



PROPOSAL: CREATING VALUE THROUGH INNOVATION

Assignment 1: Innovation & Research.

BSc Degree Apprenticeship Computing (Computer Networks & Cybersecurity)

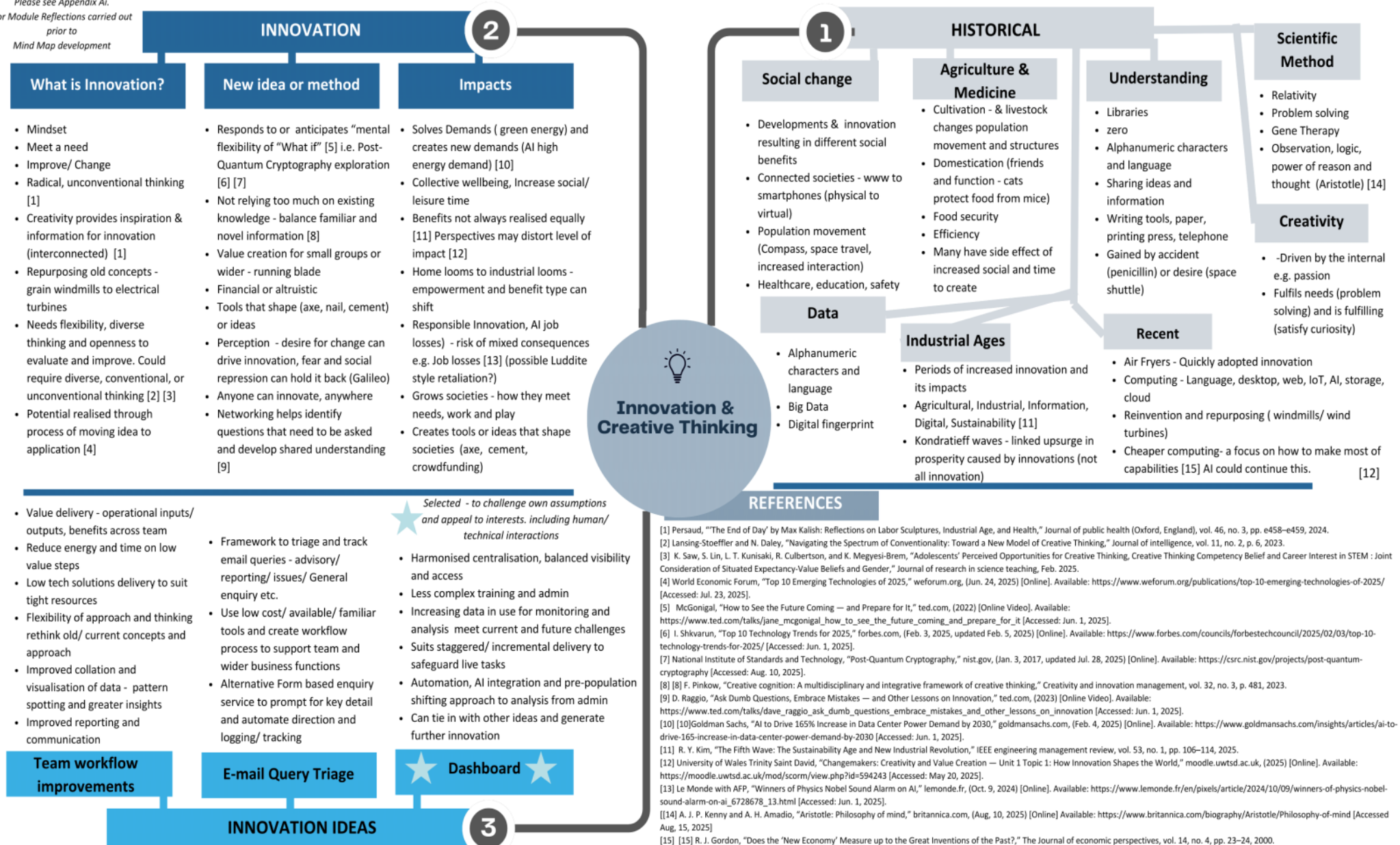
Zoe Clark (97011450)

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1. Mind Map

Please see Appendix A1.
for Module Reflections carried out
prior to
Mind Map development





2.1. The Idea: Aim & Objectives

A personal interest in human–technology interaction is applied to challenges in workflow and reporting. Rising data volumes, evolving tools, AI integration, and limited resources demand new approaches to support clear decision-making. Objectives focus on stakeholder value. To progress development, assess impact, and measure success, they must define practical, measurable steps for delivery.

Aim

Reduce user frustration and improve operational efficiency via a dashboard prototype that addresses visibility and reporting challenges across key cyber activities.

Objectives

- Define and baseline visibility, data handling processes, and user frustration across cyber activities.
- Document project requirements based on participant findings and research. Review through mock-up design.
- Collect and analyse data on duplication, volumes, timings, and frustration levels.
- Implement data handling controls to secure development data in line with best practice to secure and demonstrate assurance for live use.
- Implement iterative feedback mechanisms across design, development, and testing stages.

2.2. Philosophical Approach

Delivery is for a multi-disciplined and layered team environment where demonstrating value, maintaining visibility, and upholding ethical standards are essential.

The philosophical approach considers environment and practical constraints (Table 1 Appendix B.1).

Table 1: Delivery context and implications for research.

Factor	Implications
Environment	Must demonstrate value, civil service, organisational ethics, policies, and procedures adherence. Outcome focused.
Security	Controls for sensitive data. Balance availability with security.
Resources	Limited, variety of team functions, skills and knowledge. Dynamic threats and technical environment.
Design	Bespoke. Requires insight into user perception and usability.

Ontology was not selected as while practical and objective, researcher is not separate (also end user) and user frustration is subjective.



Figure 1: Research philosophy components considered [16] [17]. Image Design: Author.

Table 2: Evaluation of approaches [18] [19] [20].

Philosophy	Strengths	Limitations
Positivism	Demonstrate value through objective metrics.	May overlook subjective user frustrations or usability.
Critical Realism	Balances technical and human factors, user experiences and underlying causes acknowledged.	Difficulty quantifying perceived value (subjective insights to objective outcome).
Pragmatism	Focus on 'what-works' for users in evolving context.	Ongoing resource demands, adapting to changing

An approach combining critical realism and pragmatism, considers subjective and objective elements. Positivism adds value without restricting approach. Personal preferences (Fig. 2) suggest the combined approach ties in well with personal style, perhaps due to interests and initial inspiration. This risks restricting innovation and creativity via comfort zones and bias. Addressing via external research and feedback can ensure inclusion of wider insights.

Reflect

As you are reading each of the different sorts of research philosophy, it is likely you will be drawn to it or not. Choose how you feel about the following research philosophies. Is there an outright winner for you?

	Support	Indifferent	Against
Positivism	☐	☒	☐
Critical Realism	☒	☐	☐
Interpretivism	☐	☒	☐
Postmodernism	☐	☐	☒
Pragmatism	☒	☐	☐

So you feel most drawn to: **pragmatism**

What aspects do you agree with? Why do you support your choice(s) more than others?

critical realism

Figure 2: Module reflection indicates approach preference.

2.3 Search Tools and Databases

Taking forward the philosophical approach, a practical approach to gather relevant, credible research was explored. A concept map provides visual organisation. This provides clearer focus on themes, keywords and possible research questions (Fig 3). [21]

"Can centralising and visualising cybersecurity data improve usability, reporting, and compliance for workflows?"

Figure 3: Example research question development from a concept map (Appendix B.1).

To focus on core search terms, linking words and overly specific were removed. Boolean operators (AND, OR) and quotation marks (exact phrase searches) were used for results involving connected concepts or wording in a chosen order reducing volume of individual, unrelated mentions. (Fig 2, Appendix D.2).

Filtering recent publication dates (Fig 4. Appendix D.2) keeps results focused on current practice, helpful as tools, threats, and operating contexts shift quickly. Peer review provides assurance through validity and accuracy checks. [22]

Some combinations (Appendix D.2) returned a high number of relevant results, suggesting well-explored underlying principles helpful for an idea tackling daily operational challenges. This also needs more filtering and refining of searches to avoid overwhelm. Again, referring to the Concept Map (Appendix B.1) to refine keywords and search terms further is a preferred strategy. Reading abstracts and paper keywords to determine relevance would be more practical for very specific searches returning few results. Important to consider for this project idea, less well explored themes (low results with wider search terms) could demand additional resource. Extended testing, high resource use, and longer delivery times beyond what is available.

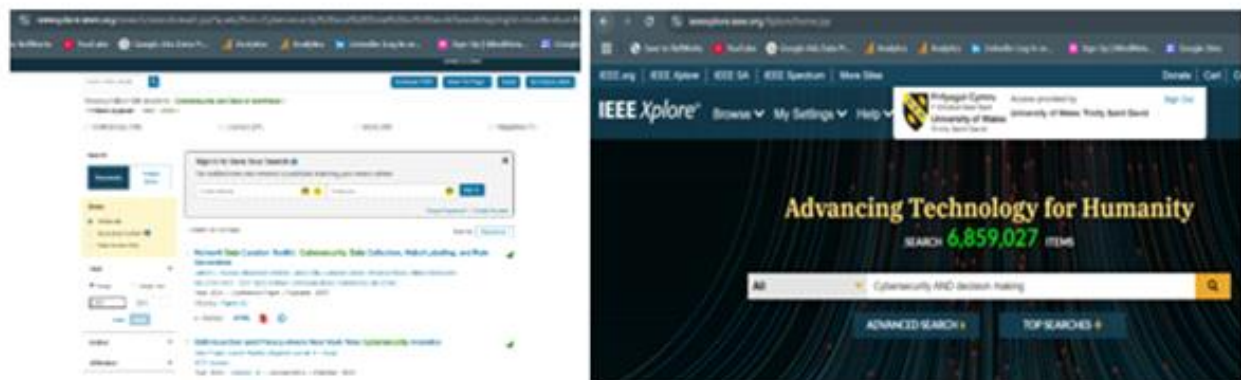


Figure 4: IEEE Xplore with Boolean operator testing and peer-review/year filters applied

Sourcing across recognised academic and professional sources increases range and credibility. Results still require review to confirm application. Searches via University library, sources such as Google Scholar, and browser extensions quickly widened the range valuable sources further (Refer to Appendices D.1 to D.3).

Sources supporting and questioning concepts provide a stronger foundation. A well supported proposal will be more likely to gain stakeholder acceptance and be seen as valid for implementation.

3.1. Strategies

To evaluate whether the dashboard reduces user frustration and improves operational efficiency, the research design must ensure that the right concepts are measured, consistently interpreted, and ethically applied (Fig. 5).

Validity	Does research measure concepts it intends to?
- Define user frustration clearly (user input not researcher assumption) - Open questions to understand and define - Ensure measures align with usability and efficiency aims	
Reliability	Can findings be repeated, are they consistent (over time/ conditions)?
- Standard questions and measures - Repeat measurement over time - Closed questions, use same scale or ratings at each stage to compare like for like. - Establish basic definition of efficiency, current baselines - Use available established data such as logs to check and compare volumes and other metrics	
Generalisability	Do findings extend beyond organisational setting?
- Limited as compact team and some organisation specific workflows - Higher where workflows match sector wide practice (reporting format, incident handling, compliance framework or best practice linked) - Conceptual insights (frustration, cyber specific visualisation, data handling and analysis) have broader relevance	
Ethics	Is research responsible, does it protect participants?
- Informed consent, voluntary participation, transparency of purpose - Secure and ethical data handling (redacting anything sensitive, considering audience viewing findings, level of detail, anonymised responses) - Legal, policy and organisational adherence. Ensuring meets Civil Service Code in approach and practice	

Figure 5: Considerations to support responsible and ethical process with credible results. Image design: author. [21]

Validity as a process of investigation, requires that research measures the intended concepts (Fig 5). In this case user frustration and usability. Open questioning enables participants to define frustrations in their own terms, which can then inform structured measures (questionnaires). This reduces researcher bias and ensures alignment with project aims of usability and efficiency. The interviews process will need to be standardised across participants, repeatable, and care taken with accurate recording of responses to support validity. [23] The questionnaires then investigate a causal relationship i.e. that the dashboard implementation statistically causes increased decreased frustration. [24].

Reliability depends on consistency across time and conditions. Standardised questions, repeated measurement, and use of identical rating scales allow comparison of results. Supplementing this with available operational logs ensure results are stable, repeatable and support stability of findings. [25](Fig 5).

Generalisability is necessarily limited by the focus on a organisation specific solution that may not be suitable for the wider population and small team context e.g. random sampling will be less practical [26] . However, elements such as reporting formats, dashboard use, and data visualisation techniques reflect wider sector practice, providing transferable insights. [Fig 5].

Ethics underpin the research design (Fig. 5), [27]. This includes the research practice e.g. embedding elements include informed consent, voluntary participation, transparency of purpose, anonymisation, and secure handling of sensitive or personally identifiable data. It also involves adherence to policy, ethical frameworks and ensuring human feedback into technological design elements. Compliance with organisational policy and the Civil Service Code provides assurance of responsible practice.

Practical influences on validity, reliability and ethics, such as workflows, hierarchies, and data sensitivity, are illustrated in Figure 6.

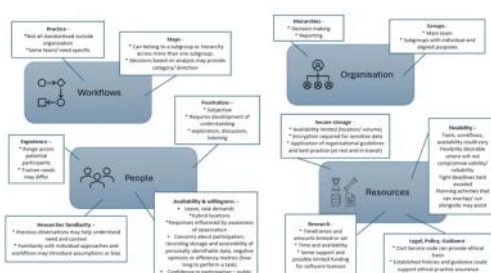


Figure 6: Context and practical considerations for measurement. Image design: author based on workplace knowledge.

3.2. :Data Collection

Data selection Methods are selected based on relevance and practicality to measure workflow activities, structures, or subjective elements (user frustration). They are intended to support consistent interpretation for valid, reliable use. (Table 3) .

Table 3: Proposed data collection methods and approach

Data collection type	Measures	Approach	Rationale
Interview	User frustration, usability	Interview with open questions	Avoids assumption, defines frustration, captures inefficiencies and duplication through narrative insight
Questionnaire	User frustration, usability	Closed questions designed from analysis of interview data, User provided with ratings scale	Quantifies dashboard impact across development stages. Enables regular feedback to improve alignment with aims
Walkthroughs	Usability and reporting efficiency	Observation of current tasks observation with early designs Observation with prototype	Identifies issues early for low-resource fixes. Captures manual effort, duplication, and barriers via task observation. Resource-intensive, so used only at 3 key points
Activity timings	Operational effectiveness	Timings of reporting task	Repeated timings used to confirm consistency and evidence efficiency gains
Log analysis	Task volumes	Number of items handled over time relevant to task e.g. weekly rotation	Assess capability improvements through automation or consolidation of data. Give timings context e.g. 1 occasion x by typical volume for resource savings Analyse to identify duplication of data sources across historical data

User data collection occurs in live setting. Participants may disengage or alter performance through awareness of observation (Hawthorne effect). To reduce this, trust will be established early via clear consent forms, data handling controls, and anonymisation. Ensuring a range of experience in participants may also provide more balanced results. [28]

Sampling design reflects operational relevance (Table 4) e.g. direct involvement in dashboard impacted reporting tasks. Including users responsible for data collation, transformation, and submission, as well as those who review or act on outputs. Where cluster sampling is used (e.g. user process frustrations and reporting effectiveness), it will be crucial to analyse how representative that sample is. [29] If sample groups are constrained e.g. limited population then it is proposed to note and use caveats alongside with the captured data for more considered analysis and interpretation.

Table 4: Sampling selection [21]

Method	Use?	Rationale
Stratified sampling	Yes	Reflect variation in role and hierarchy workflows and reporting
Typical case sampling	Yes	For standardised (typical) workflow steps
Snowball sampling	No*	Rejected as the group is closed and defined. Will consider if participant considers required for essential insight/ perspective.
Unusual case sampling	No	Too infrequent and varied. Small sample sizes would introduce distortion.
Cluster sampling	Yes*	May be appropriate where subgroup size is very small (e.g. 2 individuals). Caution required to avoid imbalance e.g. proportion of population not equivalent etc.

Sampling numbers will be held consistent across stages to support valid comparison, but may vary naturally based on activity levels, particularly where fixed percentages are unsuitable for low volumes.

Data types and volume are considered in method design. Open interview questions capture subjective, qualitative input, supported by a consistent question set and optional prompts to draw out responses. Rating scales allow quantification. Timings provide repeatable, quantitative data.

Management of data volumes is controlled via set data capture points and using historical data (logs) to support. Limited secure storage will place restrictions on volumes collected and researcher availability will place restrictions on analysis of subjective qualitative data. Careful design will be needed to ensure results can provide reliable, valid findings.

To improve approach, feedback was obtained via an skilled and experienced manager (Appendix E). This confirmed the idea as value creating and feasible. Useful considerations indicated due to numerous tasks, dealing with priority workflows first may be sensible.

Reflections concluded that creativity and passion for delivering the idea could be tempered by time restrictions. While unpalatable, constructive thinking refocuses thinking towards managing expectations both for innovator and stakeholders. The suggestion of working towards goals longer term, encourages the planned application of an iterative approach.

3.3. Measuring Quantitative and Qualitative

Quantitative and qualitative analysis application reflects data types being collected, the aims and objectives. Both provide distinct but complementary insights (Fig. 7). Quantitative methods give measurable results that can be compared across time and samples, while qualitative methods capture context and user perspectives that cannot be reduced to numbers alone.

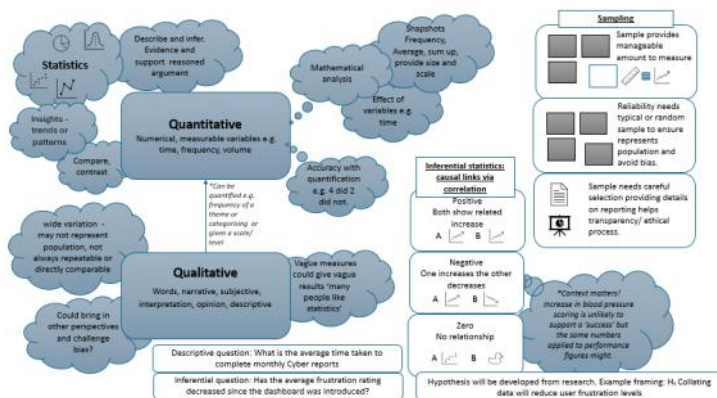


Figure 7: Reflection on module concepts – application of quantitative and qualitative analysis. Image design: author [30]

Quantitative analysis enables statistical comparison and inference. Variable effects can be measured, and patterns identified quickly and communicated through concise, impactful visualisations (Fig. 7).

Questionnaire rating scales enable tracking of quantified user-frustration scores to be quantified, adding validity and accuracy to delivery success or issue evidence. Repeating at set points can track changes through comparing measurement before and after. Repeating generates further data points and analysis opportunities. For example, during testing and after adjustments from feedback showing further decreases between stages could infer success for the iterative feedback objective as well as reducing user frustration.

Asking descriptive or inferential questions assists identifying baseline patterns, testing delivery-relevant hypotheses, and exploring causal relationships, as shown by example questions in Fig 7. Correlation can also help measure causal links. Concerns around dashboard administrative time increasing more than reporting time savings could be framed and tested. This would evidence operationally effective performance.

Qualitative analysis complements this, capturing issues that structured data may miss. Interviews and walkthroughs allow participants to define frustrations, suggesting improvements on their terms. This reduces researcher assumptions and bias, unless the sample group is unethically selected for bias. For example, excluding participants content with current approaches may increase the chance of lower frustration scores than actual averages. Ideally, sampling would be random, though this is not always feasible, as discussed in the previous section (Table 4).

Qualitative data can also be quantified by categorising responses to measure levels of response and less directly observable impacts (physically or statistically).

Using types together, where relevant is intended to create a balanced analysis. Quantitative data provides scale, accuracy, and comparability, while qualitative insights ensure findings remain grounded in lived experience. Each addresses limitations in the other, producing results that are both robust and meaningful for this project with its objective and subjective delivery elements. Qualitative findings add depth, highlight unexpected issues, and guide potential refinements. [31]



Conclusion

Quantative data supports robust accurate evidence, essential for adoption of the prototype. However, innovation as a concept seeks to processes and outcomes for people, then subjective, qualitative data must be treated as creating process value. User opinion and experience shape debate, guide design, add creative ideas and refine approaches. Computing may rely on binary logic, but as explored in section 1, it is driven by human interaction and needs.

Appendix A: Module exercise examples

17 August 2025 17:01

A.1 Reflection on Module Unit 1 Topic 1

Reflection - Innovation is Everywhere

28 May 2025 16:46

Reflect

Make a list of 5 things you have used or activities you have engaged in that would not have been around 10 years ago.

Consider different aspects of your life, such as **study, preparing meals, entertainment and communication**.

Which of these has changed your life for the better and why?

https://moodle.uwtsd.ac.uk/mod/forum/player.php?an=7768¤torg=5.1.1.1_ORG&scoid=17089&sesskey=Aj3PX0SFad&display=popup&mode=normal

At what point is it deemed to not be around - things may be invented but they won't change your life until release (less/ early adopters/ financial constraints) or mainstream (common/ cheaper/ may still be financial constraints impacting access or experience).

Five Innovations uncommon Ten Years Ago: A Personal Perspective

1. AI Tools and Deep Learning - Co-pilot built into Q365. Seen in educational and entertainment e.g. 2020 Channel Deepfake Alternatives Queens Christmas message. Now have Co-pilot in the workplace will be essential in countering Cyber threats in the future, changing up and adding variety to role, additional tools to meet future challenges. Providing stimulating debate and academic interest in how new ideas can be a threat and protection to and for societies.
2. Netflix Streaming - example of later adoption/ slower shifts. While available from 2007, only personally adopted as a main source of entertainment and transformed household habits within last decade. Entertainment fits around household schedules better, increased access to variety of creative material and ideas via the television and now additional devices meaning watch anywhere. Pause and continue option means can change activity as needed or desired.
3. Ninja/ air fryer - Shift to smaller single devices. Household rarely uses oven. Change from daily use within the last 10 years. Menu changes to healthier speedy food options, less kitchen equipment needed, less washing up, no burnt pans. Food companies have begun to place air fryer instructions on packaging, reflecting wider social adoption and making further convenience within reach. Expensive to adopt initially but realised big savings for personal and fuel energy.
4. Smartwatch and Fitness Tracking. Upgrade of Smartphone led to adoption. Focus was upgrading phone for new camera improvements, acquired Smartwatch via a bundled offer. Now a few iterations on, used almost daily to help manage health. Providing simple pattern identification, assisting in building better human habits however requires management and an eye on trust and data and value of use requires commitment from individual - wear, charge, carrying out activities.
5. Smart home devices. It all started with a lightbulb. Now track cases through the airport, can see the windows are closed and the fire alarm has not gone off from anywhere. Smart home promotes feeling of control and ease. But they are risky from network security and personal data perspective. Requiring research and maintenance to reduce that, not as convenient as pitched. Caution with adopting, questioning was important. Whose convenience and whose control? Can it go too far? Can desire to try the latest thing become addictive? Smart Washing machine features in the washing machine saves water and laundry liquid. Other versions can also include automatic ordering, but could be a control of choice. Questioning to establish limits important in such a wide field of options, fulfilling a need or creating the illusion of need? Important point personally is items like light sensors and audible instructions on smart fire alarms allow household members with disabilities to participate and engage with their environment more meaningfully and safely and have a radical positive impact used in the right way.

<https://www.channel4.com/press/news/deepfake-queens-deliver-channel-4s-alternative-christmas-message>

<https://www.britannica.com/money/Netflix-inc>

Figure 8: Reflection notes in response to module exercise

A.2 - Application Exercise - Module Unit 1 Topic 1

Video - Innovation Changes Everything

28 May 2025 16:39

Apply

Now that you have watched the video, which **innovation** do you think has had the biggest impact on the development of society as we know it today?

Language, because language has allowed each...

Why do you think this innovation has had such a big impact? Think about how you would **justify** your choice.

https://moodle.uwtsd.ac.uk/mod/forum/player.php?an=7768¤torg=5.1.1.1_ORG&scoid=17089&sesskey=Aj3PX0SFad&display=popup&mode=normal

The 71 Most AMAZING Innovations of All Time

<https://www.youtube.com/watch?v=1j67Ujz5V2A>

Initial thought - Language, because language has allowed exchange of ideas furthering other inventions and creativity.

Further reflection: It is crucial and fundamental to the way humans collaborate. Foundation. Languages can reflect culture and without speaking the same language it can be hard to understand depth of meaning and can cause misunderstanding but it also illuminates and helps describe, it can be used simply to instruct "Fire Exit" or to express complex emotion and levels of meaning e.g. poetry. It can injure and heal, it can motivate or depress. It is versatile.

The sharing of knowledge and ideas and language itself is always developing but mastery of language forges connections and can build bridges between new idea creators and established knowledge. It literally creates dialogue and exchange.

Gen Alpha language (Nancy Professor Shocks High School by Speaking Gen Alpha Slang)

"When you talk to someone in their own language you just ate and left no crumbs" - can inspire and influence - could argue language is a requirement to get the buy in to world changing ideas.





Apply

Do you still agree that this innovation has had the **biggest impact** on the development of society?

Language, because language has allowed exchange of ideas furthering other inventions and creativity.

What **beneficial** effects has it had on humankind? Justify your response in a forum post.

Figure 9: Research and study carried out to complete module 'Apply' exercise

Appendix A.3 - Reflections historical innovation and social change

Resources List

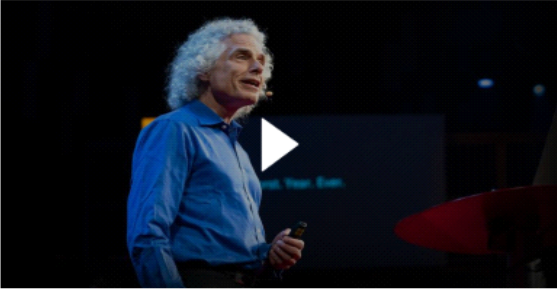
28 May 2025 17:09

Additional reading provided

Steven Pinker - Enlightenment Now (2019)
Steven Pinker - Ted Talk 2018

https://www.ted.com/speakers/steven_pinker

[Steven Pinker: Is the world getting better or worse? A look at the numbers](#)



Reflections:

Changes in Safety, Linguistics, Literacy, Labour (domestic, industrial, commercial),
Gains measured in terms of "health, wealth, safety, knowledge." - thought - connect with Maslow motivations?
Perspective - what grabs us - the headlines! Glass Half full/ Empty, look before you leap? We're Doomed! Short
immediate more certain (possibly lesser) pleasures or long term uncertain gains (possibly greater). Is it good
change/ progress, is it always

Thought - life as a series of problem solving exercises - does the exercise at least do you good?
Thought - What's Good for the Goose and not the Gander - does innovation need compromise and co-operation - is
this always feasible - what if it's not feasible? (does this also tie in with leadership & transparency?).

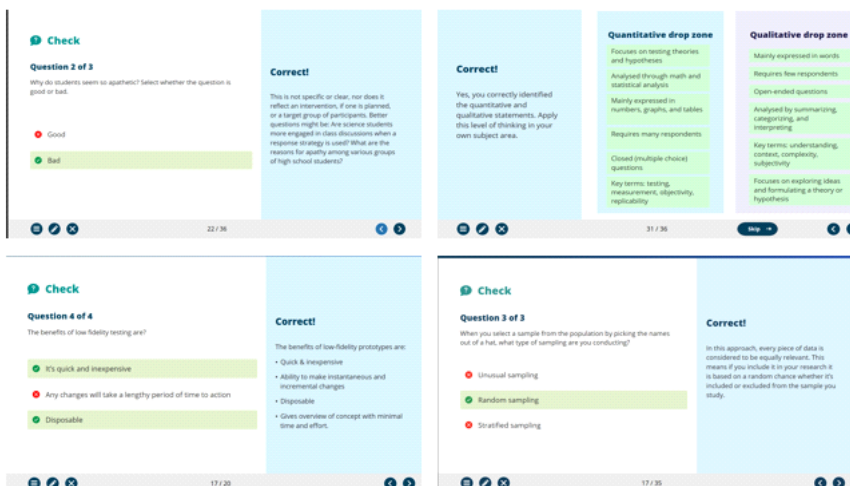
- thought mention of through history - do we lose innovation - could it be relevant at time then written out - is
understanding the history important to make more effective change? Is it important to document ideas and share
as best way to revisit and relearn where culture blocks or hides - stories to share? - e.g. books and movies about
female innovation suppressed or being revisited and explored which could inspire future changemakers
<https://www.english-heritage.org.uk/visit/blue-plaques/blue-plaque-stories/women-pioneers/#?theme=358&page=1>
<https://historycollection.com/women-who-had-their-work-stolen-from-them-by-men/>

Initial further reading for reflection:
<https://www.bps.org.uk/psychologist/maslows-hierarchy-needs-sixth-level/>
<https://www.ebsco.com/research-starters/psychology/maslows-hierarchy-needs> - thought - Do all cultures have
this in common?

Change can be a path from superstition to knowledge?

Figure 10: Reflections on video themes and exploring further reading

A.4 - Examples of Module Exercises



The figure displays four screenshots of a module exercise interface, showing questions and answers related to quantitative and qualitative research methods.

Check
Question 2 of 3
Why do students seem to be apathetic? Select whether the question is good or bad.
Good
Bad

Correct!
This is not specific or clear, nor does it reflect an intervention, if one is planned, or a larger group of participants. Better questions might be: Are science students more engaged in class discussions when a response strategy is used? What are the reasons for apathy among various groups of high school students?

Quantitative drop zone
Focuses on testing theories and hypotheses
Analysed through math and statistical analysis
Mainly expressed in numbers, graphs, and tables
Requires many respondents
Closed (multiple choice) questions
Key terms: testing, measurement, objectivity, replicability

Qualitative drop zone
Mainly expressed in words
Requires few respondents
Open-ended questions
Analysed by summarizing, categorizing, and interpreting
Key terms: understanding, context, complexity, subjectivity
Focuses on exploring ideas and formulating a theory or hypothesis

Check
Question 4 of 4
The benefits of low-fidelity testing are?
It's quick and inexpensive
Any changes will take a lengthy period of time to action
Disposable

Correct!
The benefits of low-fidelity prototypes are:
Quick & inexpensive
Ability to make instantaneous and incremental changes
Disposable
Gives overview of concept with minimal time and effort.

Check
Question 3 of 3
When you select a sample from the population by picking the names out of a hat, what type of sampling are you conducting?
Unusual sampling
Random sampling
Stratified sampling

Correct!
In this approach, every piece of data is considered to be equally relevant. This means if you include it in your research it is based on a random chance whether it's included or excluded from the sample you study.

Figure 11: Checking knowledge while completing module topics

Apply

Reflecting on Robertson's definitions of **narrative resilience** and **narrative fidelity**, how would you rate Oliver's letter campaign?

5 is excellent, 1 is poor.

If you haven't already, watch the video below and then drag the markers on the graph to rate it.

Oliver's letter | Redefining Beauty One Photo At A Time

Narrative coherence
Does the video make sense? Do all the components form a meaningful part of the overall structure?

Narrative fidelity
Does the story seem accurate to true life experiences and human nature? Can you relate to it and identify with the characters?

Check

Watch the different types of empathy in their descriptions by dragging the grey boxes in line with the correct description.

Somatic empathy	The ability to feel what another person is feeling.
Cognitive empathy	The ability to understand someone's response to a situation.
Affective empathy	The ability to respond to other people's emotions appropriately.

Correct
That's right! You selected the correct response.

Somatic empathy is the ability to feel what another person is feeling.

Cognitive empathy is the ability to understand someone's response to a situation.

Affective empathy is the ability to respond to other people's emotions appropriately.

Check

What is one of the benefits of self-confidence?

- Resilience**
- Heightened ego
- Behaviour problems

Correct!
One of the benefits of self-confidence is **resilience** - the improved ability to 'bounce back' from challenges and failures.

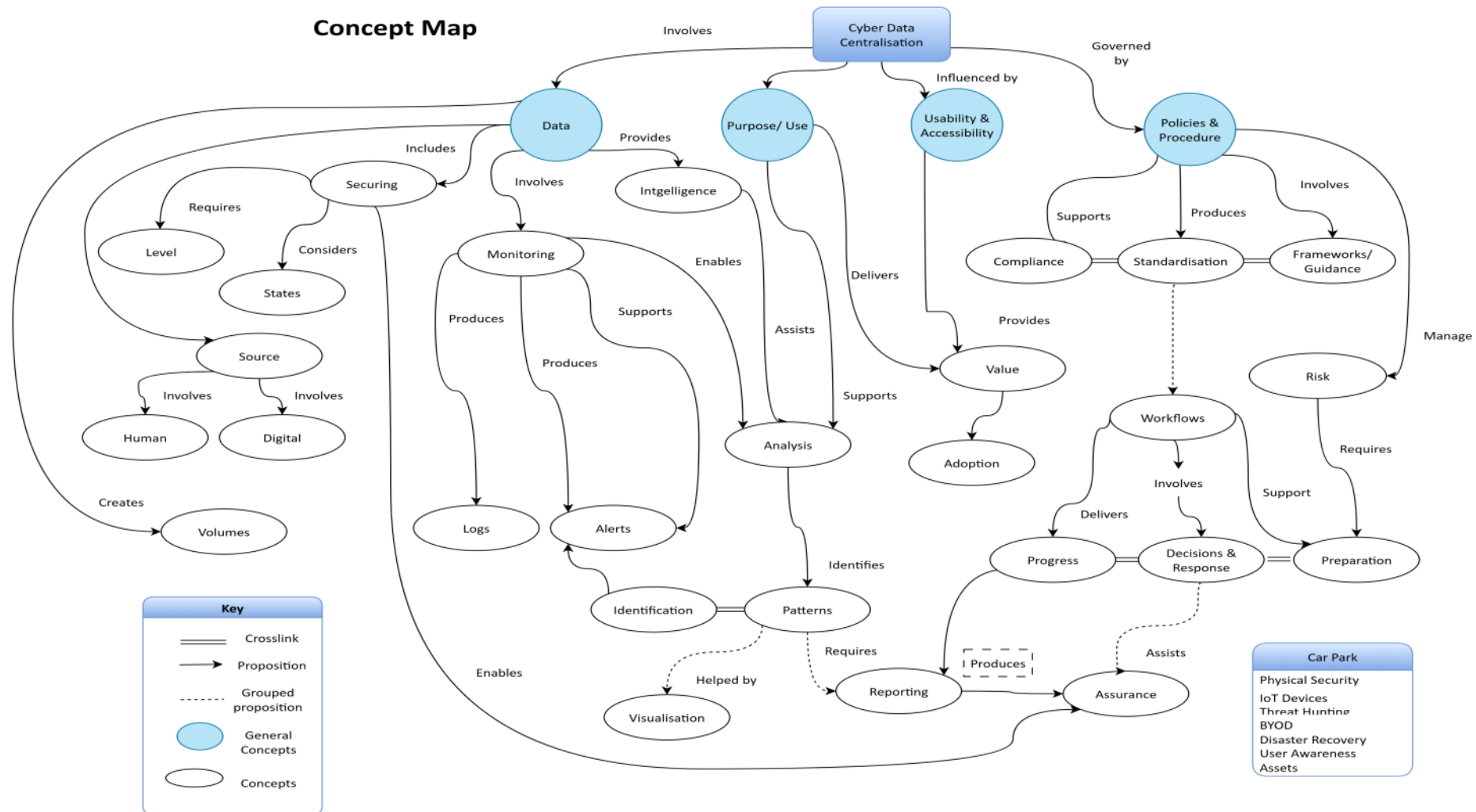
18 / 28

19 / 28

Figure 12: Working through Unit 3 Topic 3

Appendix B: Mapping

B.1 Concept Map: Considering Research Questions



From <https://app.diagrams.net/>

Map design and creation by author using draw.io

Appendix C: Working Notes and drafts

Appendix C.1: Mind Map development

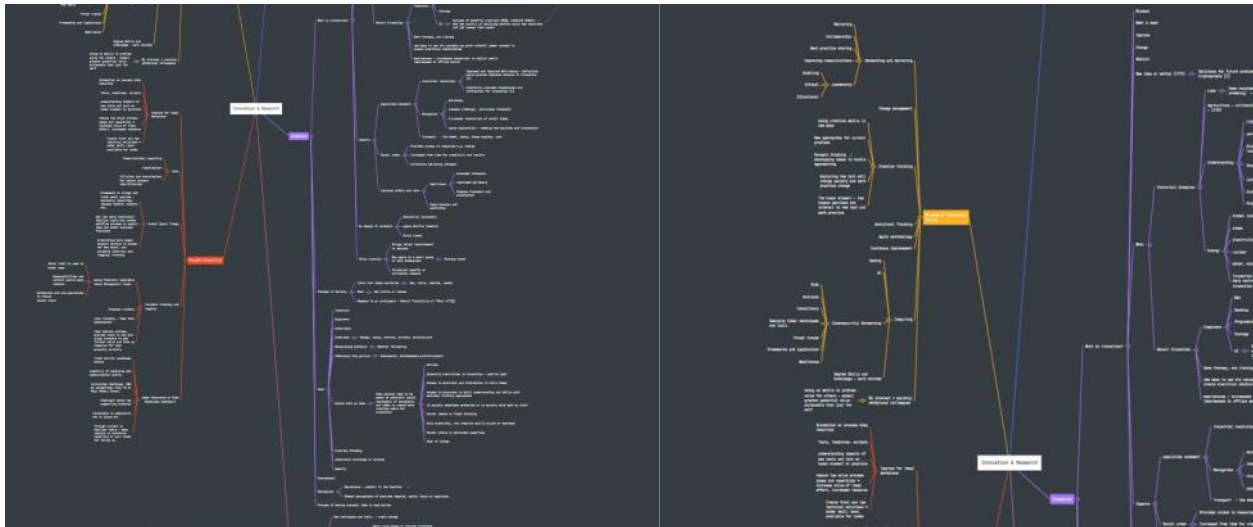


Figure 13 - Initial Mind Maps notes using Mindmeister following reflections, assisting thought process and planning. Map refined down and moved to Canva mind map template for easier reading and organisation of ideas after development.

Appendix C.2: Concept Map development

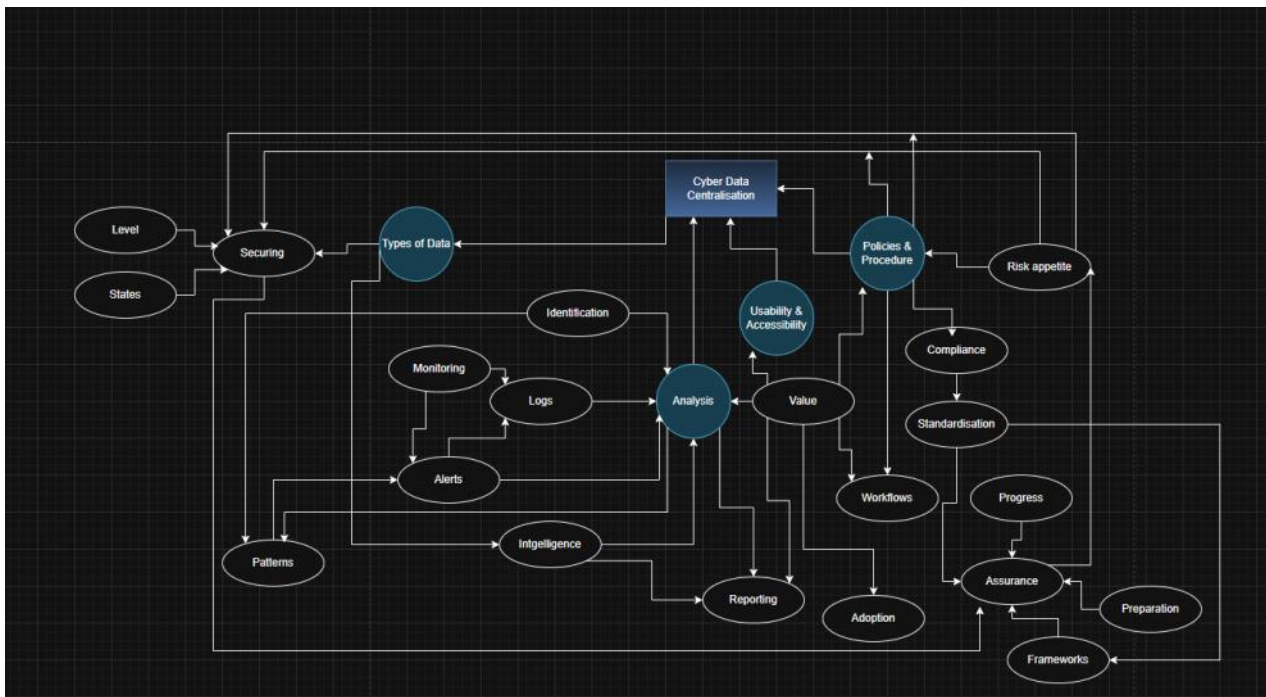


Figure 14: Early Concept Map development, complexity of links before adjustment for final draft

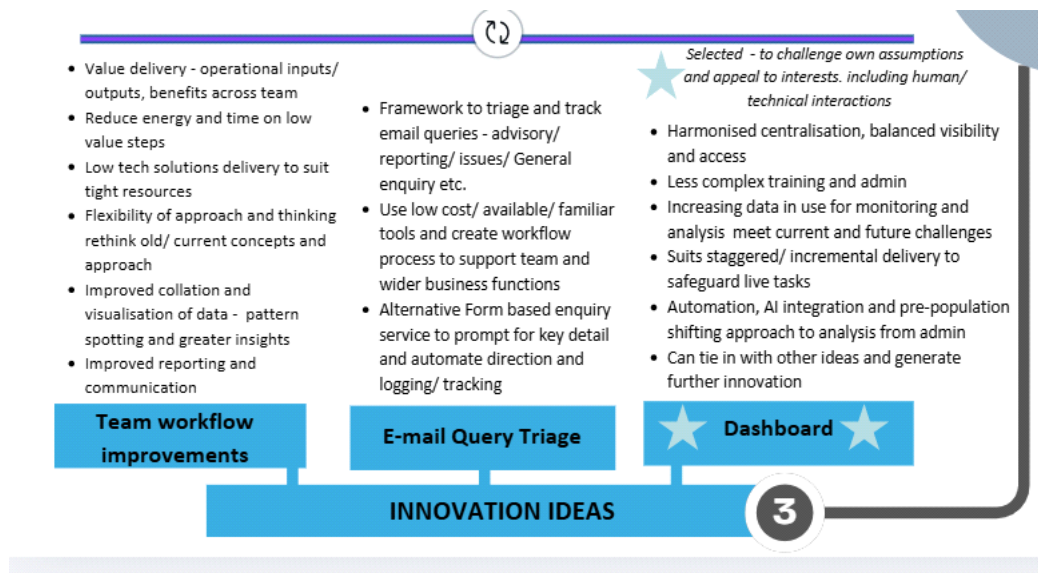


Figure 15: ideas before trimming to key essentials

Appendix D: Research screenshots and searches

Appendix D.1: Test database search



Figure 16: Test search using <https://eric.ed.gov/>

Appendix D.2: Search terms and Keywords

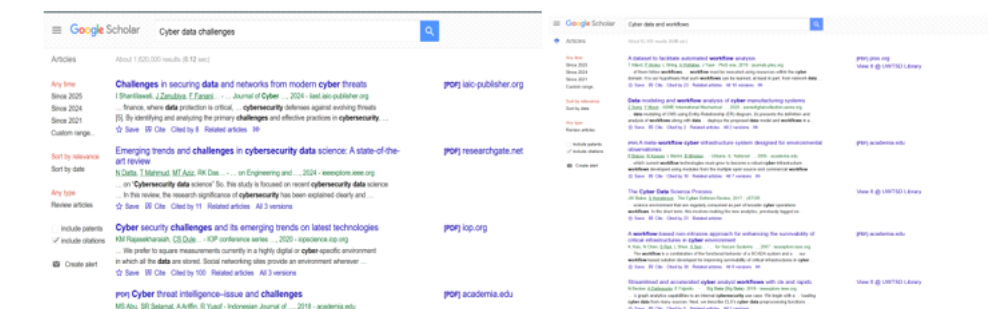


Figure 17 Testing out and refining search terms on <https://scholar.google.com/> drawn from mapping concepts

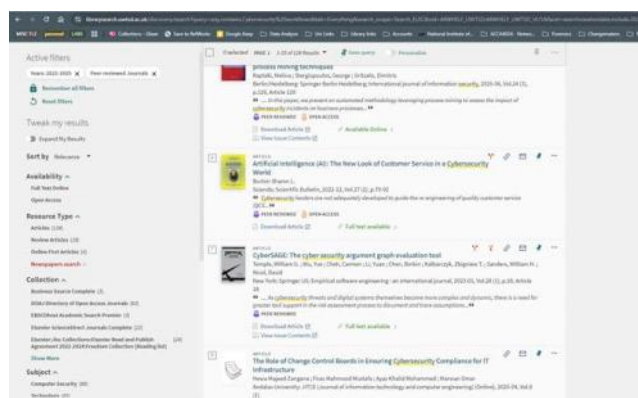


Figure 18: Combining search terms for more specific results, peer reviewed for more reliable and refining dates for more up to date, relevant material. Using educational resources, librarysearch.uwtsd.ac.uk.

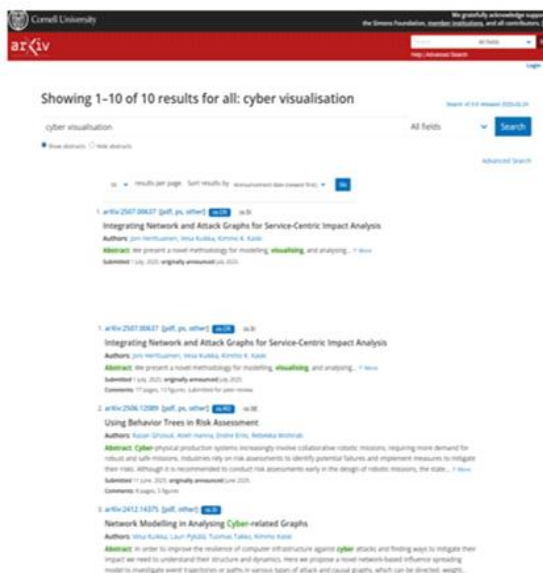


Figure 19: Testing keywords and variations on arxiv.org. A large open access archive. Starting point only as materials on site not peer reviewed.

Appendix D.3: Supporting search tools



Figure 20 Using tools using LibKey Nomad (browser extensions) and PubMed for faster collated access, citation, and download of search results.

Appendix E - Feedback

Appendix E.1: Strengthening data collection strategy feedback

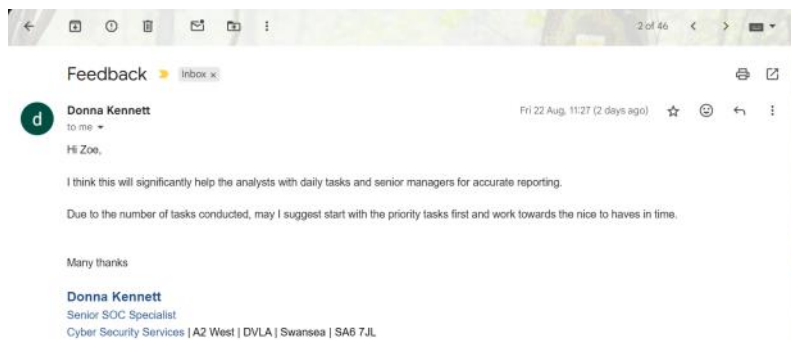


Figure 21: Feedback from team management and SOC

Appendix F: Module Completion

Appendix F.1: Completion Screenshots

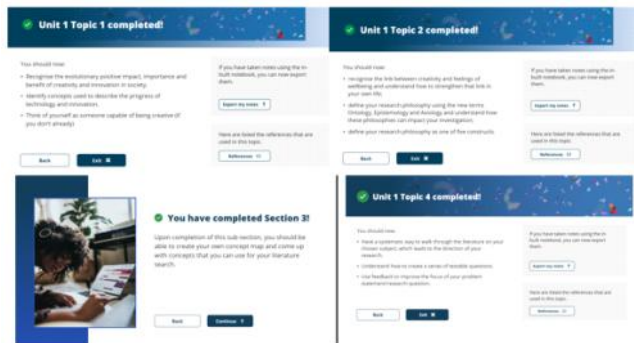


Figure 22: Unit 1 completion

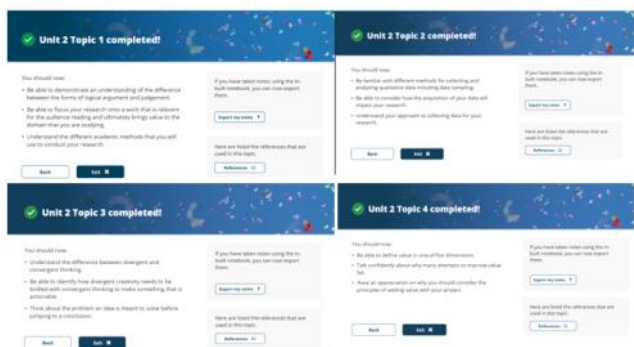


Figure 23: Unit 2 completion

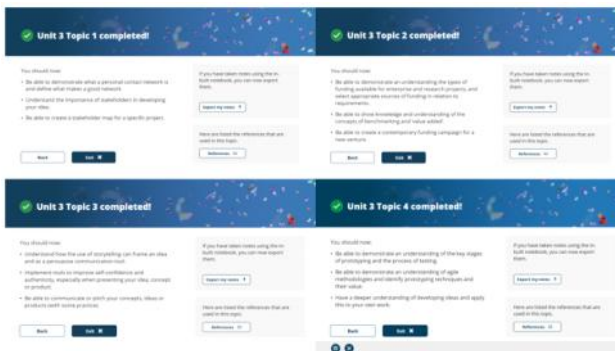


Figure 24: Unit 3 completion

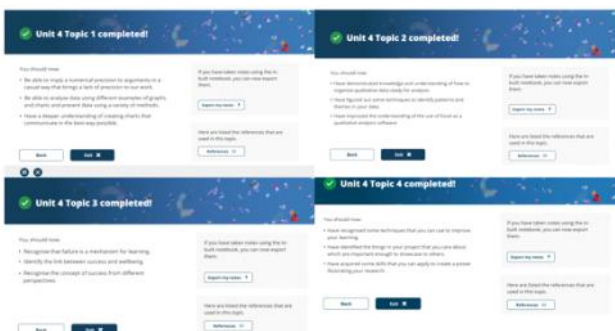


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