

So you think a new tool will help? Here's an idea-t to think about...



Anna



Bill



Cam

Isabel Evans (University of Malta)

TestBash Brighton October 2025

Hidden slide - Biography

- **Speaker Bio**

- After over 30 years in the industry, software quality and testing practitioner Isabel Evans is now a post-graduate student at the University of Malta. Her research takes people-focused approach to designing tool support for testing. This arose from real-life experiences in industry and led to the academic papers: “Stuck in Limbo with Magical Solutions”, “Scared, Frustrated and Quietly Proud”, and “Test tools: An illusion of usability”.
- Research continues with modelling and trialling a framework of heuristics to help teams design and assess test tools. Isabel authored “Achieving Software Quality Through Teamwork” and chapters in “Agile Testing: How to Succeed in an eXtreme Testing Environment”, “Testing Practitioner”, and “Foundations of Software Testing”. Isabel has chaired EuroSTAR (2019) and HUSTEF (2018), and presented popular tutorials and storytelling keynotes at conferences worldwide. She is a Fellow of the British Computer Society and received the 2017 EuroSTAR Testing Excellence Award.

Hidden slide - Abstract - TO DO – update with latest GitHub etc. check against the abstract

How well do we design and acquire our tools?

Drawing on compelling evidence gathered from a series of interviews, workshops, surveys, and case studies with industry gurus and hands-on practitioners, Isabel shares testers' stories of their experiences, her experiences of research, and her findings.

Introducing a framework of heuristics developed from the research and trialled in industry: IDEA-T is a framework of heuristics for Influencing the Design Evaluation and Acquisition of Tools to support testing.

Each heuristic is a gateway to discovery, backed by explanations and enriched with engaging exploratory activities based on solid research.

This talk introduces IDEA-T and the heuristics, which you get the chance to use in a workshop later in TestBash!

Level of expertise required for this talk: All levels

What you'll learn

- IDEA-framework of heuristics introduced for design, build and acquisition of test tools
- Background research evidence for the heuristics explained
- Hear about what a long research project entails

Once upon a time...
The research
The idea-t framework of heuristics
And finally...

Once upon a time...

Let me tell you a story...

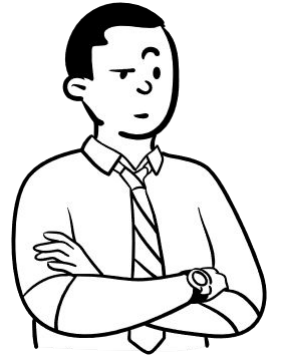
- A story about Anna

- She built a tool to use herself, and suddenly found she was supporting the tool for other people to use...



- A story about Bill

- He was using a vendor tool, and they offered an upgrade which would help solve that knotty problem he had with certain types of bugs...



- A story about Cam

- They were designing a new feature for their test tool, and knew exactly how users would apply it...



(Anna, Bill and Cam are personas built from interviews, survey responses, workshop output...)

A story about Isabel...

- A practitioner and consultant who ...
 - Has lots of experience
 - And wanted to solve a problem...
- Started into academic research about testers and their tools
- And found errors in all her hypotheses...
- Plus unexpected evidence
- The discipline of academic research is slow and very exacting...
 - and robust



Once upon a time...

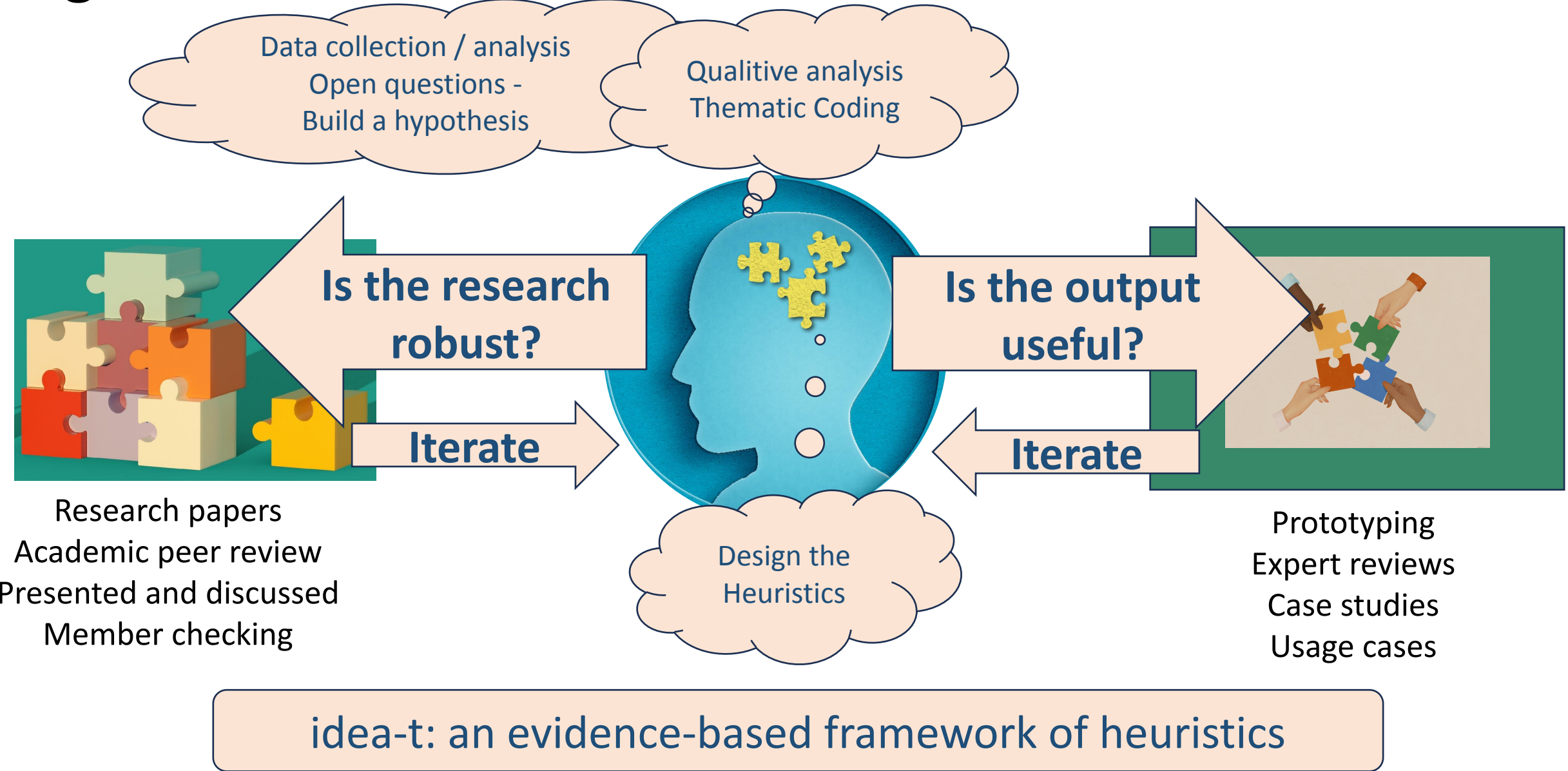
The research

The idea-t framework of heuristics

And finally...

The research...

Stages to build the idea-t framework and heuristics



Research Questions (and papers...)

1. What are testers' experiences with tools?

- 2018-2020: Hypothesis building
 - Interviews, workshops, surveys

"Stuck in Limbo with Magical Solutions"

"Scared, Frustrated and Quietly Proud"

"Test Tools: an illusion of usability?"

2. Who is testing?

- 2020-2023: Accumulating evidence
 - Survey

"Breaking testing stereotypes"

"The Software Testing Community and IT Stereotypes: A Study with Industry Professionals"

3. Would people-focused approaches help?

- 2022-2024: Building and evaluating a set of heuristics
- 2023-2025: The idea-t framework
 - Expert / Practitioner Reviews and Industry Case Studies

"Communicating Heuristics"

Heuristics Framework in repository...

What are testers' experiences with their tools?

looks cool, but...

...if we make this crap again,
what's the point?

I think I should leave my job
and look for a company
who actually values testing

I don't really count what I did there as testing
though, I ran scripts I didn't write, generated
reports I didn't understand...

Automation has to dance
along with the system under test ... it's
incredibly complex

update was really cool but
everything looked different and
was a little hard to find.

For those of us with
strong coding backgrounds,
it can occasionally be difficult to accomplish
what we want

every time
I have to deal with a new tool,
it's the matter of installation
that is the most difficult

I do like how their feature ...
but getting that information back out
once it's been entered is not easy

It was a lot of effort learning about the tool.
The tool was initially built for developers
with a small element for testers...

many tools present their selves
"in the middle of the world" as
magical solutions
for all the test problems

The problems with test automation
are that people think
they should get rid of all mistakes
in a magical way

it is scary and
I always get stuck.
I am delaying the inevitable
(frowny face)

(the manager) didn't realise software is a
bloody difficult thing to build ...

What are testers' experiences with their tools?

Lived Experience

- Levels of emotion
- Affecting their work and lives

The Illusion of Usability

- Superficial “Usability”
 - Focused on attractive interface
 - Designed with only one user group
 - No support for change and growth
- Usability is necessary...
 - but not sufficient
 - not enough for a good experience

Forgotten questions:

- Who is this tool for?
- Why is this tool needed?
- What context will this tool be used in?
- Therefore...
 - what attributes should the tool have?

Decision: survey to find out “who is testing?”

Survey of testers:

Looked at interests, communication styles, background, education, previous roles, current role, job titles, actual activities, training in testing, aspirations...
Compared with stereotypes...

Example finding:

Stereotype: Testers IT/SWE degrees

Survey result:

~ 9% Arts

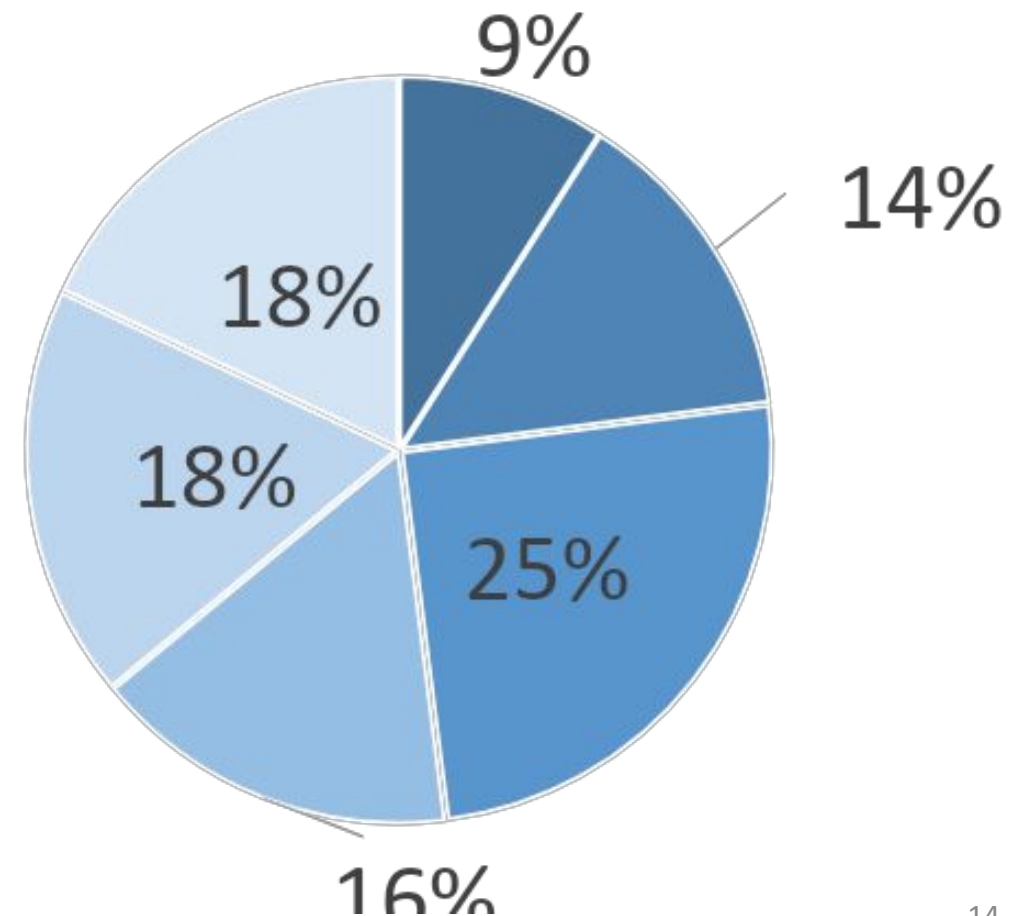
~ 14% Social Sciences

~ 25% Sciences

~ 16% IT/SWE

~ 18% Didn't mention subject

~ 18% No degree



Found testers are not stereotypical IT people..




If this is the IT stereotype for recruitment...

(Recruitment database)



Only 30% of IT people

(McChesney)



Survey
Only 6%
of testers

(Evans)

Use the research data to help people answer the Why? Who? Context? questions...

Testers and their contexts are heterogenous

Too difficult!!
Too many variables!!

Build a set of heuristics

Build a tool that provides the answers to the questions?

Help people to ask the right questions

Once upon a time...

The research

The idea-t framework of heuristics

And finally...

The idea-t framework of heuristics

Heuristics are at the heart of idea-t

Theme: Why?

1. Why do we need this tool?

idea-t framework – GitHub Repository

Why?	Who?	Context?
Why? Heuristics e.g. Goals Constraints Measures Why not Why else	Who? Heuristics e.g. Experience Communication Learning Who not Who else	Context? Heuristics e.g. Where Workflows Timescales Context not Context else

Once upon a time...

The research

The idea-t framework of heuristics

And finally...

The idea-t framework of heuristics

Looking into the GitHub repository...

Heuristic

Theme

Quick Start with some ideas and a link to some research evidence

Quality Attributes that are linked to this heuristic

More explanations and case studies

Things to do to help answer the heuristics

H2 Who will use or be affected by the tool?

[Go back](#)

Theme WHO?

Quick Start:

- Heuristic Question: Who will use or be affected by the tool?
- Who (also) will use the tool? Who provides information for inputs? Who uses information from outputs?
- Asking "Who?" is useful - we found a *broad and non-hierarchical group of people are looking*, and therefore may be using the tool.
- You will also have stakeholders who may not use the tool, but may influence the goals for the tool.
- As you identify why the tool is needed, you might find that different stakeholders have different perceptions of why the tool is required and what it should do you need to understand *Who needs the tool*.
- Also consider that not everyone will benefit from the tool for some people there may be perceived or actual disadvantages to the tool, that affect their work or themselves adversely.

As well as asking Who? and Who also? ask Who not? - Who will not use the tool?

- Quality in Use Attributes Satisfaction
- Product Quality Attributes: User goals, Appropriateness
- Mapping Heuristics to Quality Attributes

Explanation and sub-questions

- ▶ Click for further explanation
- ▶ Mini usage case - the people who identify the problem may not be the people who have the problem...
- ▶ Research Points and Quotes

Activities, tools and techniques to help answer the questions

[Back to Top](#)

- ▶ Click for activities

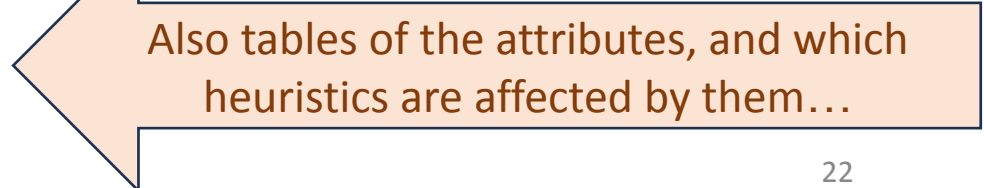
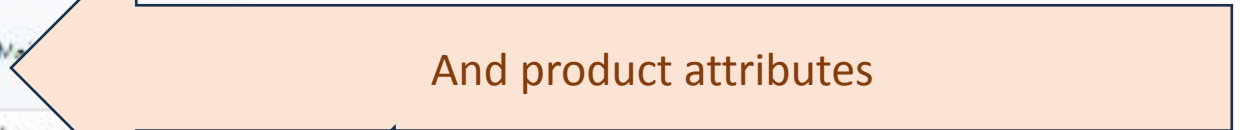
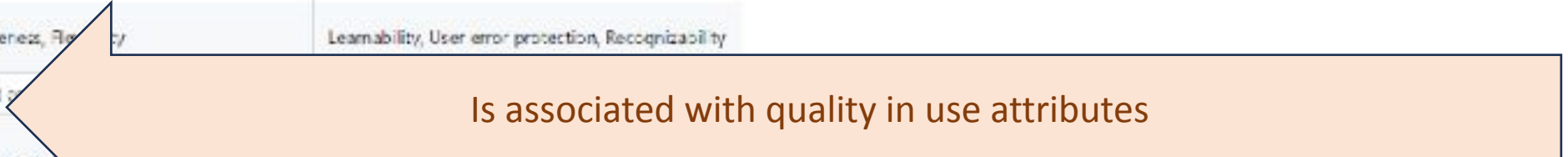
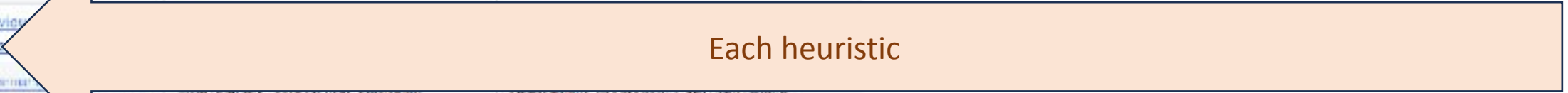
[Back to Top](#)

Example Heuristic Page from GitHub

List of Heuristics and Related Attributes

▼ List of Heuristics and Related Attributes

Heuristic	Quality in Use	Product Quality Attributes
H01. Why do we need this tool?	Freedom from Risk (including economic, health, safety, environmental, societal risk)	User goals, Appropriateness
H02. Who will use or be affected by the tool?	Satisfaction	User goals, Appropriateness
H03. What previous people bring to the tool?		
H04. What learning preferences do people have?	Effectiveness, Flexibility	Learnability, Accessibility, Recognizability
H05. Is the learning goal "tool mastery" or "task completion"?	Effectiveness, Flexibility	Learnability, User error protection
H06. What learning preferences do people have?	Effectiveness, Flexibility	Learnability, User error protection, Recognizability
H07. Where will the tool be used?	Context coverage	Maintainability, Functionality, Security, Compatibility, Recognizability
H08. What workflows will the tool be part of?	Effectiveness, Context coverage	Maintainability, Functionality, Security, Compatibility, Recognizability
H09. What risks are associated with those workflows?	Freedom from Risk (including economic, health, safety, environmental, societal risk), Context coverage	Operability, Appropriateness, Performance, Maintainability, Reliability, Scalability
H10. What autonomy of work styles is allowed in those workflows and teams?	Context coverage and Flexibility, Satisfaction	Operability, Accessibility, Maintainability
H11. When will the tool be used?	Efficiency, Context coverage	Operability, Accessibility, Appropriateness, Performance, Maintainability, Compatibility, Reliability, Recognizability
H12. How long will the tool be used?	Context coverage	Portability



Worked Example of Using the Heuristics to Think about Archetypes and Persona Groups

Suppose we are building a tool for a large group of people to use, and we don't know them, and cannot interview them. Ideally we might run workshops with a group, but depending on how we select the participants and who is willing to take part we still might not get a representative sample. We can use the heuristic questions and a classification tree to start us thinking about who might use the tool and what their preferences might be. This won't give us personas, but it might give us a clue about some questions to ask during the design and some user research areas, helping us to build archetypes.

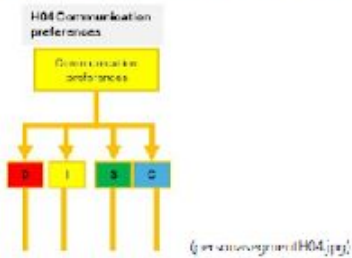
The worked example below shows one approach. To reach a set of personas for your context, you would need to build context-specific classification trees similar to these, and then build on them with user interviews or other evidence.

▼ Worked example of thinking about the heuristics to help plan a set of archetypes or personas

Step 1: Heuristic H04 Communication Preferences

Heuristic H04 is about communication preferences, and if we don't know what we want to use the tool, we could model it based on - for example - the DISC profile, giving us four potential communication styles: Blue/conscientious, Green/caring, Red/dominant and Yellow/social. That communication preference affects how they want to receive and give information. Blue and Green tend to be more introverted, reserved. Red and yellow tend to be more extroverted, outgoing. Blue and Red tend to be focused on process and results. Green and yellow are more focused on people. We might imagine their tool interface preferences: blue might want a detailed spreadsheet. Red might prefer bullet points on a powerpoint slide, yellow might enjoy a chatting channel such as Slack. Green might want to work in a group at a whiteboard... It's worth thinking about how a tool might allow data to be shared between interfaces (for a low level detail and overview, and allow both individual and group work).

We could therefore start our personas by imagining at least one persona for each DISC preference and start a classification tree.

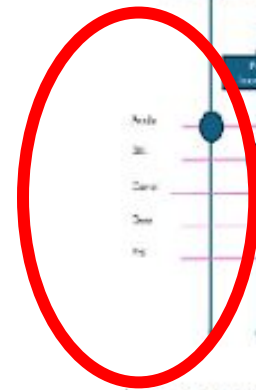


Step 2: Heuristic H05 Learning for Mastery or Learning for Task Completion

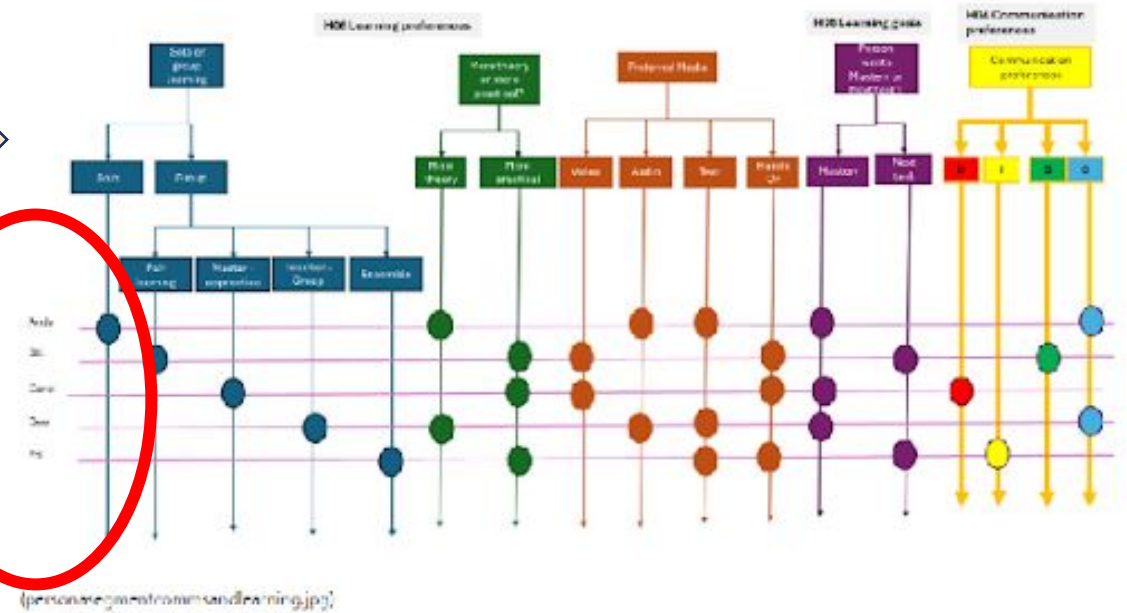
Heuristic H05 asks us to think about what type of learning people want to do when engaging with the tool. Are they wanting to master the tool and invest in the time to do that? Or, do they have limited time and simply want to carry out the next task. Both are reasonable approaches.

It steps through one way to build personas for the tool

Step 4



Step 5

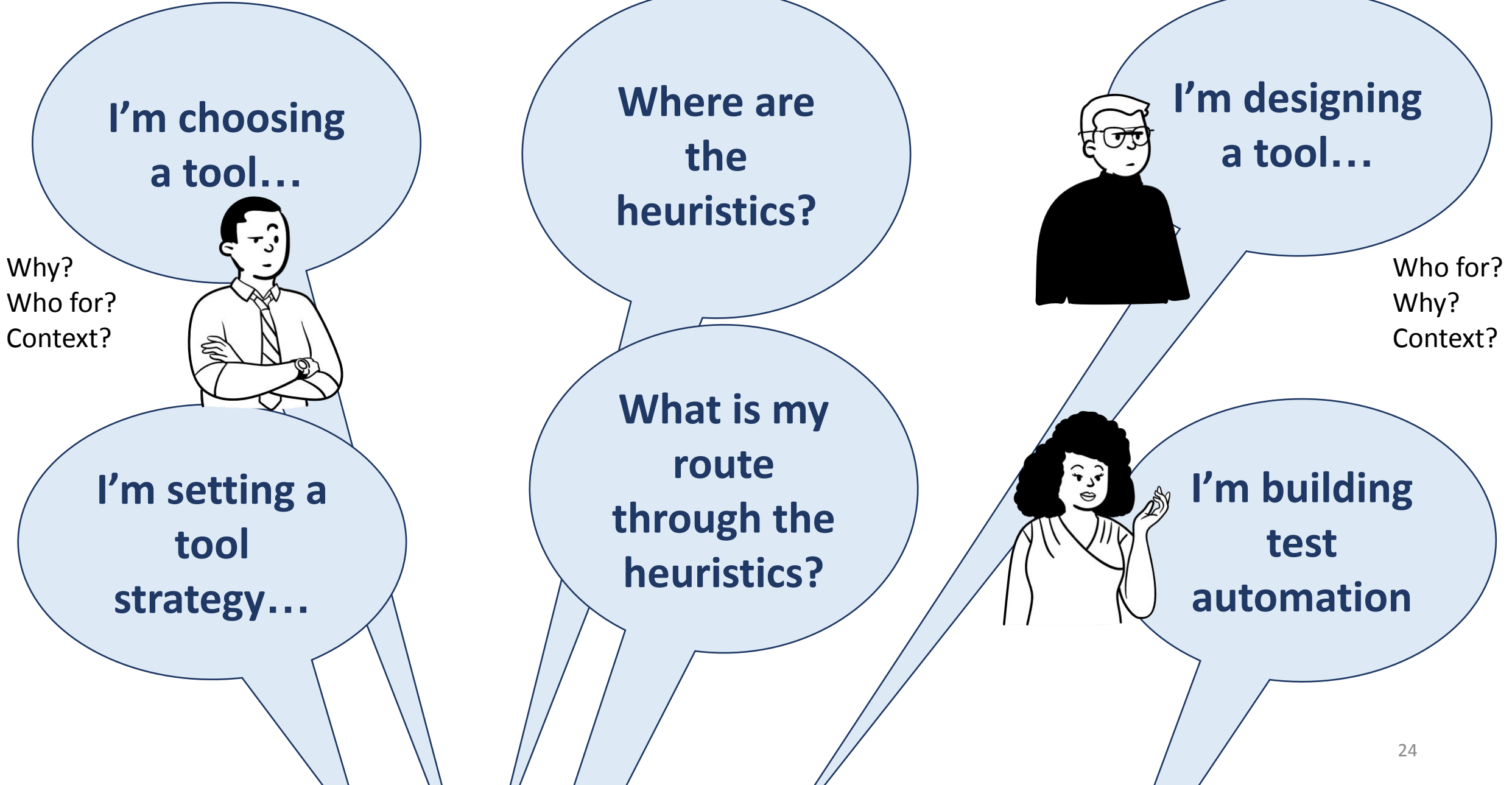


Step 5 Adding role-based characteristics

We can also add role-based characteristics - in the next figure, a set of assumptions have been made about the archetypal roles who might use the tool, their levels of authority and team autonomy (H10), the workflows they might be involved in (H08) and the risks associated with those workflows (H03). This adds to the personas developed above with archetype assumptions. In the diagram as it is drawn:

- Andy is a test analyst, mainly using workflow 1, which includes tests for high risks, and has low authority and low autonomy.
- Bill is a product owner, mainly working in workflow 3, low risk area, with high authority, in a team with medium autonomy.

Using the idea-t framework and heuristics - options



How to use the heuristics

[Go back](#)

This section tells you about different ways to use the heuristics in different situations.

We recommend you re-use the heuristics at intervals, perhaps having a quick discussion at regular intervals to decide if you need a deep dive into any of them.

Quick start approaches

[Introducing the heuristics into an organisation](#) may require a little planning; you need to build trust through experimenting with them.

Taking a list

Mini usage case

Navigating this page

[Back to top](#)

Generic Use - Howcharts through the Heuristics

The heuristics group into three domains: Why? Who? and Context?

Flowchart focused on the "Why?" Heuristics

Why? Flowchart

[Back to Top](#)

Flowchart focused on the "Who?" Heuristics

Who? Flowchart

[Back to Top](#)

Flowchart focused on the "Context?" Heuristics

Context? Flowchart

[Back to Top](#)

Navigating the Heuristics: Explanations

Navigating the Heuristics: Explanations

[Back to Top](#)

Tool vendor designing or building a test tool

Tool vendor designing tool

[Back to Top](#)

Open source test tool design and build

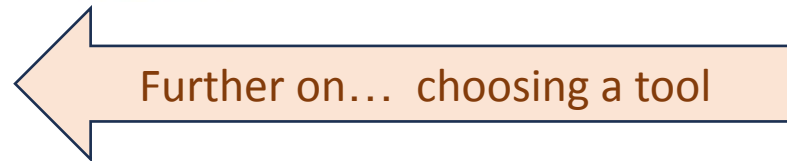
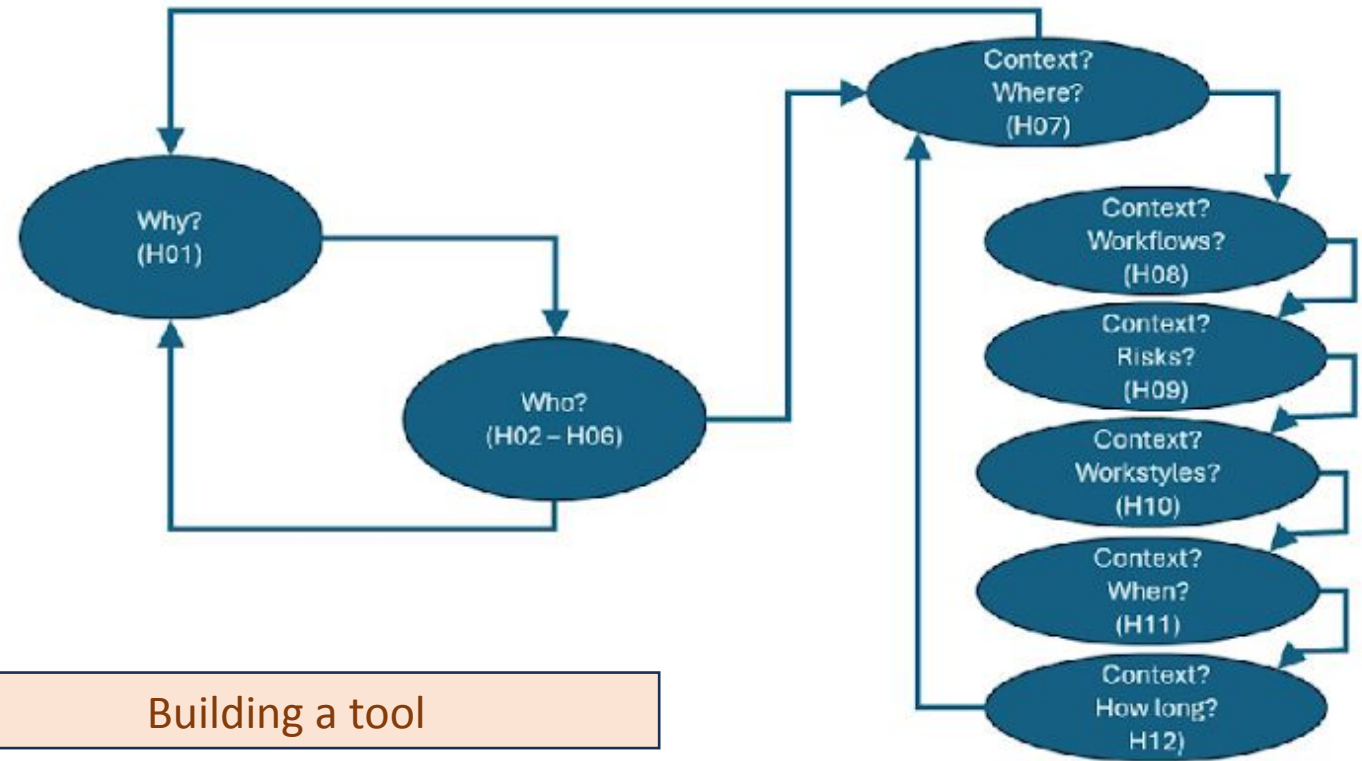
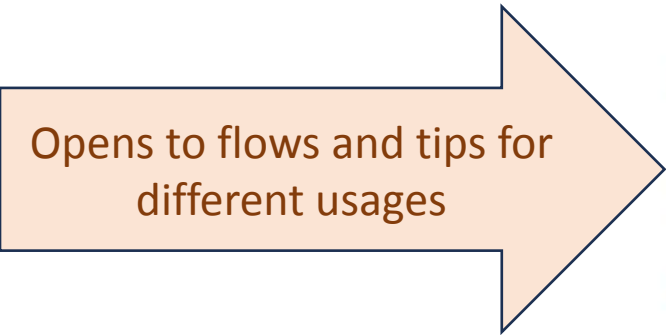
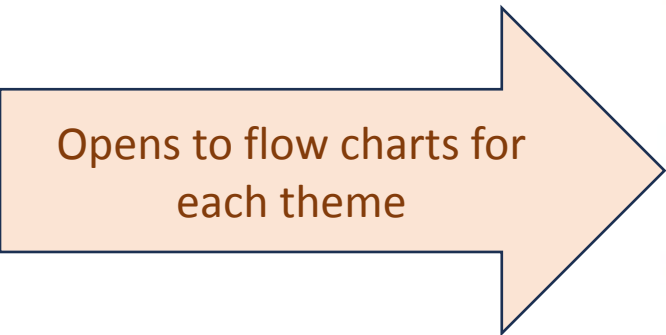
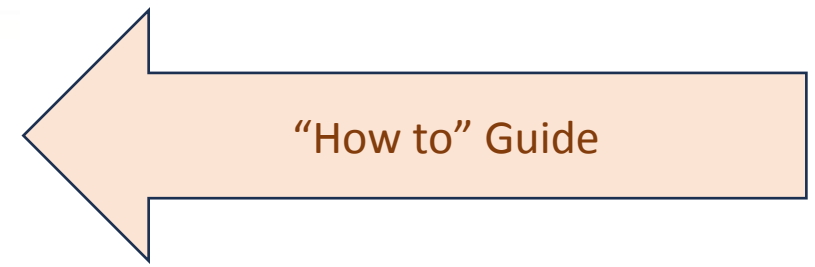
Open Source designing tool

[Back to Top](#)

In-house test tools

In-house tool designing

[Back to Top](#)



GitHub Repository (GPL 3.0 license – use it!)

idea-t V1.7

Maybe start with...

- Fast path:

<https://github.com/hci-lab-um/heuristics-for-test-tool-design/blob/main/Heuristics-fast-path.md>

- README/home page:

<https://github.com/hci-lab-um/heuristics-for-test-tool-design/blob/main/README.md>

- Downloadable summary:

<https://github.com/hci-lab-um/heuristics-for-test-tool-design/blob/main/Heuristics-2-page-summary-v1-1.pdf>

idea-t v2.0

- Being built now
- Better structure and navigation
- Intent to deliver in other media
 - Poster
 - Book
 - Workshop
 - Cards, etc..



Once upon a time...

The research

The idea-t framework of heuristics

And finally...

And finally...

Let's catch up with...

- Anna

- She built a tool to use herself, and when she saw the heuristics she said...



- A story about Bill

- He used the idea-t framework to evaluate the vendor tool and found that...



- A story about Cam

- They used the idea-t framework to evaluate the prototype for the new feature and realized that...



In a retrospective in one case study

42%

of customer requests and queries ***might*** have been prevented by using idea-t earlier

“if we had dived deeper into the question could we have helped the customer sooner or better... maybe!”

Cannot claim a causal link – but indicative

Next steps

For me...

Viva happened last week... results...? Graduation...?

Building v2 of the idea-t framework within the GitHub Repository

Infographic? Book? Website? Podcasts?....

What's
next?

Use the Heuristics, and explore idea-t

For you...

Talk to me...

Send me comments!

<https://isabelevansuk.wordpress.com/contact/>

Formats: Infographic? Book? Website? Podcasts?....

Mistakes you've spotted...

Suggestions for improvements...

So many acknowledgements and thank you's!

TestBash Ministry of Testing
ØREDEV HUSTEF Nordic Testing Days
Testµ EuroSTAR UKSTAR
STAREast STARWestSTARCanada
UCAAT Accelq WIT
ANZTB PSTQB
agilitest test:fest lamdatest
BCS HCI SICSA
HUCCAP TAICPART ECCE
Testersuite
And others...

- 2 long-suffering supervisors...
- 12 hours of expert interviews
- 300+ person-hours of workshops
- 230+ survey participants
- 20+ expert reviews of prototypes
- 5+ mini-usage cases
- 6 industry case studies
- 7 industry expert final reviews
- Over 3000 data points collected
- Multiple colleagues and friends...

TESTERSUITE®
TESTING & CHECKING MADE EASY

isabel.evans.17@um.edu.mt