CAND MERC (IT) RESEARCH PROJECTS

INTRODUCTION

DEPARTMENT OF DIGITALIZATION

FEBRUARY 9TH, 2022

INTRODUCTION TO RESEARCH PROJECT COURSE

Agenda

- About the CM it study program and how this course fits into that / Torkil
- Topic, benefit and structure of this course /Torkil
- Explanation track /Qiqi and Chee-Wee
- Action track /Torkil
- Format for report: One track, six parts (Intro + four assigments + reflection/conclusion)

Break

- Group building and Track selection workshop
  - Selecting group
  - Selecting track
- About GDPR and data management practices for students doing research /guest presenter

PLACE IN THE PROGRAM

- Dual roles:
  - Take what interests you one step further
  - Move you closer to your thesis

- External conditions imposes unprecedented **time pressure** on the thesis writing process

- Students have a high-level understanding of methods
  - This course has a more practical and instrumental approach to research

TOPIC OF THE COURSE

- Research design – planning and piloting for your master thesis
- To promote deep reflections on the range of plausible **strategies** for planning research design of research projects to investigate a given phenomenon
- To analyze the **pros** and **cons** of employing different strategies for research design of research projects

LEARNING OUTCOMES

Learning Goals

1. Describe connections between research question, analysis or theoretical work, and the conclusions or results.

2. Combine and synthesize models/ theories central to the study program.

3. Reflect on methods and theory, (e.g., the choice of theoretical perspective, tools, methods, data, analysis, delimitations as well as the validity and reliability of results).

4. Outline possible perspectives for further research at third semester and/or thesis.

WHY A COURSE ON RESEARCH DESIGN?

- **Research** – "**Creative** work undertaken on a **systematic** basis in order to **increase** the stock of **knowledge**, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications" (OECD, 2002)

- ***FIVE*** Types of Research (Gregor, 2006)
  - Theories for Analysis
  - ***Theories for Explanation***
  - Theories for Prediction
  - Theories for Explanation and Prediction
  - ***Theories for Design and Action***

- **Research Design** – Overall **strategy** chosen to integrate different components of a research study in a **coherent** and **logical** fashion in order to effectively address the research problem (De Vaus, 2006)

TWO TRACKS – TWO TYPES OF RESEARCH DESIGNS

	Main study	Outcome & impact
Explanation (Theory for Explaning)	phenomenon	explanation
Action (Theory for Design and Action)	solution	evaluation

Theory for Explaining
Theory for Design and Action
Other types of theory

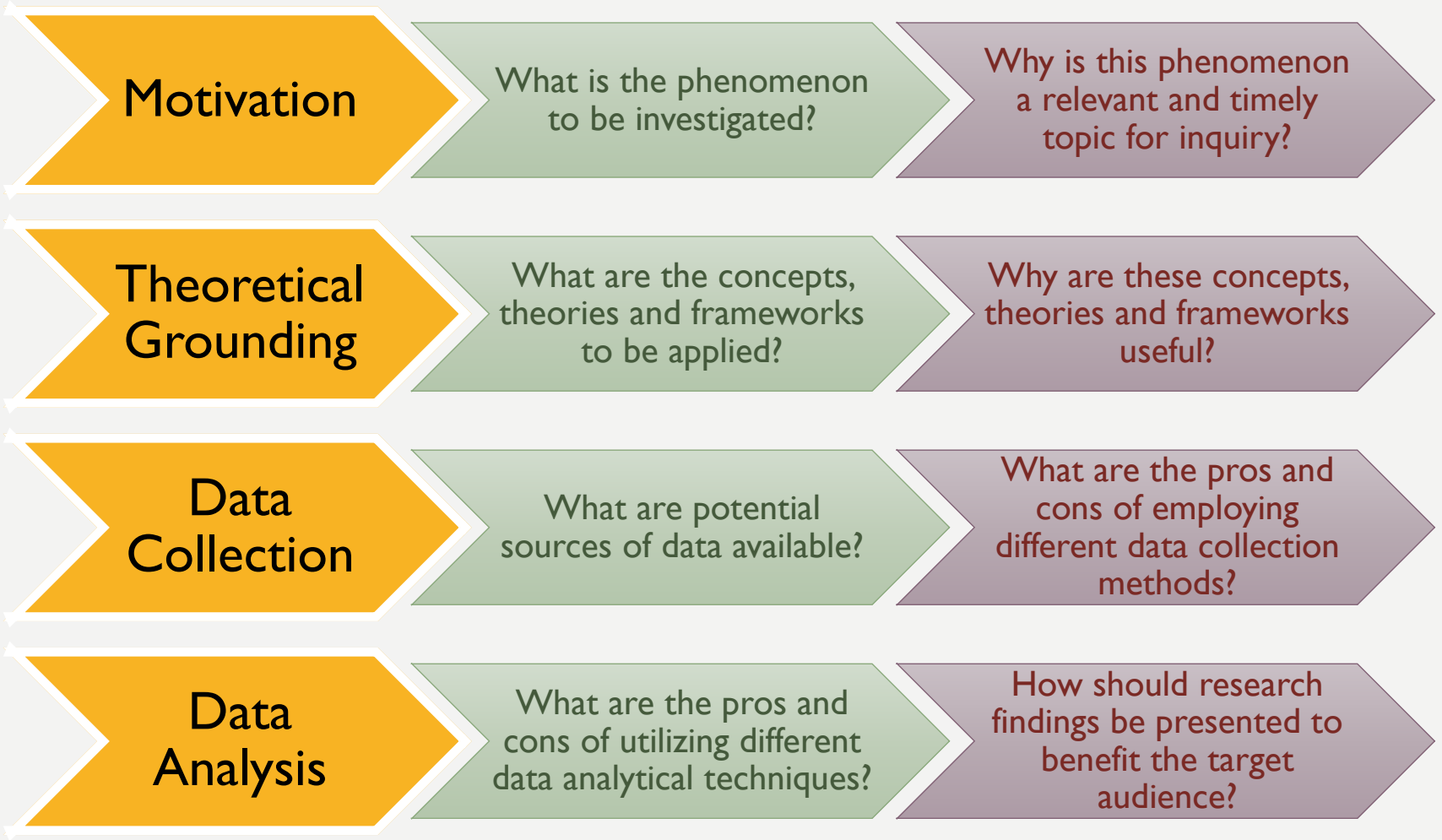
Gregor, S. (2006). "The Nature of Theory in Information Systems," *MIS Quarterly* (30:3), 2006, pp. 611-642.

LEARNING OUTCOMES

	Action Track	Explanation Track
Type of knowledge used and produced (mostly)	Theory for Design and ***Action***	Theory for ***Explaining***
Example RQ	Can a 'textual feedback' ***tool*** improve the quality of the user feedback in UX (user experience) evaluations?	How does the digitization of payments ***phenomenon*** affect competition and collaboration among traditional and new stakeholders?
Example outcome and impact	The Textual Feedback tool is ***shown*** to help participants to give their thoughts in high power distance UX evaluation situations. This ***enables user centered design*** also in high power contexts.	The framework ***explains*** why stakeholders are seeking to inhibit some collaborative technology initiatives. This is ***important*** to ***regulatory bodies***.
Associated methodology	Qualitative user research, design research, research-through-design, design science, action research	Case study, field study, survey, experiment

PRESENTATION OF EXPLANATION TRACK

COURSE STRUCTURE – FOUR THEMES (EXPLANATION TRACK)



AN EXAMPLE: INFORMATION PRIVACY

Motivation

What	Why
Information/Internet Privacy (Definition)	▪ Facebook–Cambridge Analytica data scandal ▪ Privacy-Personalization Paradox ▪ …

Theoretical Grounding

What	Why
▪ Privacy awareness ▪ Personality differences ▪ Privacy calculus ▪ ...	▪ Identify and explain privacy concerns ▪ Understand the privacy-personalization paradox

Data Collection

What	Why
▪ Primary data ▪ Secondary data ▪ ...	▪ Cost effectiveness ▪ Availability ▪ …

Data Analysis

What	How
▪ Depth and details ▪ Generalisation ▪ Causality ▪ ...	▪ Theoretical contributions ▪ Practical implications ▪ ...

EXPLANATION TRACK PLAN

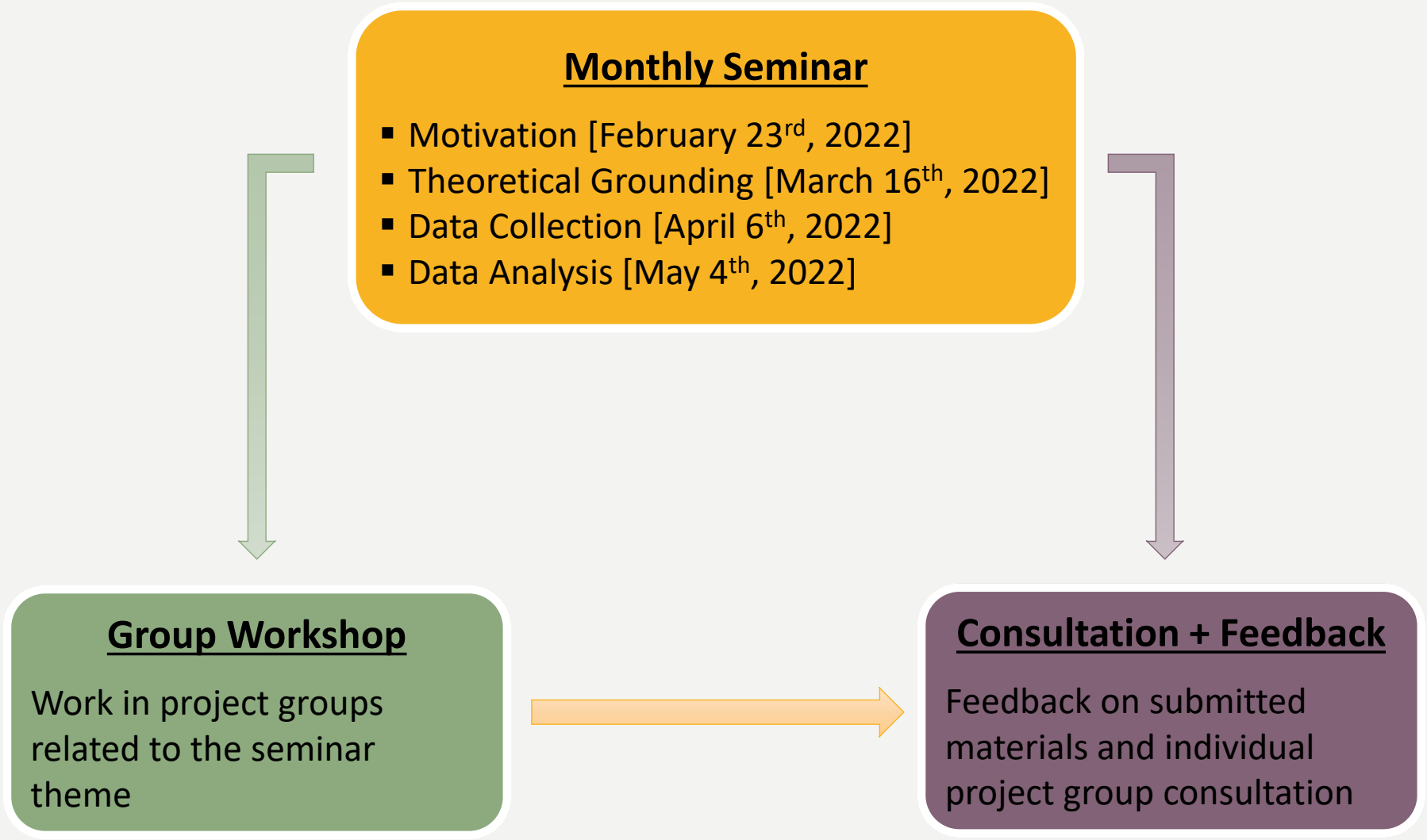
- **Research Motivation**
  - Ellis, T., & Levy, Y. (2008, January) Framework of problem-based research: A guide for novice researchers on the development of a research-worthy problem. *Informing Science: The International Journal of an Emerging Transdiscipline*, *11*, pp. 17-33
  - Weber, R. (2012) Evaluating and developing theories in the information systems discipline. *Journal of the Association for Information Systems*, 13(1), pp.1-30.

- **Theoretical Grounding**
  - Paré, G., Trudel, M. C., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information & Management*, *52*(2), pp. 183-199.
  - Webster, J., & Watson, R. Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, *26*(2), 2002, pp. xiii-xxiii.

- **Data Collection**
  - Fusch, P. I., & Ness, L. R. (2015) Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, *20*(9), 1408-1416. Retrieved from https://nsuworks.nova.edu/tqr/vol20/iss9/3
  - Sarker, S., Xiao, X., Beaulieu, T., & Lee, A. S. (2018) CANVASing from first-generation qualitative approaches in the IS discipline: An evolutionary view and some implications for authors and evaluators (PART 1/2). *Journal of the Association for Information Systems*, *19*(8), pp. 752-774.

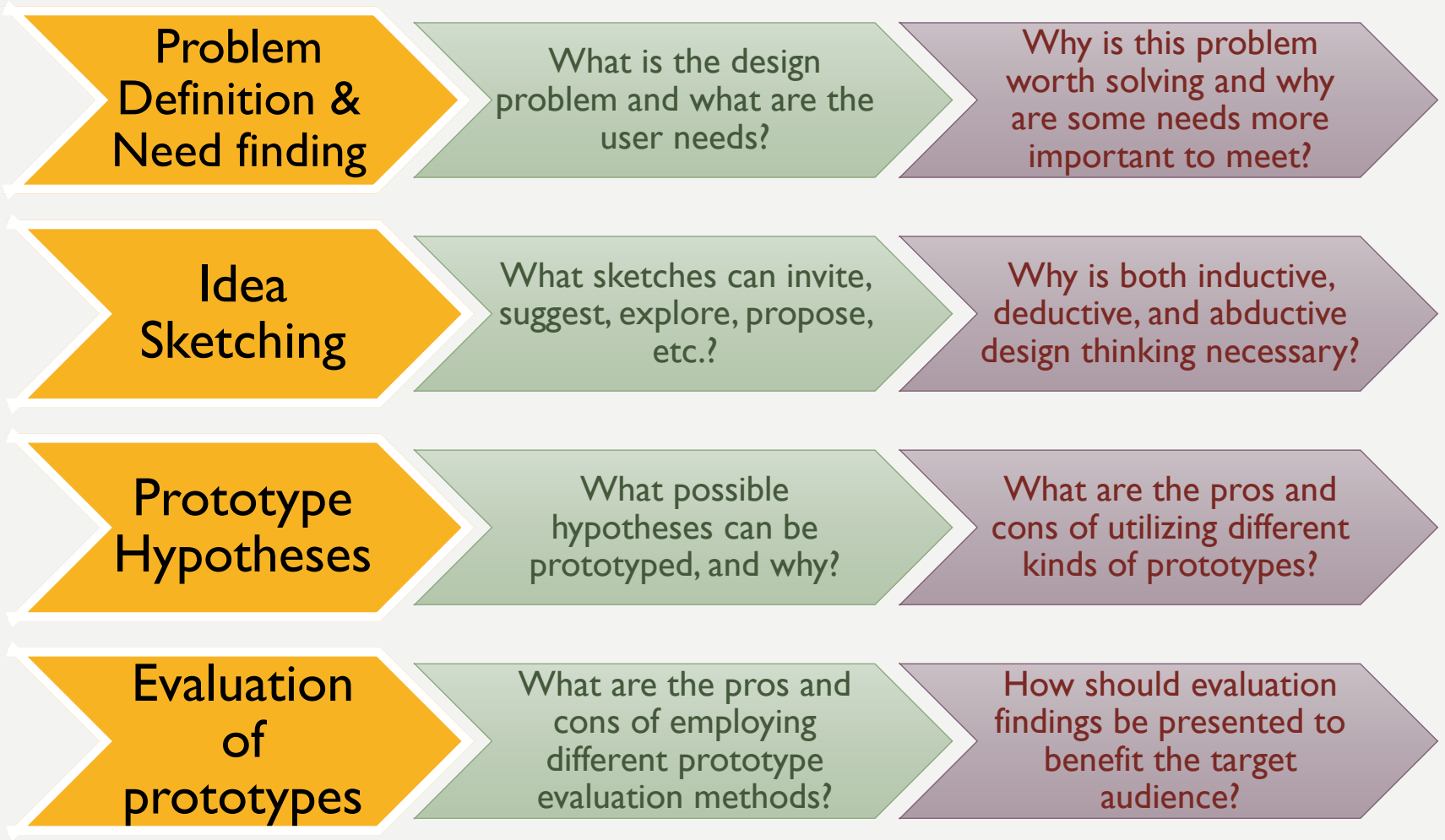
- **Data Analysis**
  - Gefen, D., Straub, D., & Boudreau, M. C. (2000) Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, *4*(7).
  - Urquhart, C., & Fernandez, W. (2016) Using grounded theory method in information systems: The researcher as blank slate and other myths. In *Enacting Research Methods in Information Systems: Volume 1*, Palgrave Macmillan, Cham, pp. 129-156.
  - Van de Ven, A. H., & Poole, M. S. (1995) Explaining development and change in organizations. *Academy of Management Review*, *20*(3), pp. 510-541.

COURSE MECHANICS - EXPLANATION TRACK



PRESENTATION OF ACTION TRACK

COURSE STRUCTURE – FOUR THEMES (ACTION TRACK)



WHY A COURSE TRACK ON ACTION DESIGN RESEARCH?

- Important **type** of **knowledge**: "Type V: Theory for Design and Action" (Gregor, S., 2006, p. 628)
  - '**How to do things**'
  - **Form** & **function**, **reasons** behind design choices, design **methods**

- Well known research approach under different names:
  - Information system development, interaction design, prototyping, design thinking, software engineering, constructive research, design science, and more

- Validity of action design research relates to evaluation, reflection & theory building:
  - **Utility** to a community of users
  - **Novelty** of the artifact
  - **Persuasiveness** of claims that it is effective & easy to use
  - **Demonstration** that models and methods are easy to use and give high quality results
  - **Interesting**, **inspiring** – provide (documented) high quality experiences

ACTION TRACK PLAN

- **Problem Definition and Need Finding**
  - Djamasbi, S., Strong, D., Wilson, E. V., & Ruiz, C. (2016) Designing and testing user-centric systems with both user experience and design science research principles. *Emergent Research*, AMCIS 2016.
  - Hevner, A. R., March, S. T., Park, J., & Ram, S. (2008) Design science in information systems research. *MIS Quarterly*, *28*(1), pp. 75-105.

- **Idea Sketching**
  - Bellamy, R., Desmond, M., Martino, J., Matchen, P., Ossher, H., Richards, J., & Swart, C. (2011, May) Sketching tools for ideation (NIER track). In *Proceedings of the 33rd ACM International Conference on Software Engineering*, pp. 808-811.
  - Dorst, K. (2011) The core of 'design thinking' and its application. *Design Studies*, *32*(6), pp. 521-532.

- **Prototype Hypotheses**
  - Buchenau, M., & Suri, J. F. (2000, August) Experience prototyping. In *Proceedings of the 3rd ACM Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques*, pp. 424-433.
  - Mandviwalla, M. (2015) Generating and justifying design theory. *Journal of the Association for Information Systems*, *16*(5), 314-344.

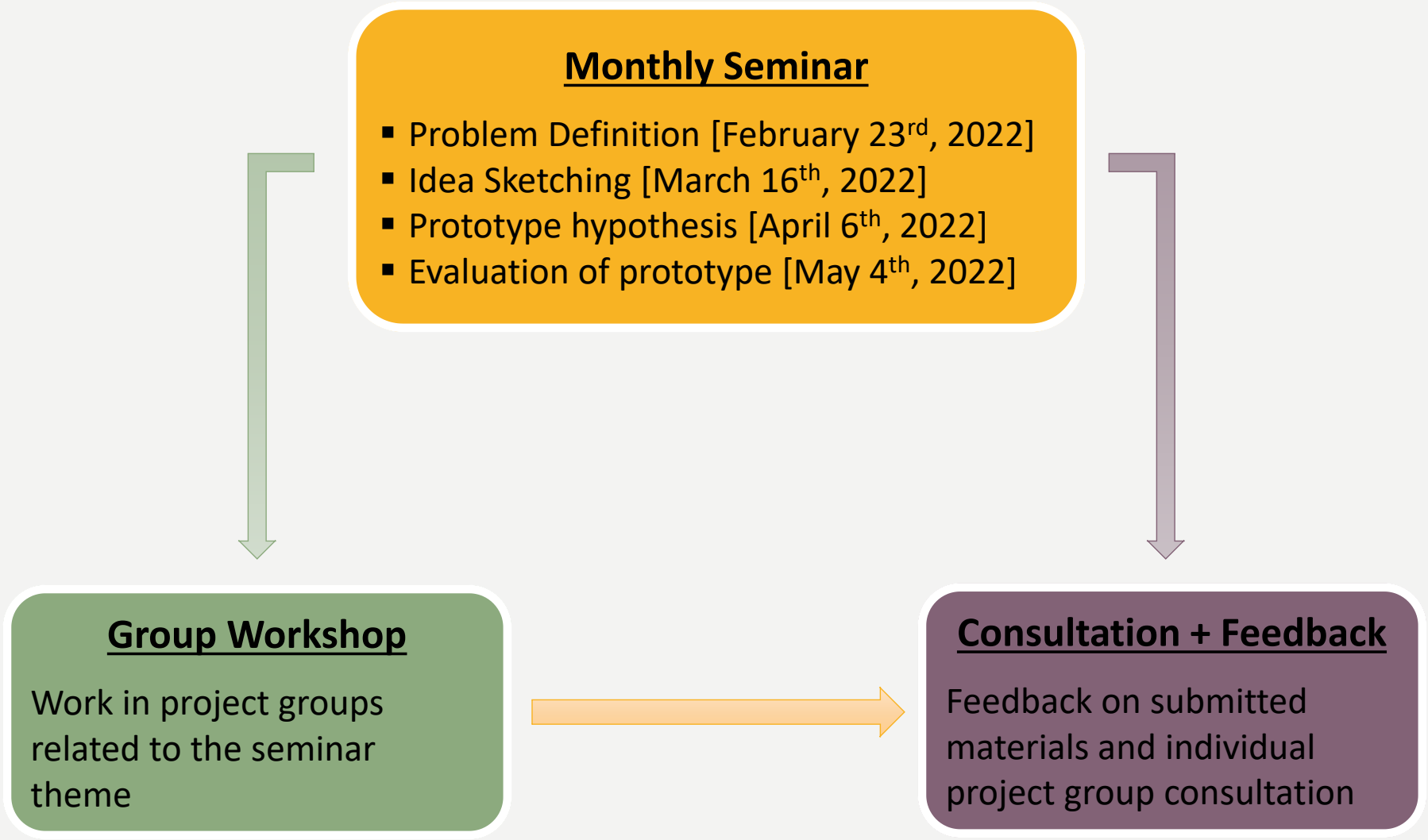
- **Evaluation of Prototypes**
  - Joshi, S. G., & Bratteteig, T. (2016) Designing for prolonged mastery: On involving old people in participatory design. *Scandinavian Journal of Information Systems*, 28(1), pp. 3-36.
  - Rai, A. (2017) Editor's comments: Diversity of design science research. *MIS Quarterly*, *41*(1), pp. iii-xviii.
  - Reinecke, K., & Bernstein, A. (2013). Knowing what a user likes: A design science approach to interfaces that automatically adapt to culture. *MIS Quarterly*, *37*(2), pp. 427-453.

ABOUT THE ACTION TRACK

- **Ambition**: You should feel at home in this track if you want to try out IT solutions

- Our assumption in this course track: **IT artefacts** are **part** of the **solution**
  - Augmented Reality (AR), Virtual Reality (VR), HoloLens
  - Big data analytics
  - Internet of Things (IoT) and sensor technologies
  - Artificial Intelligence (AI), Chatbots, machine learning
  - Interaction design and usability
  - User Experience (UX), employee experience, customer experience, brand experience

COURSE MECHANICS - EXPLANATION TRACK



COURSE DELIVERABLES

- Decide on a **contemporary** phenomenon or a **relevant** solution that you would like to investigate in your master thesis – and hence you would want to spend the next months planning the research design for

- **Group** assignment
  - **Write-up** for the research project corresponding each of the four themes (submitted via **Peergrade** on a monthly basis)
  - **One** page peer review of 3 other groups' write-up (submitted via **Peergrade** on a monthly basis)

- In addition to the peer review, individual group supervision/feedback on assignments will be given by teachers, as per agreement with the teacher, see CANVAS

- We recommend groups of 2-3 students (same as master thesis)

app.peergrade.io/teacher/courses/44768bb2-bf55-4f49-b62d-1ff042a0361d/assignments

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Assignments | Participants | Class settings | Summary

CBS CM (it) Research project 2022 - Action Design Track

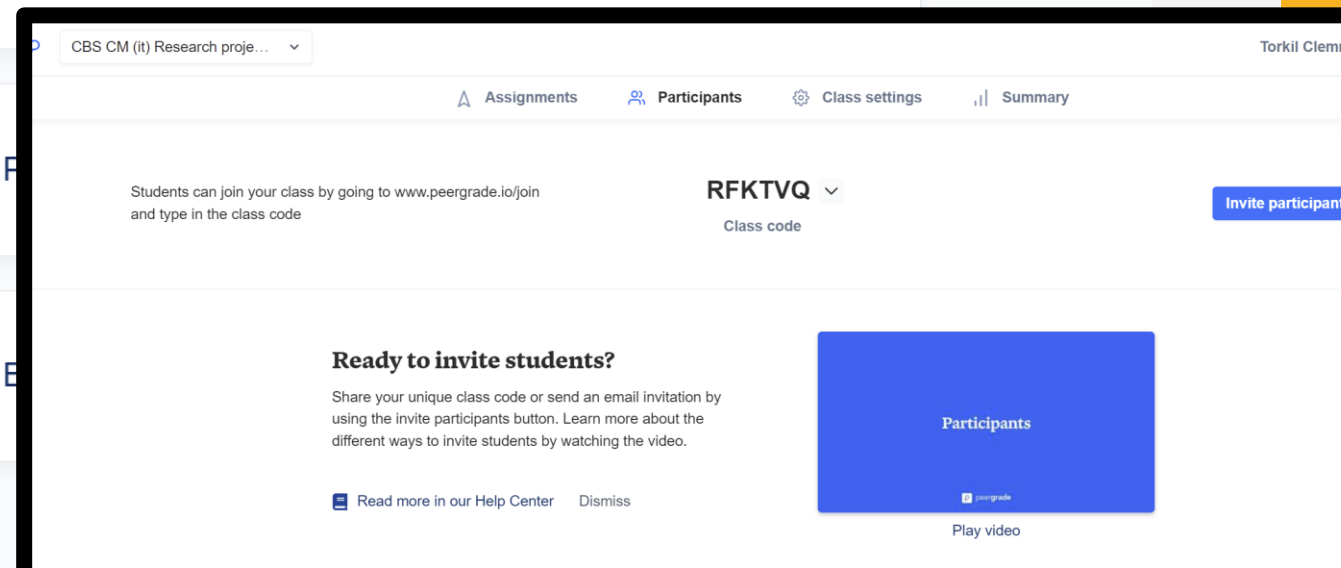
Create assignment +

CM (it.) - Research project - Action track - Write up 1 - Problem Definition and Need Finding

CM (it.) - Research project - Action track - Write Up 2 - Idea Sketching

CM (it.) - Research project - Action track - Write Up 3 - F

CM (it.) - Research project - Action track - Write Up 4 - E



EXAMINATION ASSIGNMENT

- Written report consisting of
  - Introduction +
  - **FOUR** submitted assignments (revised versions after incorporating feedback) +
  - Conclusion/Reflection

- Oral group examination

DEADLINES TO MEET IN THIS COURSE

	Activity:	Location	Deadline:
Assignment 1	Group and track choice	CANVAS	Wednesday | February 16th, 2022 | 1200 hours
Assignment 2	Write-up about seminar 1 topic	PEERGRADE.IO	Wednesday | March 2nd, 2022 | 1200 hour
	Peer reviews (3) of write-up of seminar 1 topic	PEERGRADE.IO	Wednesday | March 9th, 2022 | 1200 hour
Assignment 3	Write-up about seminar 2 topic	PEERGRADE.IO	Wednesday | March 23rd, 2022 | 1200 hour
	Peer reviews (3) of write-up of seminar 2 topic	PEERGRADE.IO	Wednesday | March 30th, 2022 | 1200 hour
Assignment 4	Write-up about seminar 3 topic	PEERGRADE.IO	Wednesday | April 20th, 2022 | 1200 hour
	Peer reviews (3) of write-up of seminar 3 topic	PEERGRADE.IO	Wednesday | April 27th, 2022 | 1200 hour
Assignment 5	Write-up about seminar 4 topic	PEERGRADE.IO	Wednesday | May 11th, 2022 | 1200 hour
	Peer reviews (3) of write-up of seminar 4 topic	PEERGRADE.IO	Wednesday | May 18th, 2022 | 1200 hour
Examination	Exam report	DIGITAL EXAM (DE)	June ??
	Oral group exam	F2F	June ??

REFERENCES

- De Vaus, D. A. *Research Design in Social Research*, London: SAGE, 2001.

- Gregor, S. (2006) The nature of theory in information systems. *MIS Quarterly*, *30*(3), pp. 611-642.

- OECD Frascati Manual: *Proposed Standard Practice for Surveys on Research and Experimental Development*, 6th Edition, 2002. [Available online at: http://www.oecd.org/sti/inno/Frascati-Manual.htm]

TRACK SELECTION PROCEDURE

1. Create your group. Ideally your thesis group.

2. Decide on a track.

3. Register on CANVAS for the track before the deadline of February 16

- If you need help, contact Torkil at: tc.digi@cbs.dk

- If no group, send Torkil an email, and he will distribute you into a group