More Ecologically Valid Subjective Experiments

Lucjan Janowski,
with support from Zhi Li and Ioannis Katsavounidis

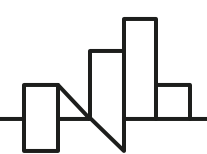# Different Measurement Points

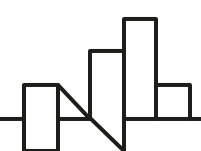

User Experience

Quality of Experience

Quality of Pixels
Quality of Display?

HVS Human Visual System

HVS (Human Visual System)

- Work done by military, NASA, psychology, medicine, …

- Crucial to understand what can or cannot be seen

- Basic for development metrics

- Especially important for new technologies

QoP (Quality of Pixels)

- This is mostly done by QoE community

- Classic experiment looking for opinions for large number of cases

- Especially important for new compression algorithms or compression optimization

- We have quite clear optimization goal – best possible pixel quality – no task involved

- The experiment setup is not realistic, some (like BBC) train subjects before experiment

- We need numeric values clearly describing quality so we can use it for the optimization

- We extend HVS by complex distortions including realistic sources
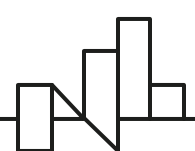
QoE (Quality of Experience)

- We try to incorporate:
  - Realistic settings
  - Engagement
  - Fillings
  - Place
  - …
- We extend QoP by adding realistic use case. A user is interacting with a service and quality is one of the possible aspect
- We would like to know the influence of the QoP on UX:
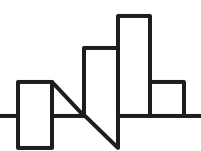
  UX = f(QoP), so f is QoE?
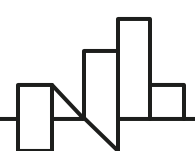
UX (User Experience)

- A lot of studies

- The goal is to consider all possible aspects of a service

- QoE or QoP is just a part of the story
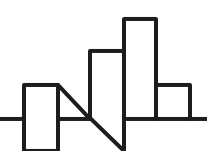
Examples

- HVS: How much gaussian blur must be added that you are not able to recognized a face
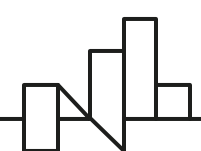 - Specific lab environment

Examples

- HVS: How much gaussian blur must be added that you are not able to recognized a face
  - Specific lab environment
- QoP: Which compression setting is the best?
 - Lab or similar environment, comparing the same sources

Examples

- HVS: How much gaussian blur must be added that you are not able to recognized a face
  - Specific lab environment
- QoP: Which compression setting is the best?
  - Lab or similar environment, comparing the same sources
- QoE: Which compression is best considering the current context of the user?
  - Watching what a user is doing

Examples

- HVS: How much gaussian blur must be added that you are not able to recognized a face
  - Specific lab environment

- QoP: Which compression setting is the best?
  - Lab or similar environment, comparing the same sources

- QoE: Which compression is best considering the current context of the user?
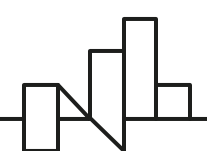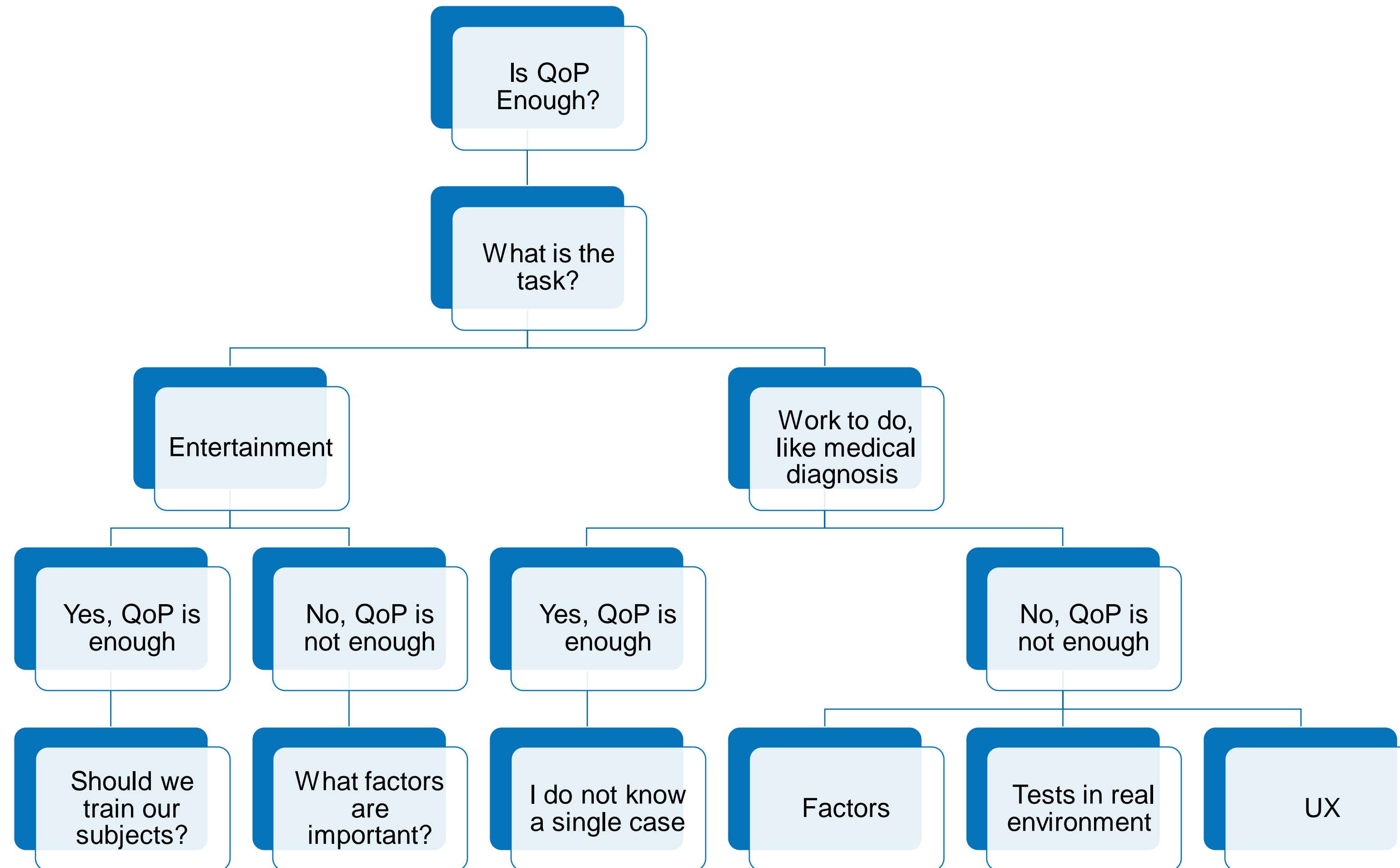 - Watching what a user is doing

- UX: How to make a better product?
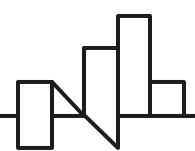 - Watching what a user is doing
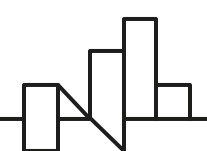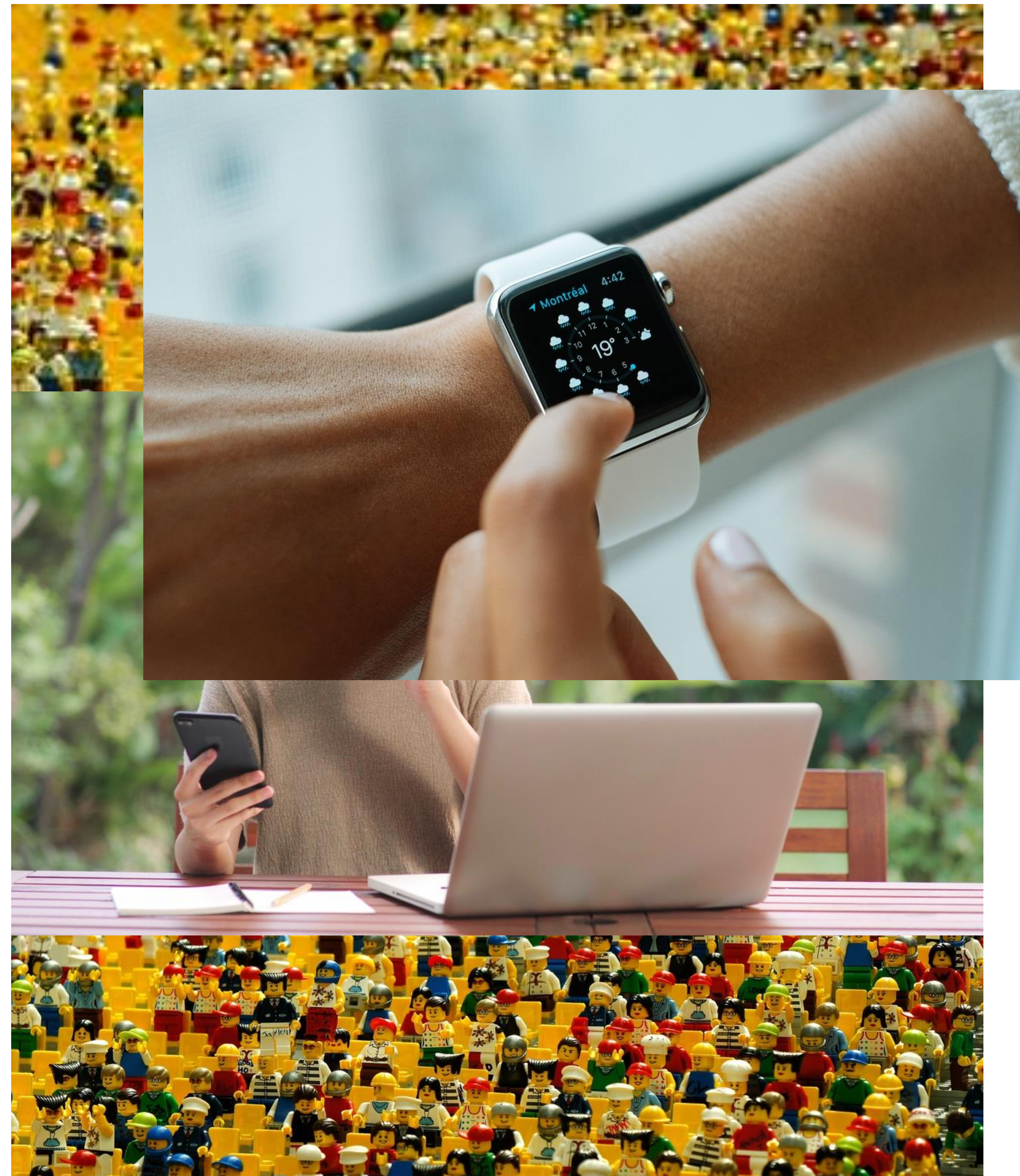
Do We Need QoE?

The Challenges for Entertaiment Scenario

- How to measure QoE but not QoP or UX?

- Which aspects of QoE are important
    - For science – all
    - For practical use cases:
        - Privacy

The Challenges for Entertaiment Scenario

- How to measure QoE but not QoP or UX?
- Which aspects of QoE are important
  - For science – all
  - For practical use cases:
    - Privacy
    - Practical aspect / Moral
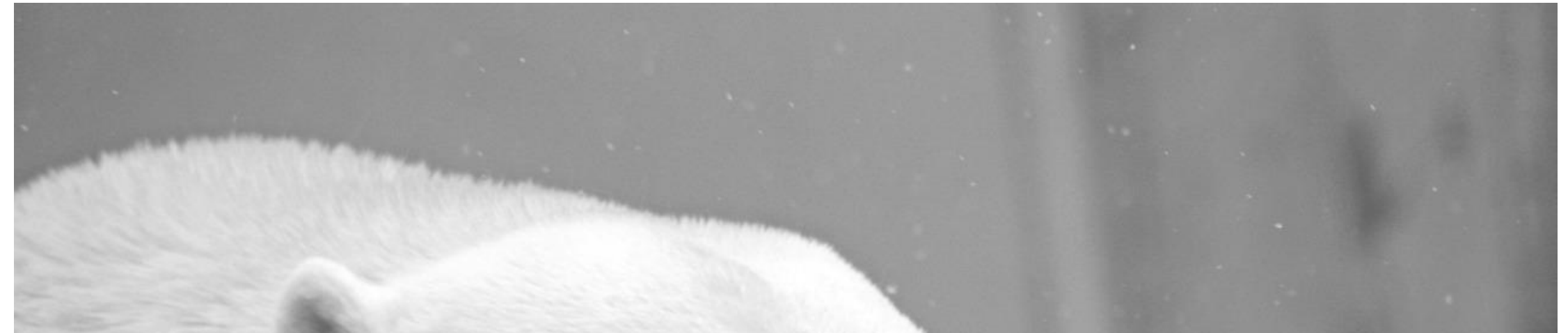
The Challenges for Entertaiment Scenario

- How to measure QoE but not QoP or UX?

- Which aspects of QoE are important
    - For science – all
    - For practical use cases:
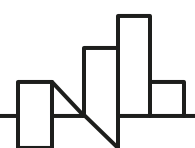   - Privacy
        - Practical aspect / Moral
        - Predictability
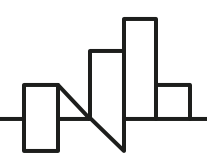
Important Influencing Factors

- Task

- Engagement

- Economy – the cost of service/data

- Interaction between QoP factors (like initial delay and the pixel quality)

- ?

Norway
grants

Thank you!

www.eeagrants.org
Facebook, Twitter, LinkedIn, Instagram
YouTube: EEANorwayGrants
Mail: info-fmo@efta.int