Extended Reality in Cabin Safety

A Practical Approach to Implementation

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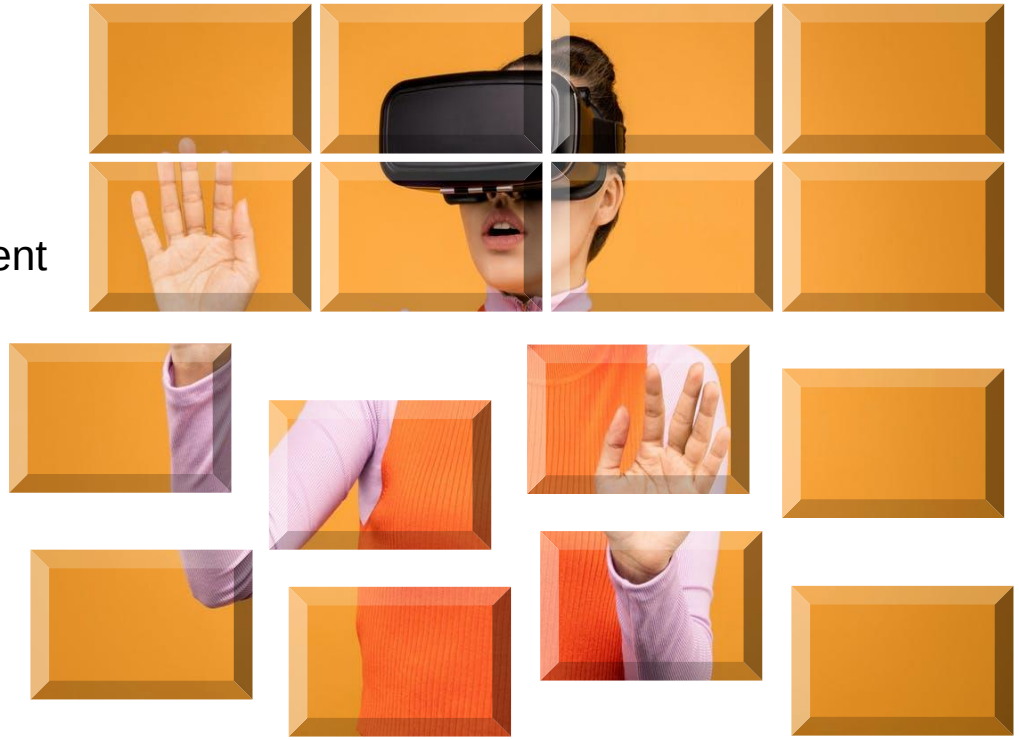
Overview

- XR background
- Problem
- Current work and application
- Future

Introduction

- **eXtended Reality (XR)**
  - Umbrella term referring to current (and future) technologies:
    - Virtual Reality (VR)
    - Augmented Reality (AR)
    - Mixed Reality (MR)



How long ago are XR's roots?

- 2000s
- 1980s
- 1940s
- 1830s

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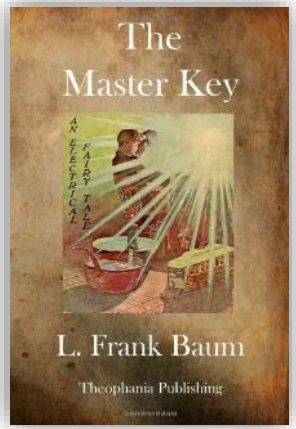
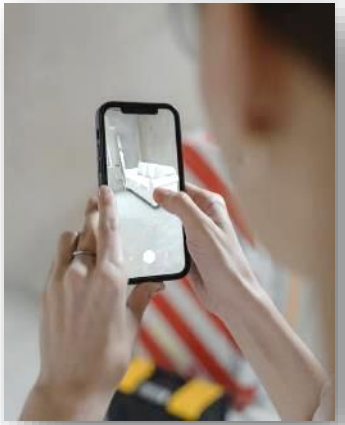
XR Types: VR Evolution

XR Types: AR Evolution



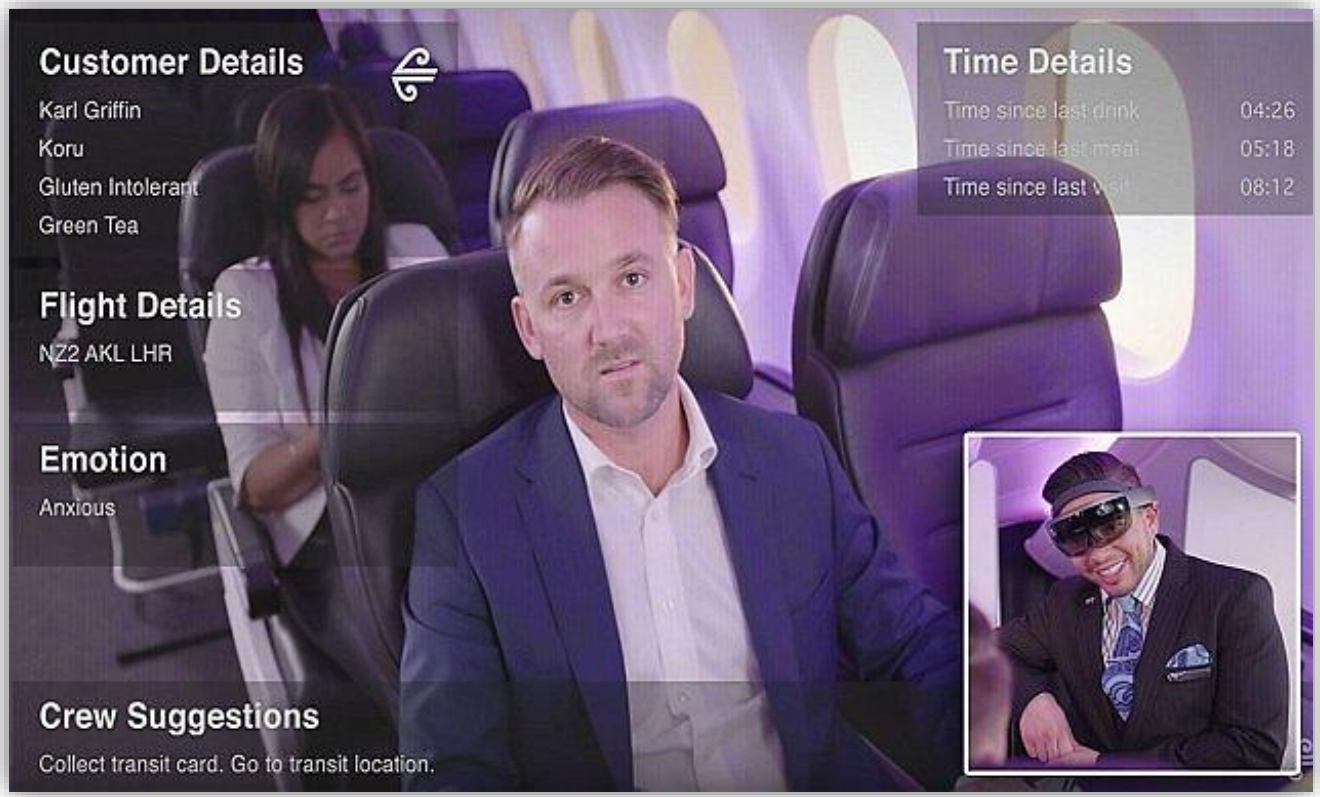
1901

1918



Today

MR



Credit: Daily Mail, Air New Zealand

XR Technology Use

Entertainment

Collaboration

Door Training

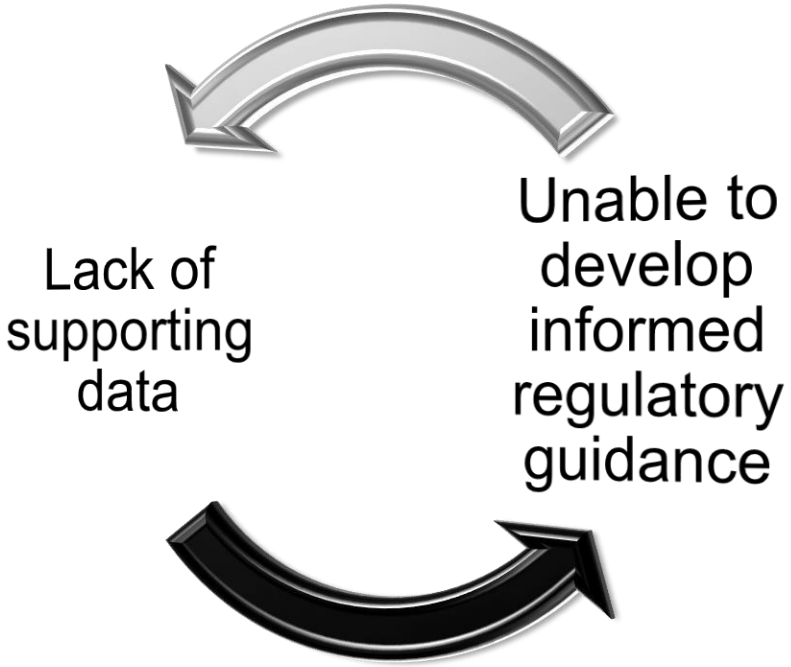
Fitness

Escape

Current Use Cases

- **Laparoscopic surgery study**
  - Brain overload is an important issue (Frederiksen et al., 2020)
- **PTSD clinical intervention**
  - Effective over imagined exposure therapy (Comer, 2016)
- **Rehabilitation**
  - Significant improvement in mobility (Cano Porras et al., 2018; Mirelman et al., 2016)
- **Familiarization**
  - Flight attendant supplemental

Problem


Unable to develop informed regulatory guidance
Lack of supporting data

Current Work and Application

- **ICAO Ad Hoc Working Group on Cabin Crew Digital Learning**
- **AQP/N&O and XR outlook**
- **“What’s in it for me?”**
  - Uncertain: A call to action

Future Research Areas

- **Cabin crewmembers**
  - Training (initial, recurrent, TTT, calibration, etc.)
  - Effective hiring models?
- **Cabin safety**
  - Egress and evacuations
  - Passenger education
  - Emerging technologies