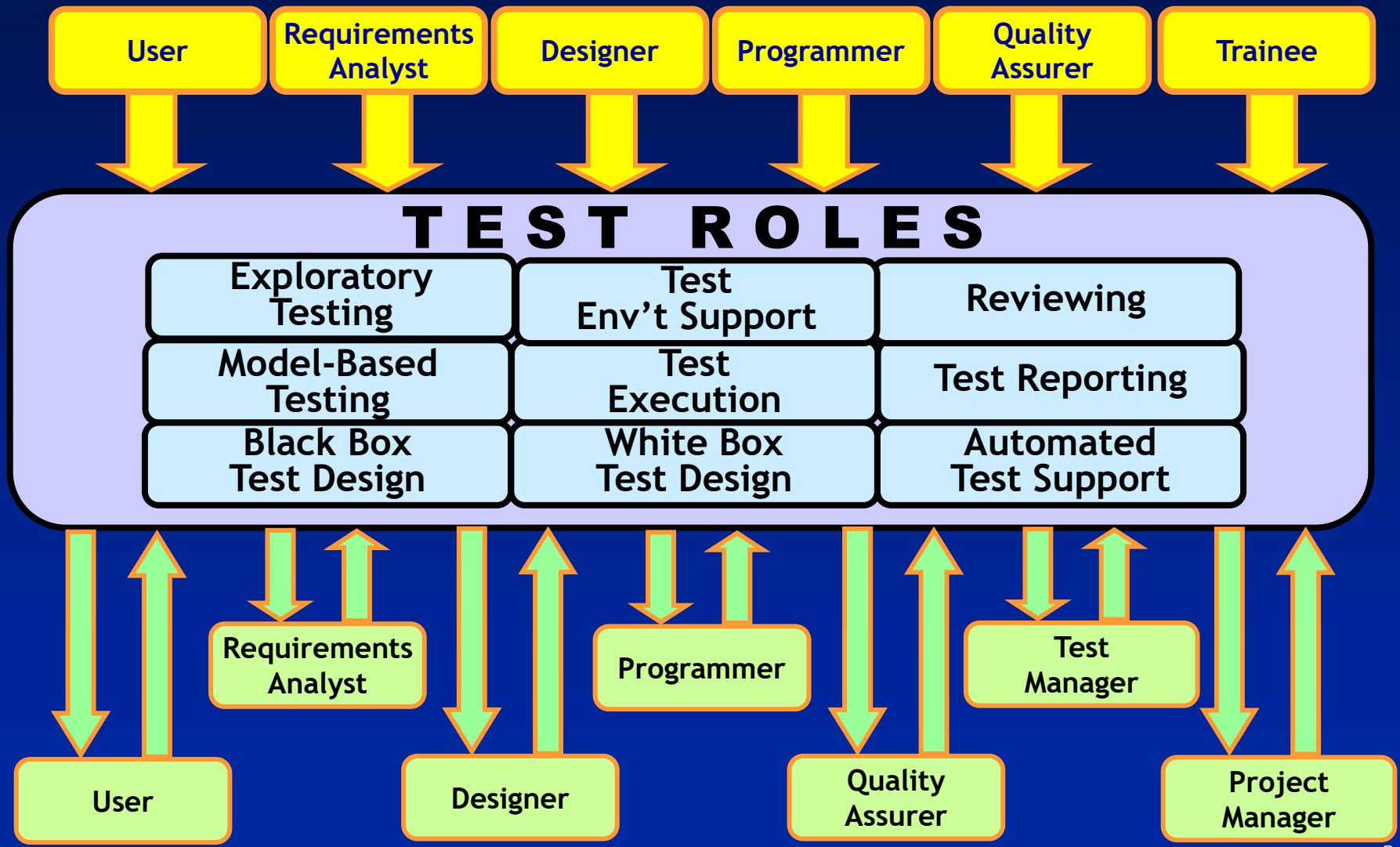

2 Ability to present test results
2 Ability to identify and record anomalies
3 Ability to create and reason about models (L)
4 Ability to select test cases
4 Knowledge of test case design/test coverage (M)
Exploratory Testing
2 Ability to present test results
2 Ability to identify and record anomalies
Model-Based Testing
6 Knowledge of test case design/test coverage (H)
7 Ability to create and/or reason about models (H)
White Box Test Design
2 Ability to specify test cases
3 Coding ability (L)
4 Ability to select test cases
5 Ability to create and/or reason about models (M)
6 Knowledge of test case design/test coverage (H)
Black Box Test Design
2 Ability to specify test cases
4 Ability to select test cases
5 Ability to create and reason about models (M)
6 Knowledge of test case design/test coverage (H)
Automated Test Support
5 Ability to set up test env't
6 Knowledge of test automation software
6 Coding ability (H)
2 Ability to check adherence to standards
2 Ability to check conformance with specifications
Reviewing
2 Ability to present test results
2 Knowledge of test case design/test coverage (L)
2 Ability to identify and record anomalies
Test Reporting
Test Env't Support
5 Ability to set up test env't
1 Ability to follow test script
Test Execution
CORE SKILLS

Example Skills Description

(Knowledge of test case design/test coverage)

1. Knowledge and understanding of Equivalence Partitioning (EP) and Boundary Value Analysis (BVA) [able to document].
2. Able to apply EP and BVA.
3. Knowledge and understanding of State Transition Testing (STT), Syntax and Table-driven testing.
4. Able to apply STT, Syntax and Table-driven testing.
5. Knowledge of requirements-based test case design techniques, such as those appropriate for testing Use Case Models.
6. Knowledge of statement and branch testing.
7. Able to apply requirements-based testing.
8. Knowledge of the range of black box test case design techniques and coverage measures.
9. Able to apply statement and branch testing.
10. Practical experience of applying the range of black box test case design techniques and coverage measures.
11. Knowledge of the range of white box case test design techniques and coverage measures.
12. Ability to select an appropriate test coverage measure to use for test adequacy.
13. Practical experience of applying the range of white box test case design techniques and coverage measures.
14. Knowledge of specialist test case design techniques and measures for specific development models (e.g. coverage measures for UML State Machine Diagrams).
15. Practical experience of applying specialist test case design techniques and measures for specific development models.

Sources and Destinations



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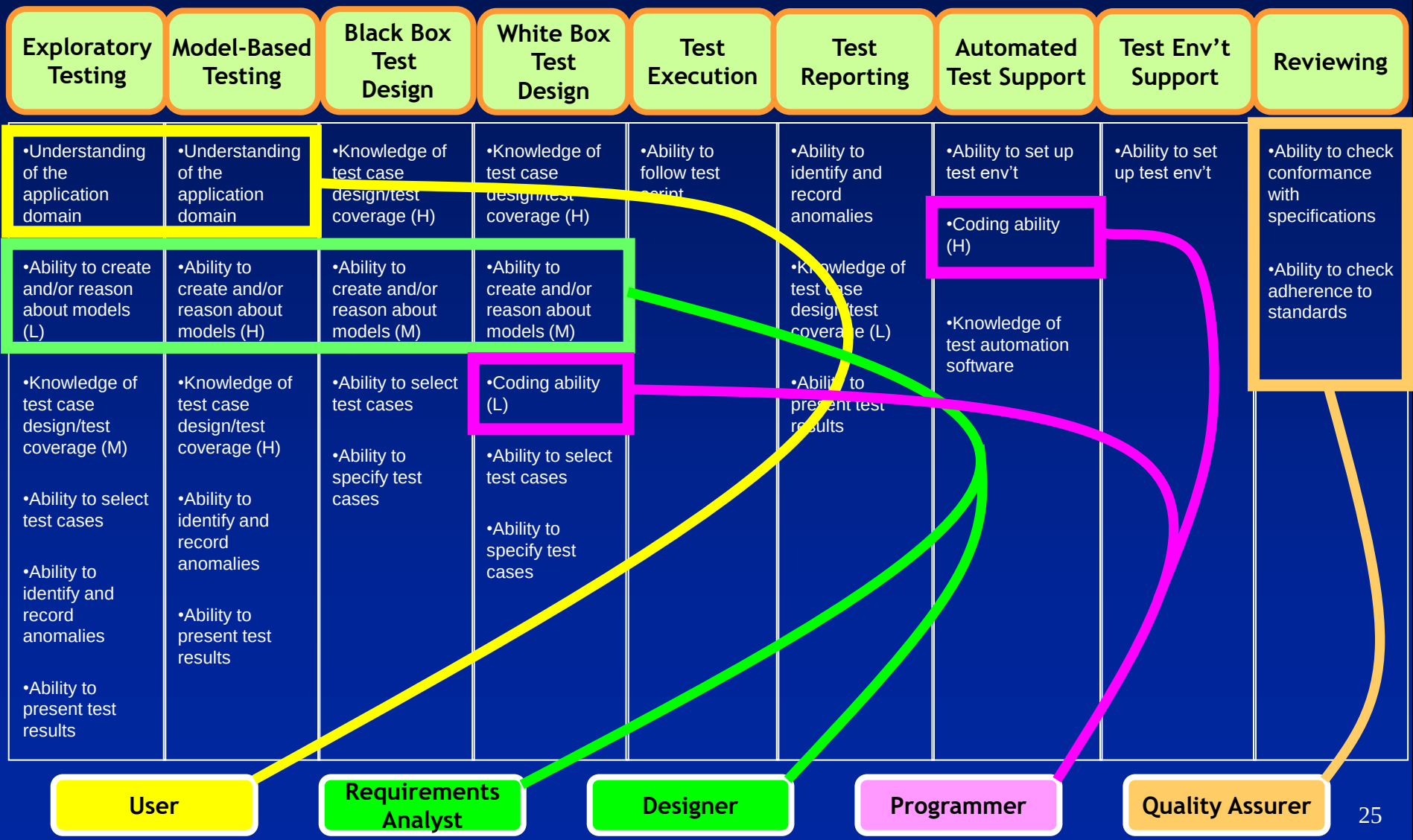
Skills from other jobs



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Commonality of Test Skills
(move between roles/reuse in other roles)

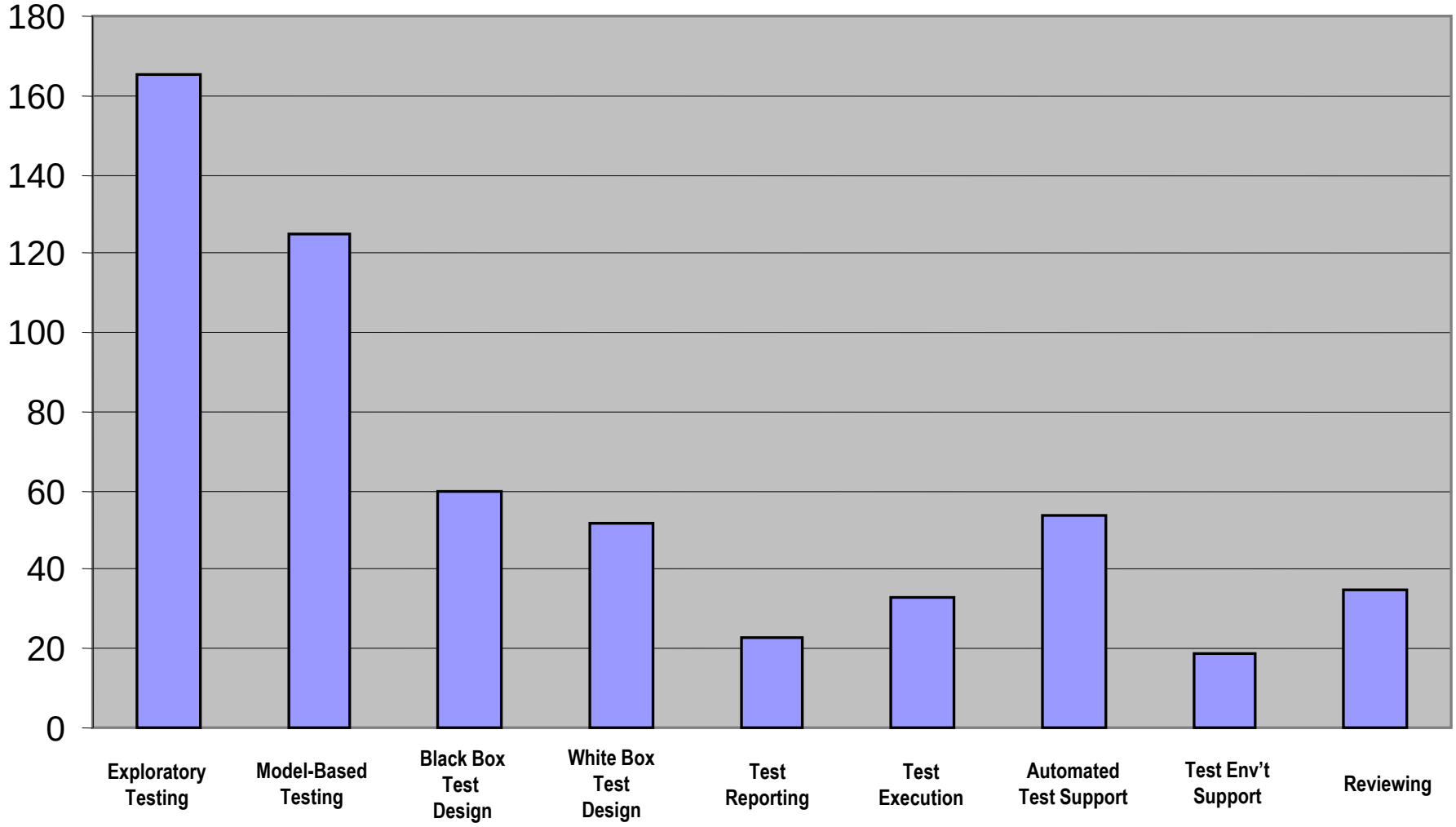
Exploratory Testing	Model-Based Testing	Black Box Test Design	White Box Test Design	Test Reporting	Test Execution	Automated Test Support	Test Env't Support	Reviewing
•Knowledge of test case design/test coverage (M)	•Knowledge of test case design/test coverage (H)	•Knowledge of test case design/test coverage (H)	•Knowledge of test case design/test coverage (H)	•Knowledge of test case design/test coverage (L)	•Ability to follow test script	•Ability to set up test env't	•Ability to set up test env't	•Ability to check conformance with specifications
•Ability to create and/or reason about models (L)	•Ability to create and/or reason about models (H)	•Ability to create and/or reason about models (M)	•Ability to create and/or reason about models (M)					•Ability to check adherence to standards
			•Coding ability (L)			•Coding ability (H)		
•Ability to select test cases		•Ability to select test cases	•Ability to select test cases			•Knowledge of test automation software		
•Ability to identify and record anomalies	•Ability to identify and record anomalies			•Ability to identify and record anomalies				
•Ability to present test results	•Ability to present test results			•Ability to present test results				
		•Ability to specify test cases	•Ability to specify test cases					

Motivating Potential Score

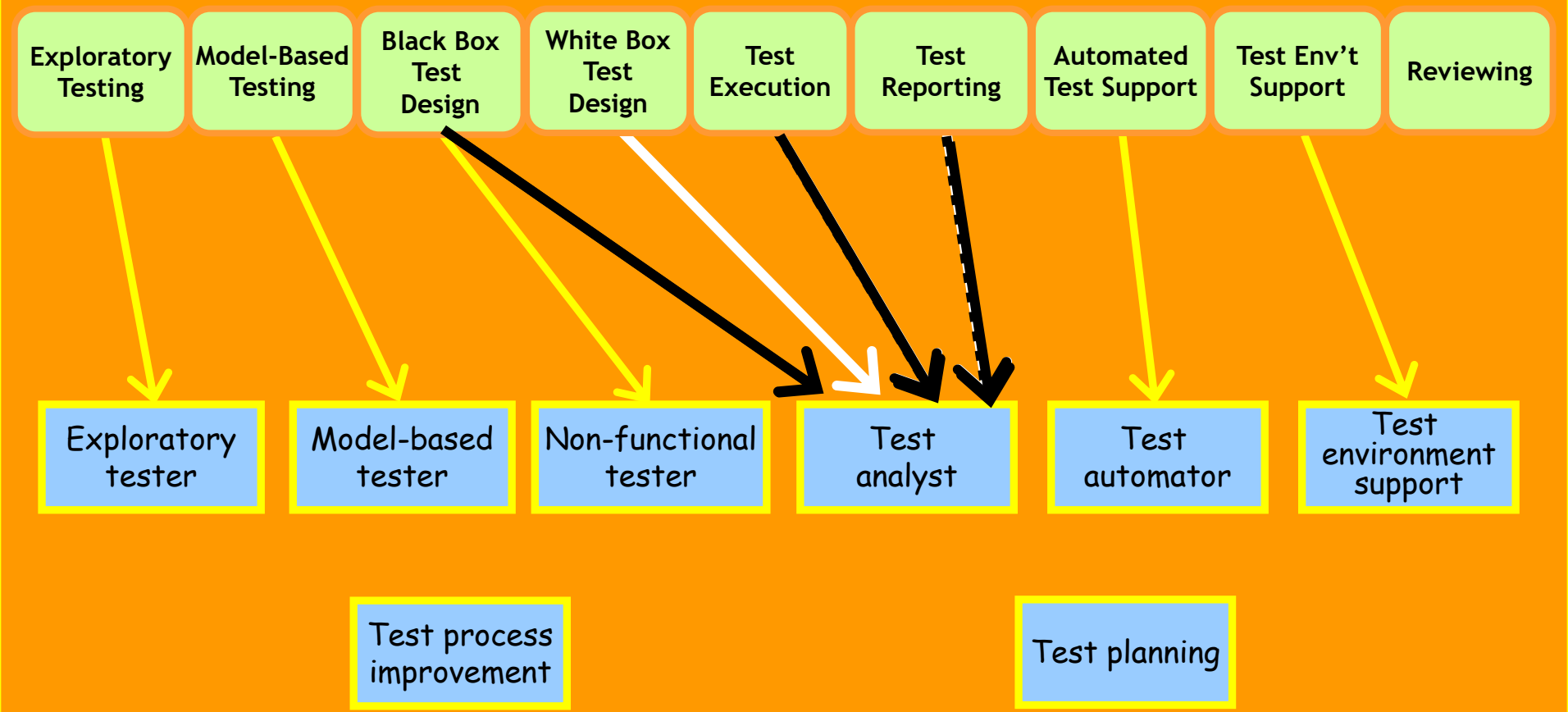
- **Skill Variety** (V)
  - the range of different skills needed
- **Task Identity** (I)
  - the degree of completing a whole job
- **Task Significance** (S)
  - the importance of the job
- **Autonomy** (A)
  - the level of control of their own time
- **Feedback** (F)
  - the degree of supervisory and results-based feedback on performance
- MPS = $\frac{(\mathbf{V}+\mathbf{I}+\mathbf{S})}{3} * \mathbf{A} * \mathbf{F}$

MPS from Hackman & Oldham, 1975.

MPS of Test Roles



Testing Jobs



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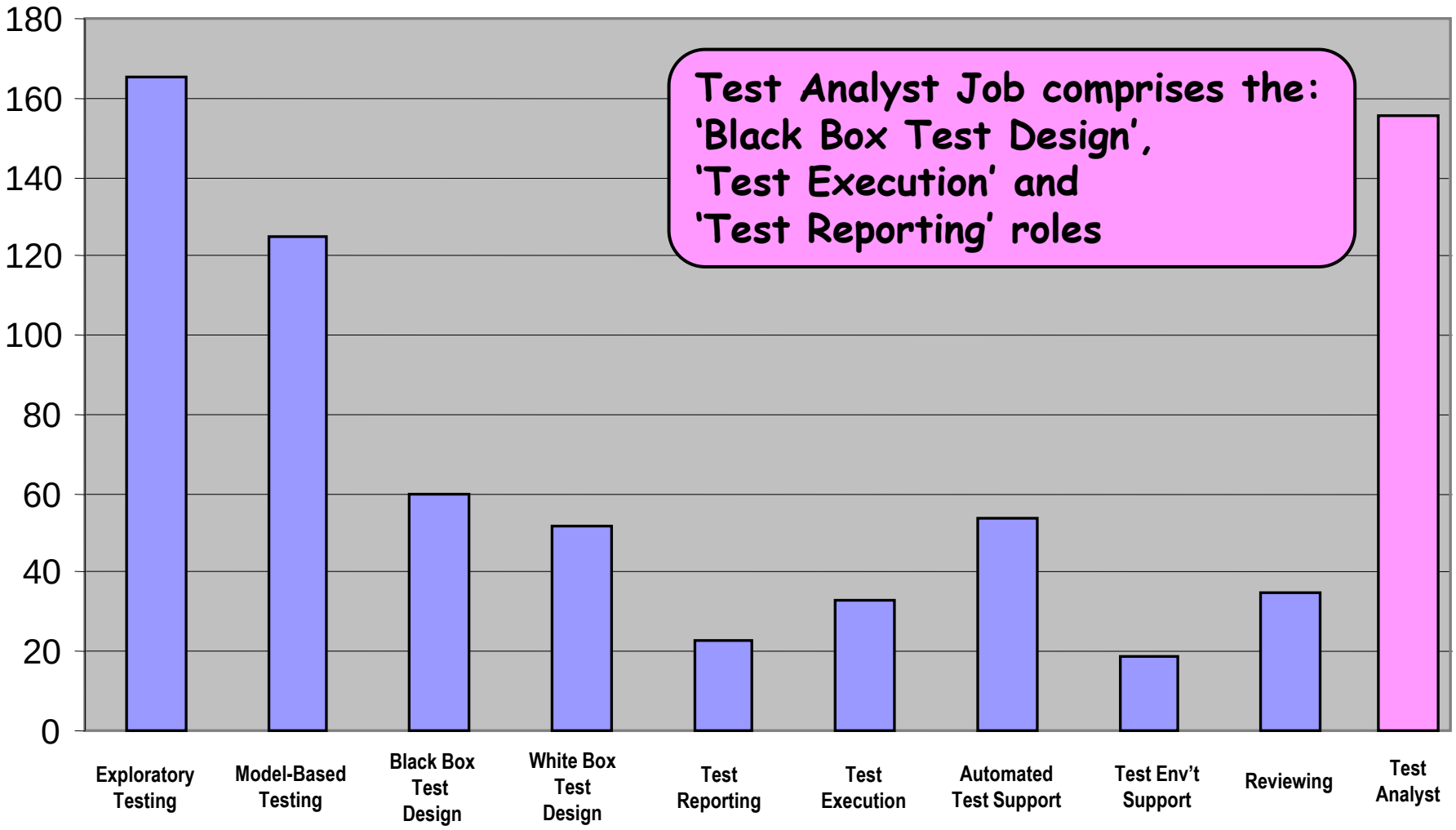
MPS of Test Analyst



Conclusions (1 of 2)

- Don't get hung up on the example rôles and skills
  - they are simply a first guess to demonstrate the framework
- Don't worry that the motivating scores do not match your perceptions
  - people are expected to have different scores
- Many thanks to Julian Harty, who has worked with me on creating the PTMM
- The PTMM is a starting point – give us feedback and we will update and improve it
  - see www.commercetest.com for the latest version

Conclusions (2 of 2)

- We can always improve – and a systematic approach is normally better than a random one
- The Tester Skillspace has four dimensions
  - test skills, IT skills, soft skills & domain knowledge
  - you need to strike the right balance
- We should plan which skills to acquire next
  - as some skills are more ‘useful’ than others
  - for our current and future jobs
- Roles are not enough – we need complete jobs

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Thanks….

Any Questions?