

Understanding Users for Decision Making

Academic Year 2025/2026

Master Project:

From User Experience to Managerial Decision-Making

Course Instructors: Élise Lavoué & Timothé Bonhoure

Project Objective and Context

Project Objective

This project places you in the role of a UX, data, and AI analytics team assisting a manager in making an informed decision regarding an information system. Using simulated yet realistic data, you will analyze user experience, observed behaviors, and analytical models to formulate well-reasoned managerial recommendations.

Context

An organization has deployed a managerial dashboard used by middle managers to:

- monitor performance,
- identify risk situations,
- support operational decision-making.

Management wants to understand if the system:

- is usable and acceptable,
- generates manageable cognitive load,
- supports effective decision-making,
- produces exploitable behaviors for decision support.

Assigned Problem Statement

How can understanding user experience and user behavior improve managerial decision-making regarding an information system?

Provided Data

You have the following files:

logs.csv: Raw interaction traces (one line = one user action)

sessions.csv: Session metadata and experimental condition (A/B test – interface versions A and B)

questionnaires.csv: Subjective measures (SUS, NASA-TLX, IMI, UES)

A Jupyter notebook is available for download to guide you through the analyses. This notebook provides methodological guidance to help you get started with data processing and analysis.

Warning: No pre-calculated behavioral indicators are provided. From logs.csv, you must design, calculate, and justify session-level behavioral indicators (feature engineering). These indicators will then be used for comparative analysis and modeling. Two example indicators are provided in the accompanying notebook for illustration. You must propose others.

Expected Work

Final Report Structure

The final report (maximum 20 pages, excluding appendices) must strictly follow the structure below.

1. **Conceptual Framework and Hypotheses**

- Human factors: autonomy, competence, cognitive load, engagement
- Theoretical concepts (psychology, UX)
- Formulation of 2–3 testable hypotheses

2. **Methodology and Data**

- Presentation of datasets
- Methodological choices and triangulation
- Study limitations

3. **Measurement Instruments**

- Questionnaires used
- Critical discussion of measurement validity and biases

4. **Experimental Design and Statistical Analyses**

- Description of the A/B test
- Statistical methods
- Managerial interpretation of results

5. **Behavioral Log Analysis**

- Description of observed behaviors
- Usage patterns and difficulties

6. **Construction of Behavioral Indicators**

- Description and justification of constructed indicators
- Link with course concepts
- Discussion of limitations

7. **Modeling and/or Segmentation**

- Problem formulation (prediction or segmentation)
- Models used
- Interpretation and limitations

8. **Managerial Recommendations**

- Integrated synthesis of results
- Proposed decisions
- Confidence level and associated risks

Oral Presentation and Evaluation

Oral Presentation

- 15 minutes per group
- Objective: convince a managerial audience

Central question: What decision do you recommend based on your analysis, and why?

Evaluation

The overall evaluation is structured as follows:

- Written report: 70%
- Oral presentation: 30%

Oral presentations will take place on 27 February.

Reports must be submitted on Moodle by 26 February at the latest.

Evaluation focuses primarily on the following aspects:

Quality of Reasoning

Methodological Coherence

Analytical Depth

Relevance of Managerial Recommendations

Key Rule

- ❏ **Technical sophistication is not an end in itself.** You are primarily evaluated on your ability to translate data analysis into reasoned managerial decisions.

FAQ

1. Do we have to use all the data?

No. You should use the data that is relevant to your hypotheses and analysis. Your methodological choices must be justified.

2. Are we supposed to use machine learning?

Yes, but in a reasonable way.

- Simple models are sufficient.
- Interpretation matters more than performance.
- Segmentation can be as valid as prediction.

3. Why is there no file with behavioral indicators?

Because designing indicators is part of the project. Indicators are not neutral: they reflect assumptions about user behavior, they involve trade-offs and information loss.

4. How many behavioral indicators are expected?

- 2 are illustrated in the notebook.
- You must propose at least 3 additional indicators.

Quality and justification matter more than quantity.

5. Can different groups use different indicators or models?

Yes. There is no single correct solution. Different approaches are expected and valued.

6. What defines a "good" model in this project?

A model is good if: it answers a meaningful question, its behavior is interpretable, its limitations are clearly discussed.

7. Should questionnaire data be used as model features?

No. Questionnaires are used to: interpret results, triangulate findings, discuss user experience. They should not be used as direct predictors.

8. What if our results are weak or inconclusive?

That is acceptable. You are evaluated on your reasoning and interpretation, not on strong effects.

9. How technical is the expected code?

Reasonably technical. Clean, readable, and justified code is more important than complex implementations.

10. What is the most common mistake to avoid?

Jumping too quickly to models without: understanding user behavior, justifying indicators, discussing limitations.

11. What matters most for the final grade?



Connect Theory, Data, and Decisions

Synthesize academic concepts with empirical data to drive actionable recommendations.



Argue Like an Analyst

Present your findings and recommendations with conviction, as if advising management.



Take a Critical and Responsible Stance

Discuss limitations, potential biases, and ethical implications of your analysis.