

# System Testing and Agile

*Keys to better manage system testing*

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- *Agile and System test: are they compatible?*
- *What challenges are we facing?*
- *How to set it up?*

Testing thoroughly components individually  
does not ensure  
the final product will behave correctly

# Some examples ?

- Ariane 5 (1996): Destruction after 40 sec during inaugural flight and 10 years engineering.

*Estimating loss of \$370 million.*

- Mars Climate Orbiter (1999): Crash on Mars after a 9 month flight.

*Cost of the program: \$327.6 million.*

- Airbus A380 (2005): 18 month delay due to cabling issue

*Cost: \$4,8 Billiards*

- European Library Europeana.eu (2008): Service crashes during official launch

# So what can be done?

- Risk based approach
- Testing everywhere: Specification, Code, Delivery
- Integrate as early as possible
- ... and shake it!!!



Are Agile and System Test  
compatible?

# Some very positive aspects...

Iterative

Short cycle

Delivery

Continuous Integration

Deliverable focus

Code quality

Risks

Demonstration

Reactivity

Sprint planning

Visibility

Stand-up

Pragmatism

Trust

Backlog

User Story

Ownership

Communication

Post-mortem

# ... and some to investigate

Focus Product versus Code

Expert/Manpower

**The System Tester's  
scope**

Skill management

Role or Position

In Sprint or Out?

Functional testing

User Acceptance

**in development**

Regression

Product definition

Deployment and Support  
Organisation

Performance / robustness

**and outside**

Product Testability

Problem  
replication

Customer  
integration

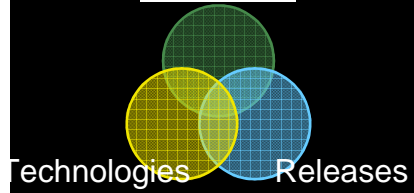
User Stories

What challenges are we facing?

3 challenges when validating a Product:  
Features, Releases and Technologies.

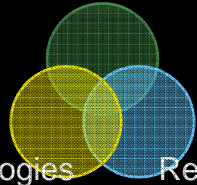
## Features

*How does System Test fit?*



## Features

Are the features working as expected  
and fulfilling the needs?

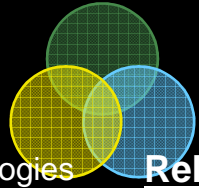


Technologies Releases

# Customers have their own challenges!

- What would be the target environments?
- Integration in their “IS”: Standalone or Integrated?
- How to have constructive feedbacks?
- How to anticipate what they would like is not what they need?

Features



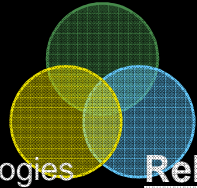
Technologies

Releases

# Releases

How to ensure what is coded and packaged worked  
as one product?

Features



Technologies

Releases

# Be clear!

- **Testing code**

- Function delivers the results through the agreed interface
- Standards' implementation
- Time bound testing
- Packaging and documentation

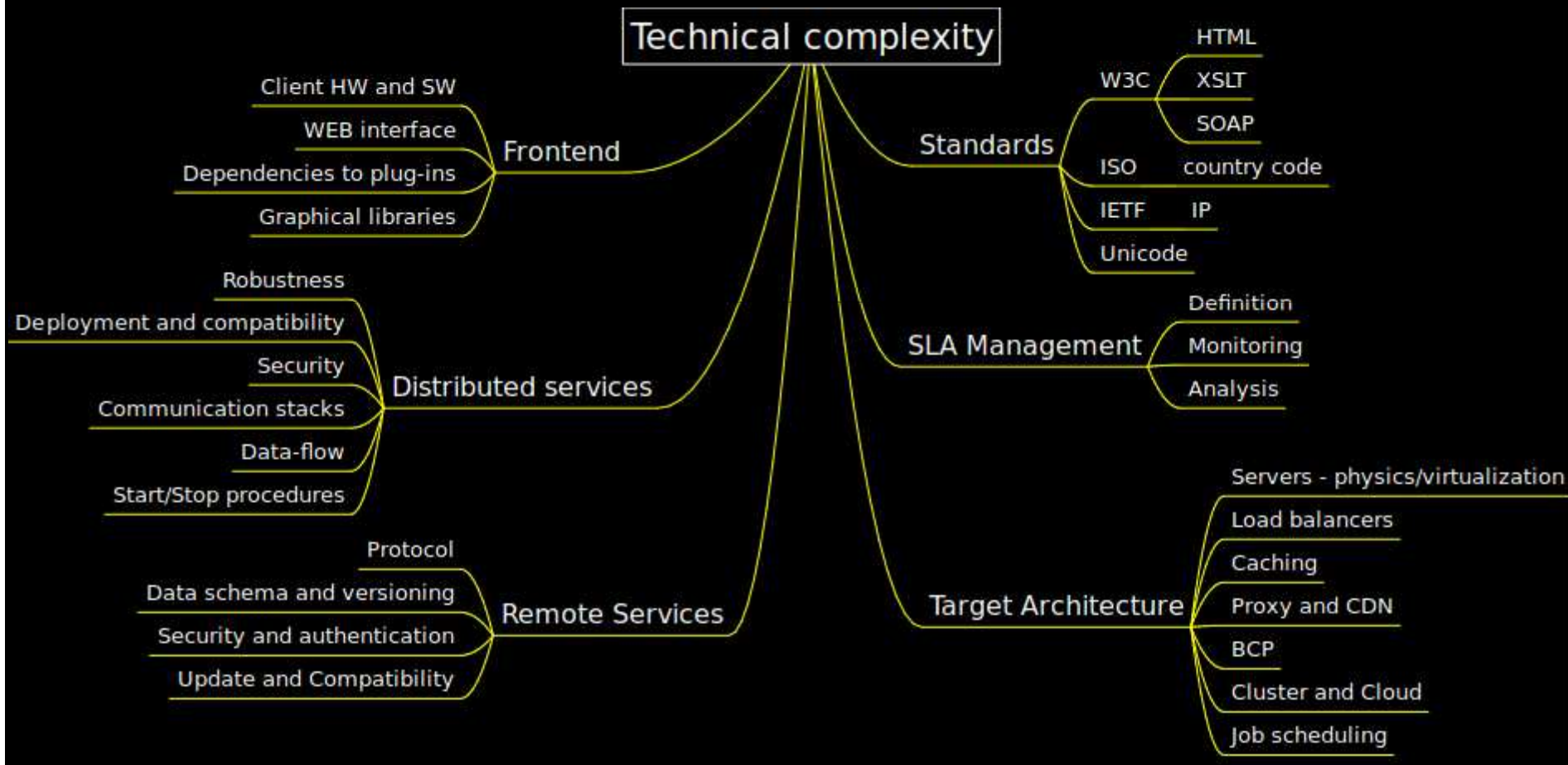
- **Testing Application**

- Correct list of packages and dependencies
- Configuration/start/stop
- Integration in client workflow
- Performance, stability and functionalities in normal and stress conditions

# Technologies

Do you manage the technological challenges you are facing?

# Some key areas



# Web applications

- Multiplicity of target Environments

*Servers: FreeBSD, RHEL, MS Windows*

*Clients: MS Windows, Mac OS, Virtualization*

*Browsers: FF, IE, Opera, Safari, Smart phone*

- Technological dependencies:

*New plug-ins versions: Flash, Silverlight*

*Software updates: PHP, MySQL, Oracle.*

- Third-party dependencies

*Architecture: caching/CDN.*

*External providers' data format*

*Change in security policy*

## ***So on which areas System Test Fit best?***

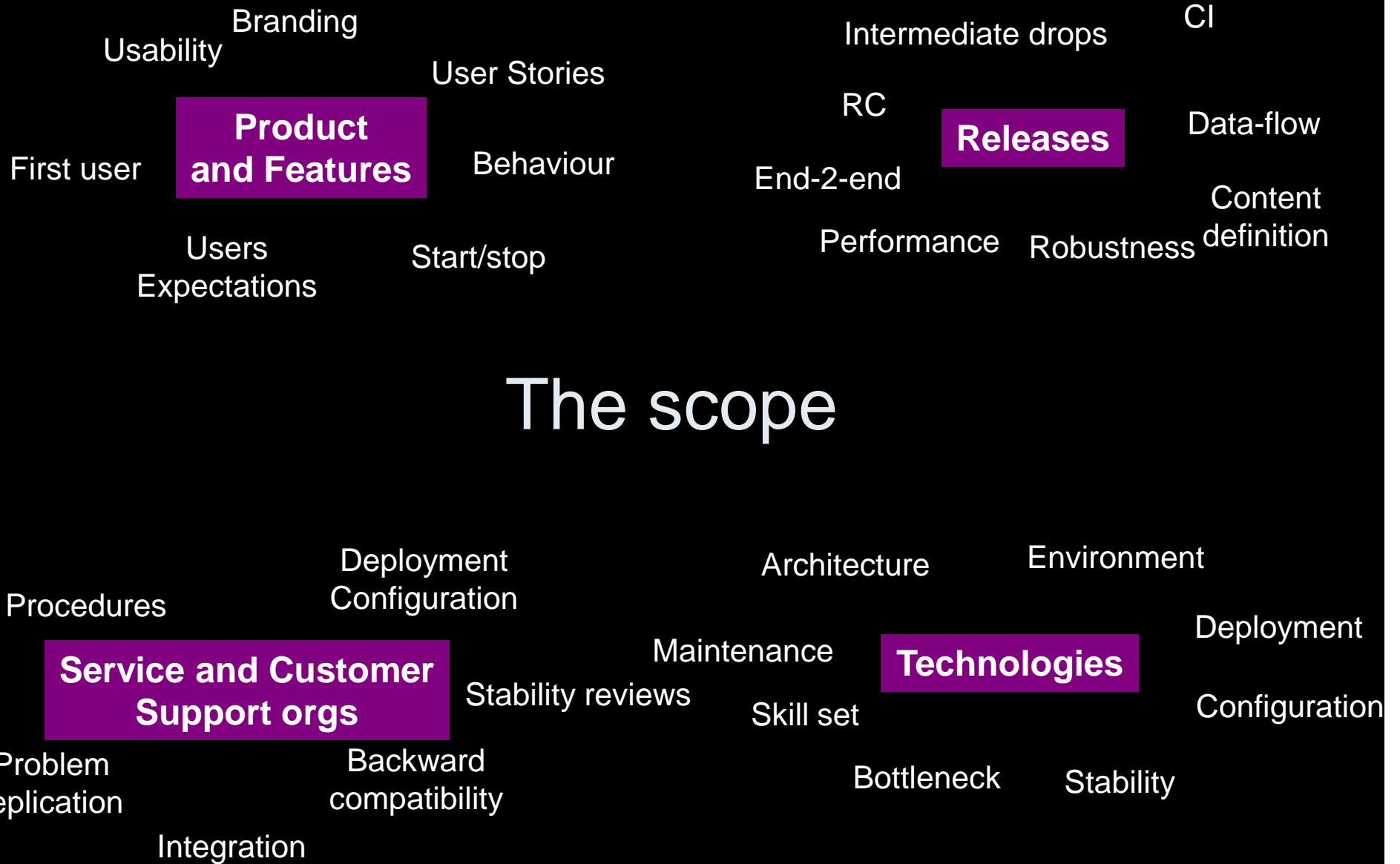
Helping deciding Go or No Go for the Product

... and strong advocate on defining the DONE

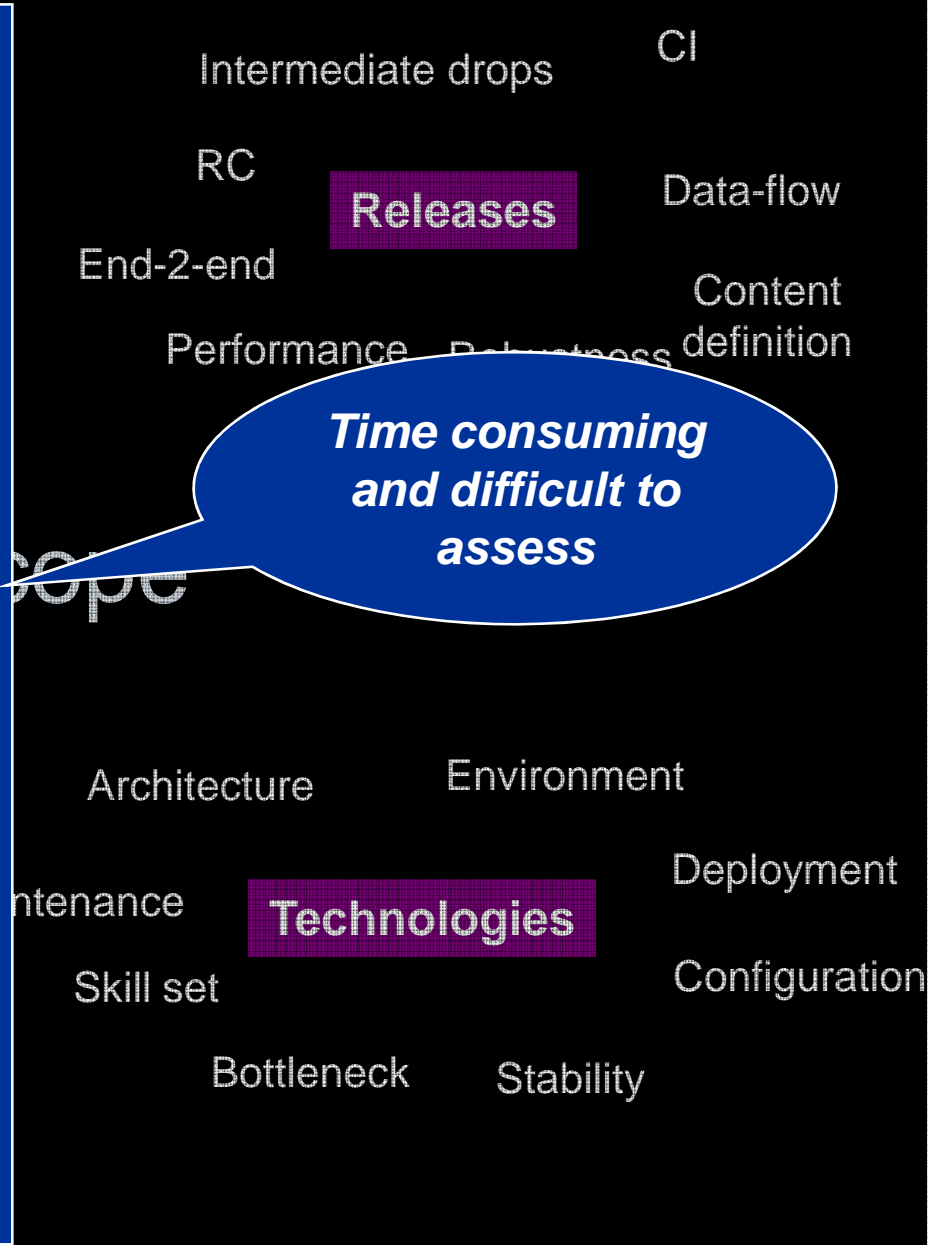
How to set it up?

## 3 questions to address

- What should be the scope of the activity?
- When should it occur?
- How to set it up?



# The scope



*Time consuming and difficult to assess*

Where should the team be located?

Ideally all together!

... But not a guarantee of success

...Think of the interactions and ask yourself:

*To whom should they be closer  
Product/Development/Customer support?*

When?

Whenever it fits your development best...

... but don't wait the end!

### Product criteria

- Minimize integration risk
- Testing duration
- Platform dependencies

### Development criteria

- Major milestone
- Major code modification
- New test development

## How to define the When?

### Support criteria

- Major issues with customer
- Stability investigation
- Customer environment change

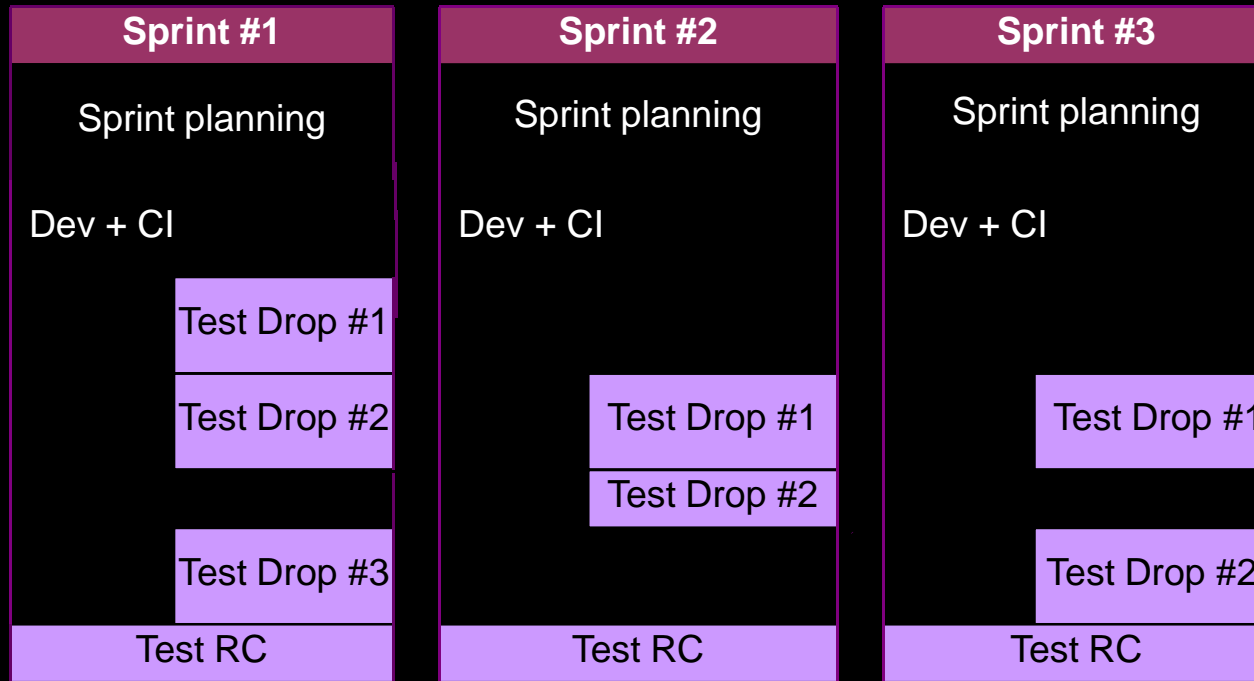
### Be cautious!

- System Testing does not replace CI testing
- Context of the testing
- Drop stability and deployability
- Environments stability and availability

# Example of Organisation

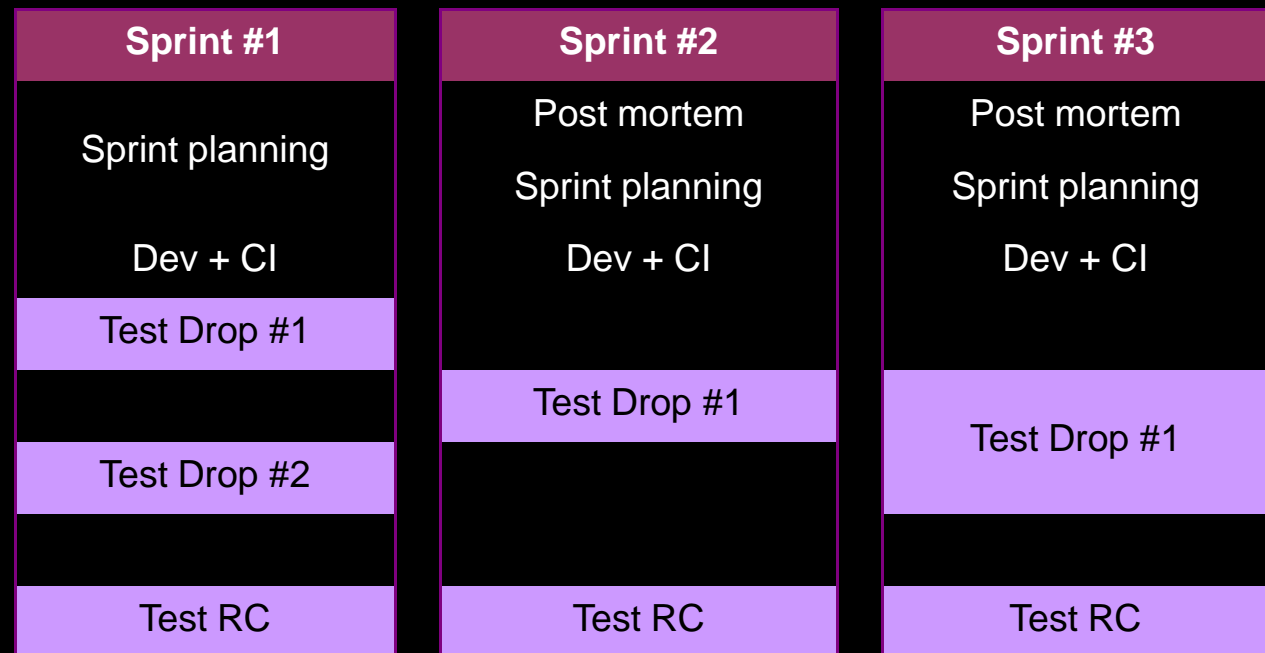
- Context:
  - 3 teams in parallel working on different features
  - Architecture multi-tiers
  - One CI
  - Features can be activated through configuration

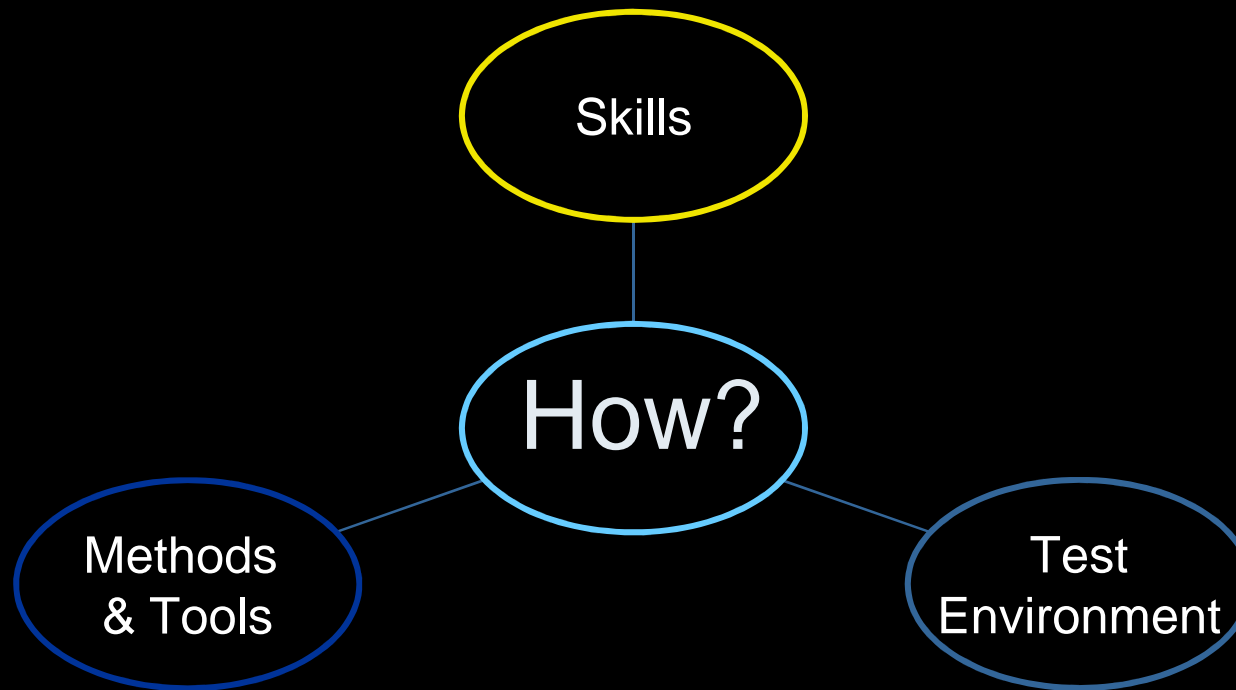
	<i>Team #1</i>	<i>Team #2</i>	<i>Team #3</i>	<b>CI</b>	<b>System Test</b> <i>RC validation</i>
<b>FE</b>	✓	✓		✓	✓
<b>BE</b>	✓	✓	✓		
<b>Tools</b>	✓		✓		
<b>CI</b>	✓				
<b>System Test</b> <i>Partial Integration</i>	✓	✓	✓		

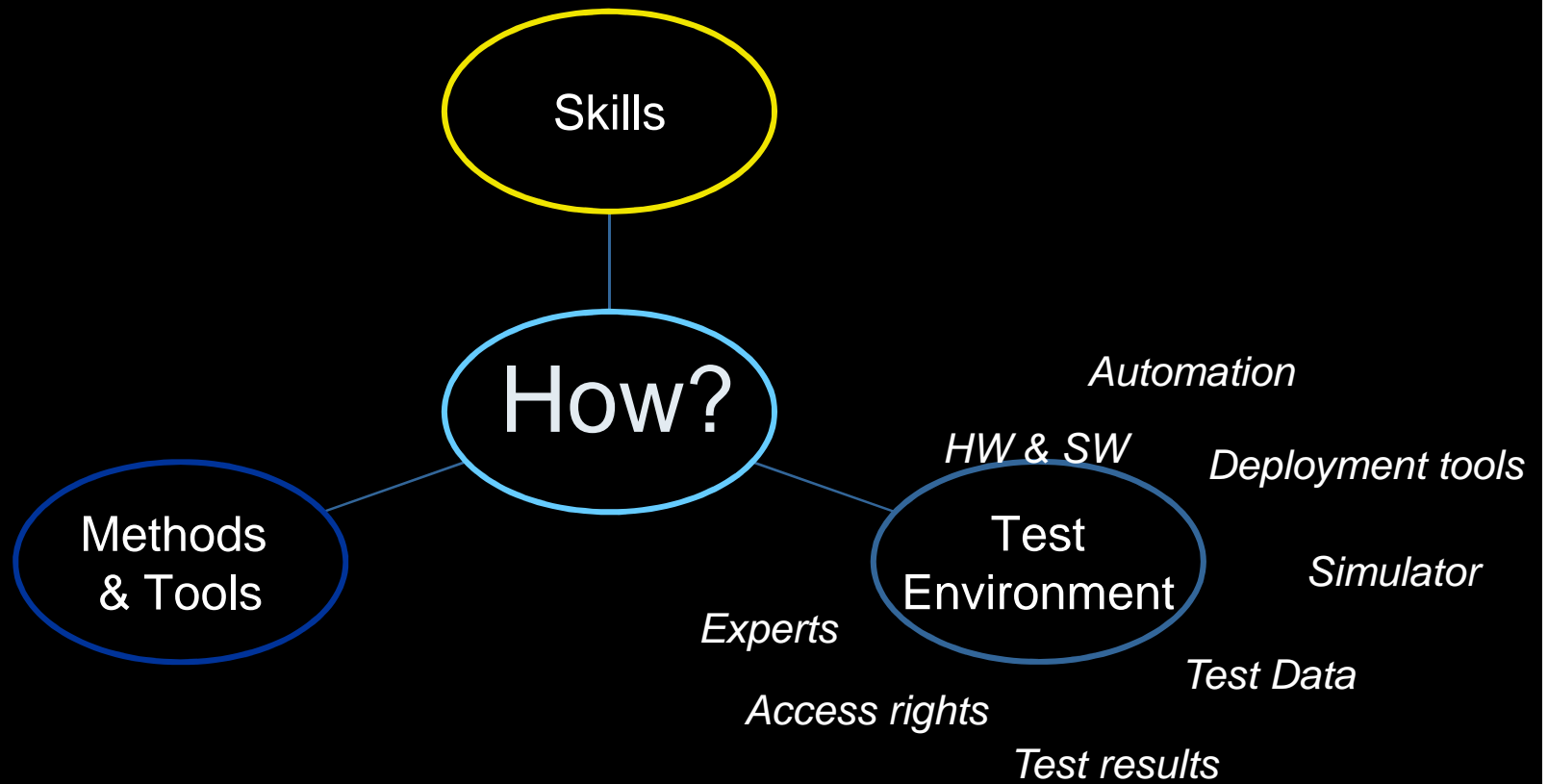


Split Dev/QA approach

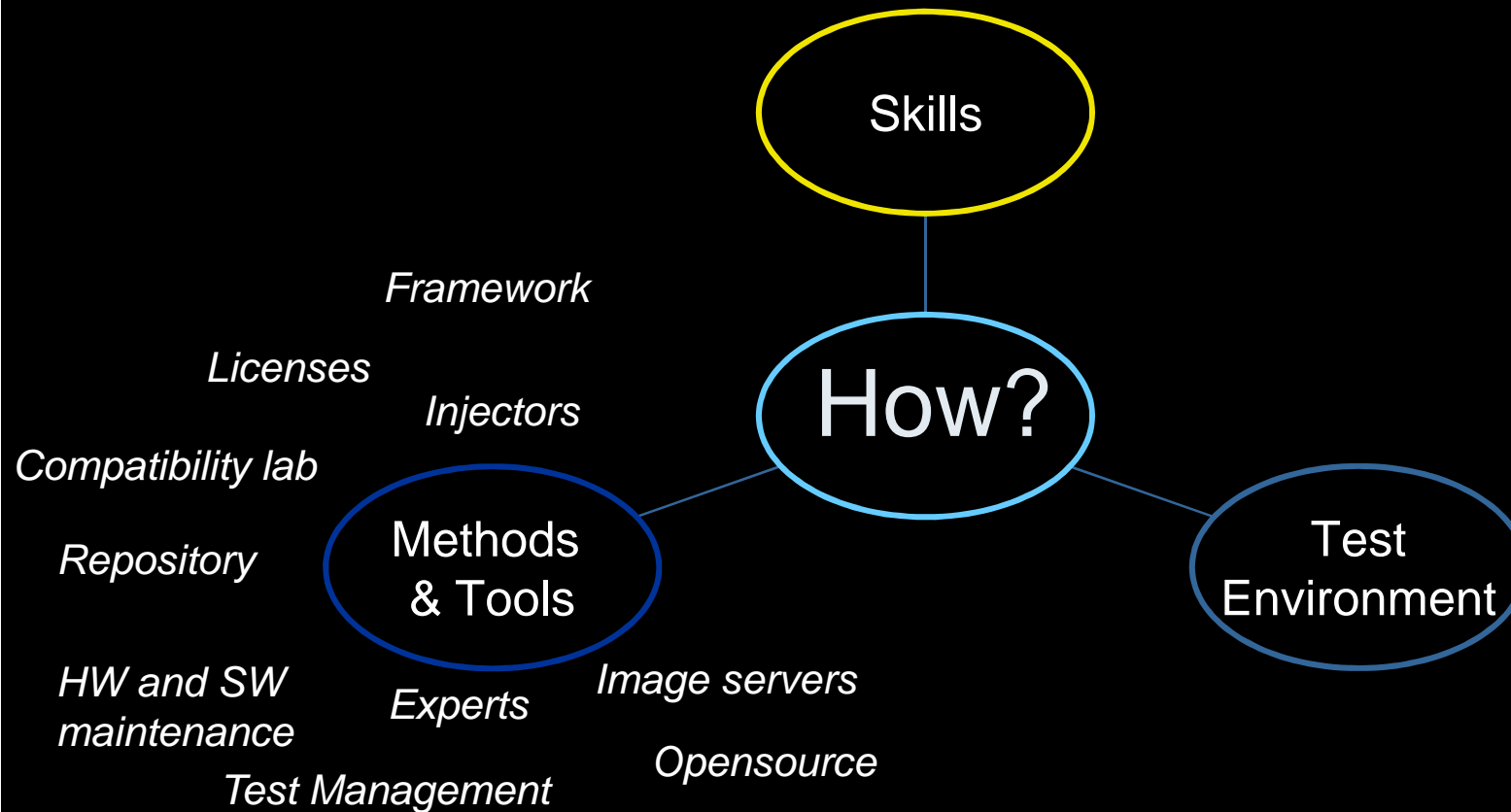
One « team » approach



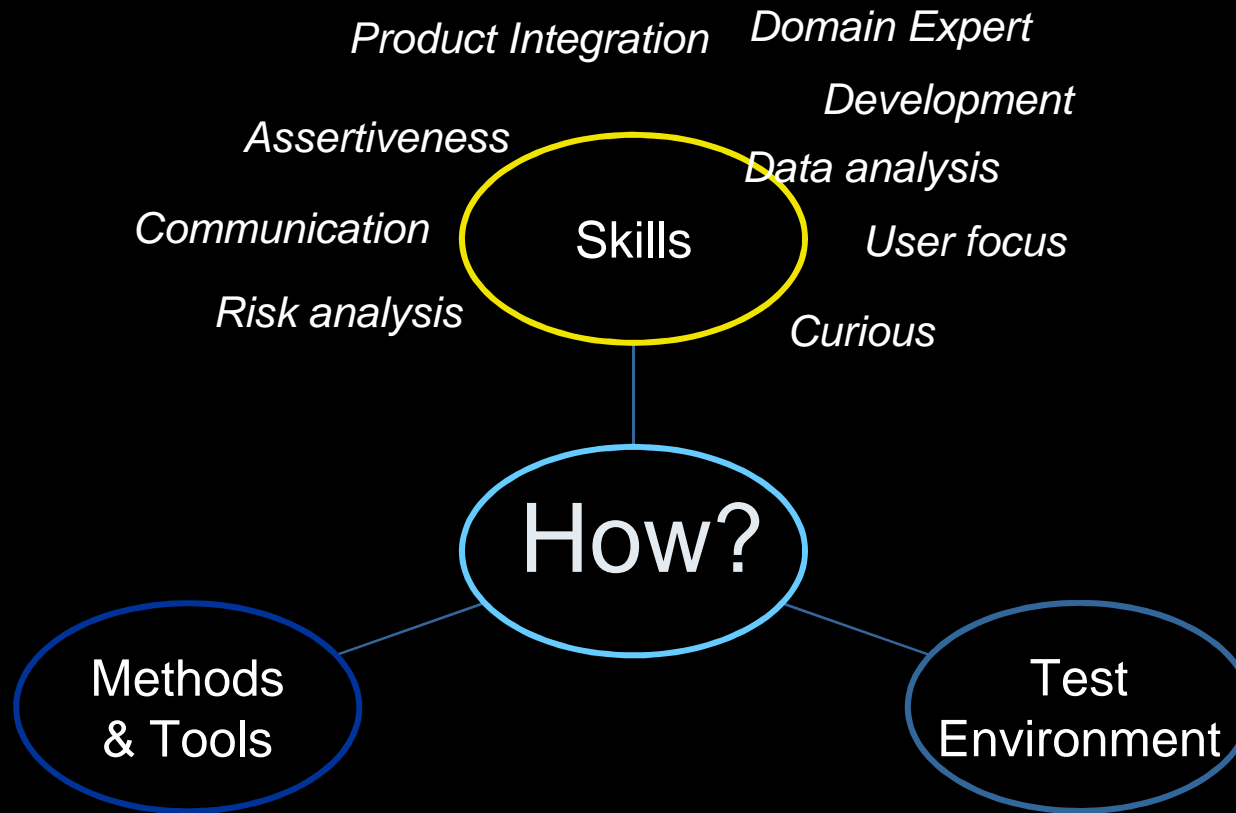




Identify what you need...



Identify how you can optimize cost and resources...



Identify who you need...

To conclude...

# Agile could help us!

... has lot of good practices around code quality

... recognise that not everything can be finalize upfront

... encourage communication and team bounding

# My 2 cents on System test in Agile

(+)	(-)
<p>Iterative cycles.</p> <p>Communication and ownership.</p> <p>Build and CI fully integrated.</p> <p>Product Owner and scrum master.</p>	

# My 2 cents on System test in Agile

(+)	(-)
<p>Iterative cycles.</p> <p>Communication and ownership.</p> <p>Build and CI fully integrated.</p> <p>Product Owner and scrum master.</p>	<p>Testing Roles and responsibilities / preventing duplicate testing.</p> <p>Involvement of all stakeholders.</p> <p>Frontend's testability</p> <p>Availability of Experts.</p>

## ... and on pre-requisites

- Products' priorities & risks aligned with sprint content.
- Interaction with non-development teams.
- Investment in proper test environment and support.
- And be clear on scope and required skills.

Thank you.

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