

# ASSIGNMENT 1: INNOVATION & RESEARCH.

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## Task 1: Ideation & Mind Map

This section outlines the project idea and the corresponding mind map that supports it. The mind map consists of five main branches: Key Innovation Concepts, Core Project Features, DVLA Integration, Selected Project Idea Summary, and References. Each main branch includes several sub-branches that further elaborate on the app's ideas, incorporating a variety of peer-reviewed citations to provide support and insights into the areas that the app aims to address. Full details are captured in the screenshot below and via the following link: [Sustainable Living Digital Hub for Port Talbot & Swansea - MindMeister Mind map](#)



# Task 2: Aim & Objectives and Research Area

## The Single Aim of the Project

This project aims to develop a digital platform that empowers residents of Port Talbot and Swansea to adopt sustainable living practices. This initiative will not only promote environmentally friendly habits, enhance the local ecosystem, and strengthen community resilience, but also foster a vibrant, healthier future for all.

## Objectives

The primary objective is to conduct a thorough literature review of existing digital solutions for urban sustainability, waste management, sustainable transportation, and public health, to identify best practices and gaps.

Additionally, to identify and analyse the specific information needs and behavioural barriers faced by residents of Port Talbot and Swansea regarding sustainable living practices, including recycling guidelines, public transport usage, and access to green spaces.

To design a user-centric conceptual framework and key features for the "Sustainable Living Hub" application, ensuring intuitive navigation and integrated functionality across its waste management, transportation, and health components.

To evaluate the potential impact and feasibility of the proposed "Sustainable Living Hub" through a pilot data collection method, which will gather feedback on its perceived usefulness and usability.

## Research Philosophy - Pragmatism

The research philosophy most suitable for my project is Pragmatism. Pragmatism emphasises solving practical problems by selecting the most effective methods for the research question, often involving both quantitative and qualitative approaches. This perspective is particularly relevant to my project, as the goal is to create a practical solution to real-world issues [1].

The adaptability of this methodology will play an essential role in accurately gauging users' needs and measuring the application's impact [2]. This project will draw on a rich array of qualitative data, including in-depth surveys and personal interviews, to capture diverse user perspectives. Additionally, it will incorporate quantitative data, such as detailed usage metrics, for robust analysis of user engagement and behaviour. Pragmatism, with its strong emphasis on research outcomes' "usefulness" and "effectiveness," aligns seamlessly with the app's ambitious goal of delivering meaningful and tangible benefits to residents. These benefits can be environmental, social, or personal, contributing to an enhanced quality of life. This focus on practical, impactful results underscores Pragmatism's fitting approach, embracing various dimensions of human experience and community well-being.

## Search Tools and Research Databases

In my research, I will search for databases highly relevant to the interdisciplinary aspects of my "Sustainable Living Hub" project, encompassing Software Engineering, Sustainability,

Urban Studies, Public Health, and Environmental Science. A multidisciplinary approach to literature searching is vital for a thorough understanding in complex fields [3].

The University Library Search Portal serves as my primary access point to subscribed databases, journals, and other resources. I also utilise Google Scholar as a broad initial search engine to identify key articles and authors, which I then access via the library portal for full-text access and academic rigour. This systematic approach to searching and identifying relevant literature is fundamental for a broad understanding of the research landscape [4].

For Software Engineering/Digital Solutions, I will utilise databases such as IEEE Xplore Digital Library, excellent for computer science, software engineering, and related technologies, and ACM Digital Library, another prime resource.

ScienceDirect provides extensive coverage in physical sciences and engineering, including computer science and environmental science.

Urban Studies Abstracts is a valuable resource for research related to urban development, planning, and communities.

In Health and Behavioural Science, PubMed is essential for health-related information, while PsycINFO specialises in psychological and behavioural studies connected to environmental actions.

Additionally, government and official websites offer access to policy documents, official statistics, and local context.

By utilising these subject-specific databases, I ensure a complete and academically sound approach to identifying relevant literature for my project. This approach is key for maintaining research credibility and rigour [5].

These varied resources together provide a thorough and academically sound approach to identifying relevant literature for my project.

## Search Strategies

My search strategy will begin by identifying keywords and their relevant synonyms for each interdisciplinary aspect of the 'Sustainable Living Hub' project. I will then use Boolean operators (AND, OR, NOT) to combine and refine these keywords, ensuring my database queries are both precise and extensive. To further enhance research, I will utilise phrase searching (enclosing specific terms in quotation marks for exact matches) and employ truncation or wildcards to capture all relevant variations of a term. Furthermore, I will refine results by applying filters for publication date (focusing on the last five years), document type (prioritising 'Journal Articles' or 'Review Articles'), and subject area, ensuring the retrieved literature is both current and academically rigorous. This systematic approach, along with practical techniques for identifying and selecting relevant literature, is vital for conducting thorough academic research. [4]

## References

[1] C. L. Sim et al, "Pragmatism as a paradigm for quality management research in bridging academic-practitioner gaps," *International Journal of Quality and Service Sciences*, vol. 16, (2), pp. 330–342, 2024. .

[2] A. Romero-Sánchez, G. Perdomo-Charry and E. L. Burbano-Vallejo, "Academic spin-offs through the lens of pragmatism and mixed methods," *Evolutionary Studies in Imaginative Culture*, vol. 8, (1), pp. 30–67, 2024. .

[3] C. Ciemer et al, "Introducing CRIS—A unified framework for systematic literature searches across disciplines," *Frontiers in Public Health*, vol. 13, pp. 1489161, 2025. .

[4] U. E. Chigbu, S. O. Atiku and C. C. Du Plessis, "The science of literature reviews: Searching, identifying, selecting, and synthesising," *Publications*, vol. 11, (1), pp. 2, 2023. .

[5] The University of Manchester Library, "Getting started with subject databases." [Online]. Available: <https://www.education.library.manchester.ac.uk/mle/introducing-databases/>. [Accessed: July 15, 2025].

# Task 3: Research Strategies

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## Strategies to enhance validity, reliability, generalisability and ethical considerations.

Building a strong research foundation requires a focus on validity, reliability, generalisability, and ethics.

- **Validity** is about ensuring the research measures what it intends to. To achieve this, I will have survey and interview tools reviewed by experts and tested with users to confirm they capture behavioural barriers and needs. It's essential to define concepts like "perceived usefulness" in a way that genuinely reflects sustainable living practices and app usability in Port Talbot and Swansea [1].
- **Reliability** ensures consistency across repeated measures. I will apply standardised procedures to collect data, using consistent phrasing and clear instructions across tools. Pilot testing will help identify and fix any ambiguities so that user feedback is as dependable as possible [1].
- **Generalisability** considers how widely the findings might apply. Although my study focuses on Port Talbot and Swansea residents, I will provide detailed participant profiles and transparent methodology to support transferability. This information helps others assess whether the findings are relevant to their contexts [1].
- **Ethical Considerations** are essential in protecting participants. Key measures include:
- **Informed Consent:** I'll give participants full details about the study's goals, risks, and rights, ensuring voluntary participation and the option to withdraw.
- **Anonymity & Confidentiality:** Personal data will be anonymised (identifiers removed) or securely stored with restricted access.
- **UK GDPR Compliance:** I will strictly follow GDPR throughout data handling. My experience at DVLA underlined the importance of maintaining strong data security and privacy protocols [2].
- **Minimising Harm & Ethics Approval:** The study will be carefully designed to avoid harm and will be submitted for university ethics committee review and approval before data collection begins [2].

## Comprehensive Data Collection Methods and Pilot Design

To explore how residents engage with sustainable living initiatives, I'll use a *mixed-methods* strategy—combining qualitative depth with quantitative reach [3].

- **Qualitative Methods:**
  - **Semi-structured Interviews** with residents and local representatives will provide detailed personal insights.
  - **Focus Groups** will spark collaborative discussion and feedback on app concepts and sustainability issues.
- **Quantitative Methods:**
  - **Online Surveys** will gather structured feedback across a wider audience.
  - **App Usage Metrics** (conceptual) will help track anonymised user activity, such as clicks or time spent engaging with features.

To trial the process, I will launch a pilot survey to 5–10 residents. It will include 5–7

questions about demographics, recycling confusion, and feature preferences. Specific details appear in Appendix A [4].

### Pilot Feedback Collection and Analysis

To refine the tools and focus, I'll collect feedback through:

- **Direct Debriefing** via informal discussions to assess clarity and structure.
- **Self-Reflection** by reviewing skipped or ambiguous responses.
- **Supervisor Feedback** to guide improvements through expert review.

This feedback will help shape everything from the app features to any future questions.

### Analysis Strategy

- **Quantitative Data** will be analysed using descriptive statistics such as averages and frequency counts.
- **Qualitative Data** will be explored via thematic analysis—identifying repeated patterns in user experiences and sustainable living behaviours [5].

## References

[1] J. W. Creswell and J. D. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed. Thousand Oaks, CA: SAGE Publications, 2018.

[2] J. R. Kasstan, G. Pearson, and V. Brooks, "Rethinking Research Ethics in the Humanities: Principles and Recommendations," University of Westminster, London, 2023. [Online]. Available: [Rethinking Research Ethics in the Humanities: Principles and Recommendations : WestminsterResearch](#) [Accessed: July 29, 2025].

[3] Y. Liu, "Paradigmatic compatibility matters: A critical review of qualitative-quantitative debate in mixed methods research," *Sage Open*, vol. 12, (1), pp. 21582440221079922, 2022.

[4] M. Murali and M. Charlesworth, "How to write pilot and feasibility studies," *Anaesthesia*, vol. 79, 2024. Available: <https://doi-org.ezproxy.uwtsd.ac.uk/10.1111/anae.16283>. DOI: 10.1111/anae.16283.

[5] N. Nasir and S. Sukmawati, "Analysis of research data quantitative and qualitative," *Edumaspul: Jurnal Pendidikan*, vol. 7, (1), pp. 368–373, 2023.

# Appendix A

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## Appendix A: Pilot Survey Instrument - Sustainable Living Hub

This brief pilot survey aims to gather initial insights into residents' information needs regarding local waste management and their opinions on a proposed digital recycling guide feature for the 'Sustainable Living Hub' application. The feedback gathered will be used to refine our research focus and data collection instruments.

### Section 1: About You

1. What is your age group?
  - Under 18
  - 18-24
  - 25-34
  - 35-44
  - 45-54
  - 55-64
  - 65+
2. Which area do you live in? (e.g., Port Talbot, Swansea, Neath, etc.) (*Please specify*): \_\_\_\_\_

### Section 2: Understanding Local Recycling

1. How clear are the recycling rules for different waste items in your local area (Port Talbot / Swansea)?
  - 1 - Very Confusing
  - 2 - Confusing
  - 3 - Neither Clear nor Confusing
  - 4 - Clear
  - 5 - Very Clear
2. What is your biggest challenge or confusion when trying to recycle correctly in your local area? (*Please explain*): \_\_\_\_\_

### Section 3: Digital Recycling Guide Feature

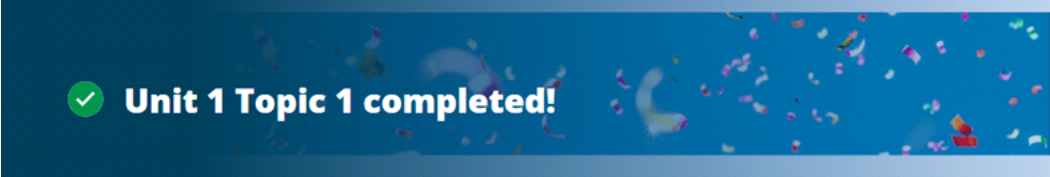
1. The 'Sustainable Living Hub' app could include a feature providing clear, hyper-local guidance on what can be recycled, where to take specific items, and local collection schedules. What information would be most useful to you in such a feature? (*Please explain*): \_\_\_\_\_
2. Do you have any other thoughts or suggestions regarding a digital guide for local recycling? (*Please explain*): \_\_\_\_\_

Thank you for your valuable feedback!

# Additional Appendix

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This section provides screenshots of completed units.



You should now:

- Recognise the evolutionary positive impact, importance and benefit of creativity and innovation in society.
- Identify concepts used to describe the progress of technology and innovation.
- Think of yourself as someone capable of being creative (if you don't already)

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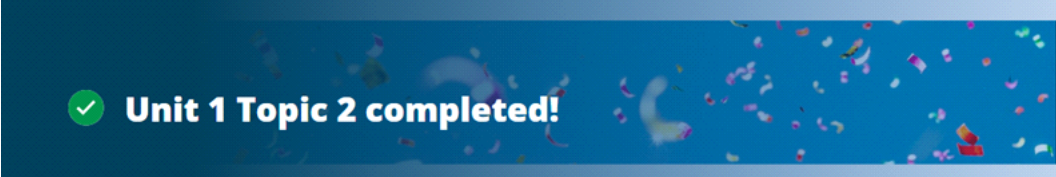
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You should now:

- recognise the link between creativity and feelings of wellbeing and understand how to strengthen that link in your own life;
- define your research philosophy using the new terms Ontology, Epistemology and Axiology and understand how these philosophies can impact your investigation;
- define your research philosophy as one of five constructs.

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## ✓ You have completed Section 3!

Upon completion of this sub-section, you should be able to create your own concept map and come up with concepts that you can use for your literature search.

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Unit 1 Topic 3: Known knowns

## ✓ Unit 1 Topic 4 completed!

You should now:

- Have a systematic way to walk through the literature on your chosen subject, which leads to the direction of your research.
- Understand how to create a series of testable questions.
- Use feedback to improve the focus of your problem statement/research question.

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## ✓ Unit 2 Topic 1 completed!

You should now:

- Be able to demonstrate an understanding of the difference between the forms of logical argument and judgement.
- Be able to focus your research onto a work that is relevant for the audience reading and ultimately brings value to the domain that you are studying.
- Understand the different academic methods that you will use to conduct your research.

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## ✓ Unit 2 Topic 2 completed!

You should now:

- Be familiar with different methods for collecting and analysing qualitative data including data sampling.
- Be able to consider how the acquisition of your data will impact your research.
- Understand your approach to collecting data for your research.

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## ✓ Unit 2 Topic 3 completed!

You should now:

- Understand the difference between divergent and convergent thinking.
- Be able to identify how divergent creativity needs to be bridled with convergent thinking to make something that is actionable.
- Think about the problem an idea is meant to solve before jumping to a conclusion.

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## ✓ Unit 2 Topic 4 completed!

You should now:

- Be able to define value in one of five dimensions.
- Talk confidently about why many attempts to improve value fail.
- Have an appreciation on why you should consider the principles of adding value with your project.

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## ✓ Unit 3 Topic 1 completed!

You should now:

- Be able to demonstrate what a personal contact network is and define what makes a good network.
- Understand the importance of stakeholders in developing your idea.
- Be able to create a stakeholder map for a specific project.

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## ✓ Unit 3 Topic 2 completed!

You should now:

- Be able to demonstrate an understanding the types of funding available for enterprise and research projects, and select appropriate sources of funding in relation to requirements.
- Be able to show knowledge and understanding of the concepts of benchmarking and 'value added'.
- Be able to create a contemporary funding campaign for a new venture.

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## ✓ Unit 3 Topic 3 completed!

You should now:

- Understand how the use of storytelling can frame an idea and as a persuasive communication tool.
- Implement tools to improve self-confidence and authenticity, especially when presenting your idea, concept or product.
- Be able to communicate or pitch your concepts, ideas or products (with some practice).

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## ✓ Unit 3 Topic 4 completed!

You should now:

- Be able to demonstrate an understanding of the key stages of prototyping and the process of testing.
- Be able to demonstrate an understanding of agile methodologies and identify prototyping techniques and their value.
- Have a deeper understanding of developing ideas and apply this to your own work.

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## ✓ Unit 4 Topic 1 completed!

You should now:

- Be able to imply a numerical precision to arguments in a casual way that brings a lack of precision to our work.
- Be able to analyse data using different examples of graphs and charts and present data using a variety of methods.
- Have a deeper understanding of creating charts that communicate in the best way possible.

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## ✓ Unit 4 Topic 2 completed!

You should now:

- Have demonstrated knowledge and understanding of how to organise qualitative data ready for analysis.
- Have figured out some techniques to identify patterns and themes in your data.
- Have improved the understanding of the use of Excel as a qualitative analysis software.

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## ✓ Unit 4 Topic 3 completed!

You should now:

- Recognise that failure is a mechanism for learning.
- Identify the link between success and wellbeing.
- Recognise the concept of success from different perspectives.

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## ✓ Unit 4 Topic 4 completed!

You should now:

- Have recognised some techniques that you can use to improve your learning.
- Have identified the things in your project that you care about which are important enough to showcase to others.
- Have acquired some skills that you can apply to create a poster illustrating your research.

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