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Technical and legal challenges

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Back-end: ICT-based platform architecture
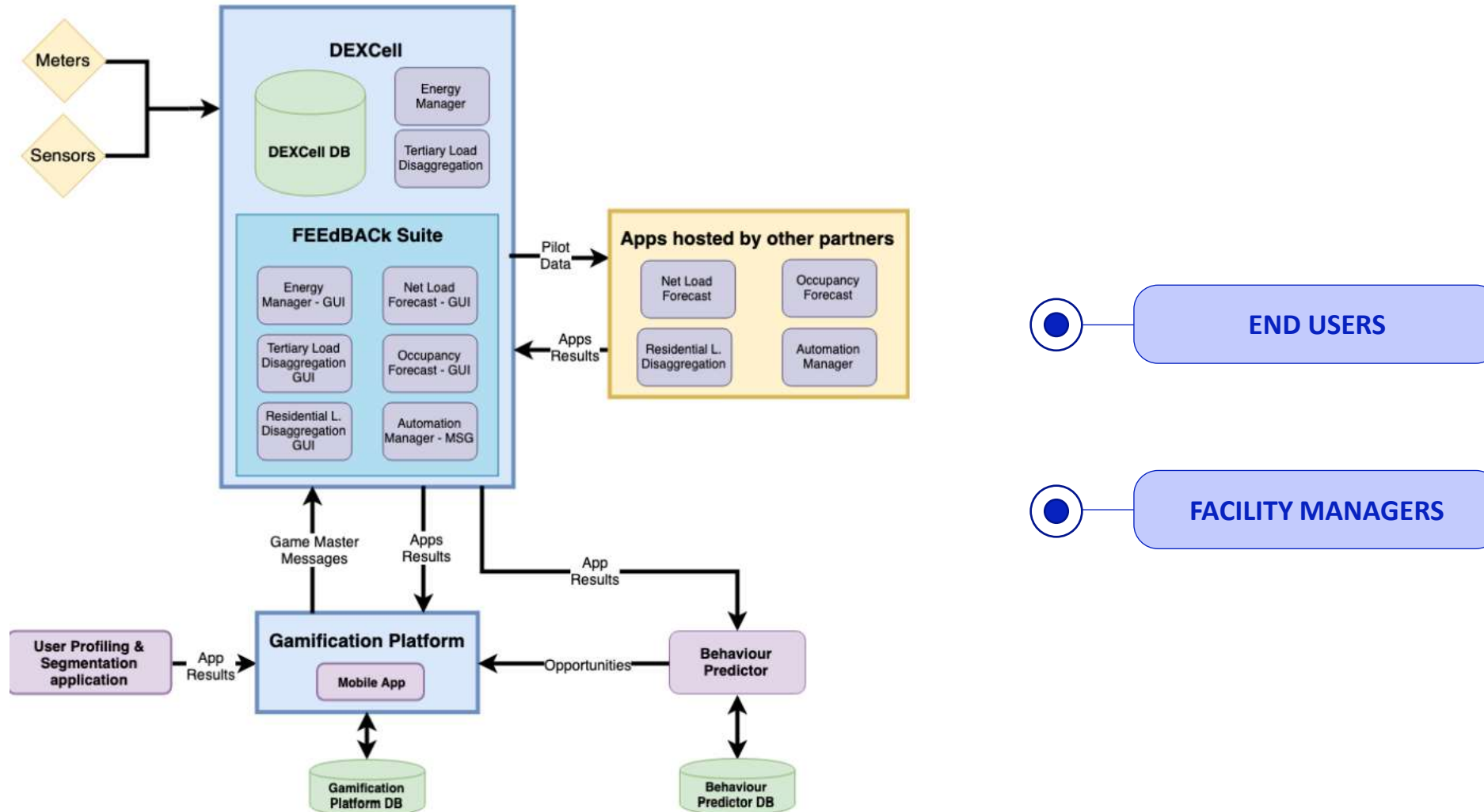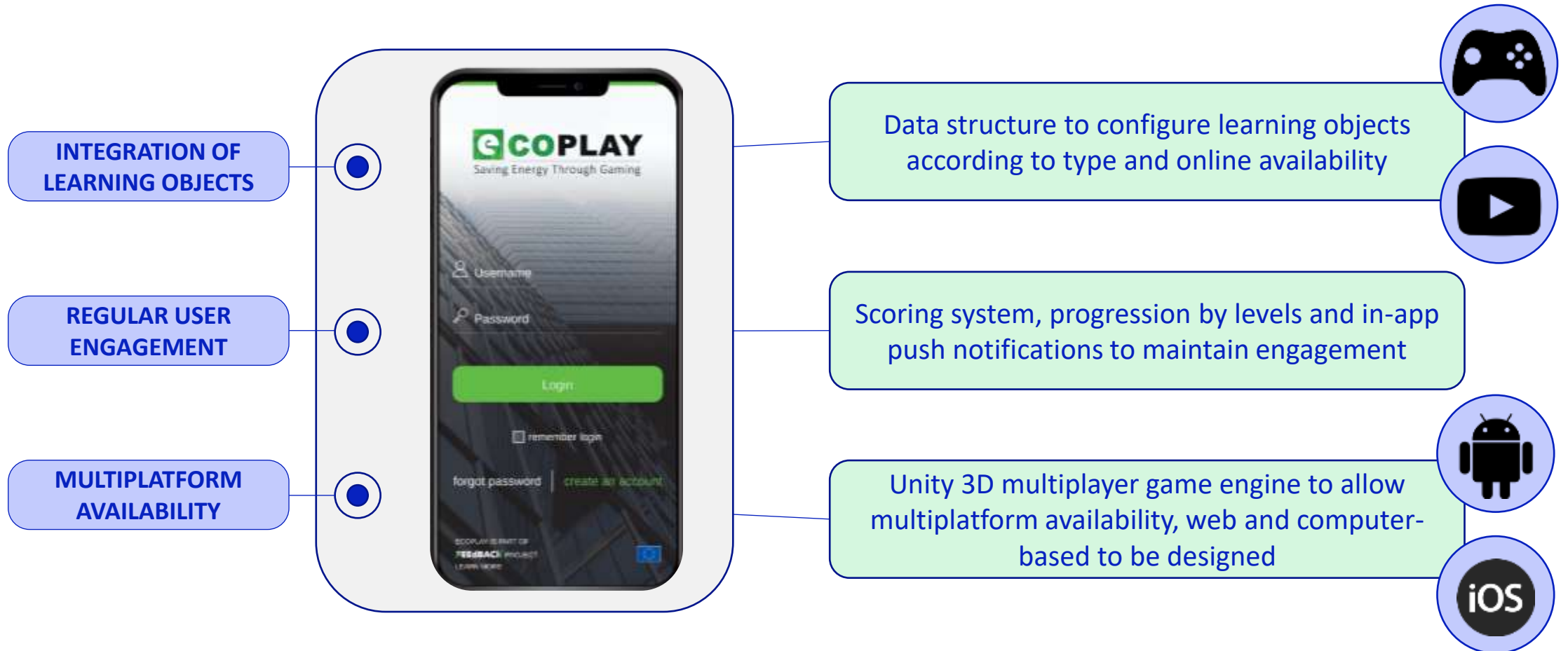

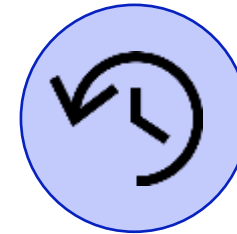FIGURE 1: FEEDBACK APPLICATIONS INTERACTION DIAGRAM

Behavior change through ICT

ENGAGEMENT

ENERGY & COMFORT MONITORING

GAMIFICATION

MULTI-SENSOR

APPLICATIONS

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Gamification

INTEGRATION OF LEARNING OBJECTS

REGULAR USER ENGAGEMENT

MULTIPLATFORM AVAILABILITY

Data structure to configure learning objects according to type and online availability

Scoring system, progression by levels and in-app push notifications to maintain engagement

Unity 3D multiplayer game engine to allow multiplatform availability, web and computer-based to be designed

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Multi-sensor solution

TEMPERATURE

HUMIDITY

CO2 CONCENTRATION

LUMINOSITY

REAL-TIME COMMUNICATION

COMPATIBILITY WITH EXISTING WI-FI

INFORMATION STORAGE CAPABILITY

LOW COST FOR LARGE INSTALLATION

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Applications

FIGURE 1: FEEDBACK APPLICATIONS INTERACTION DIAGRAM

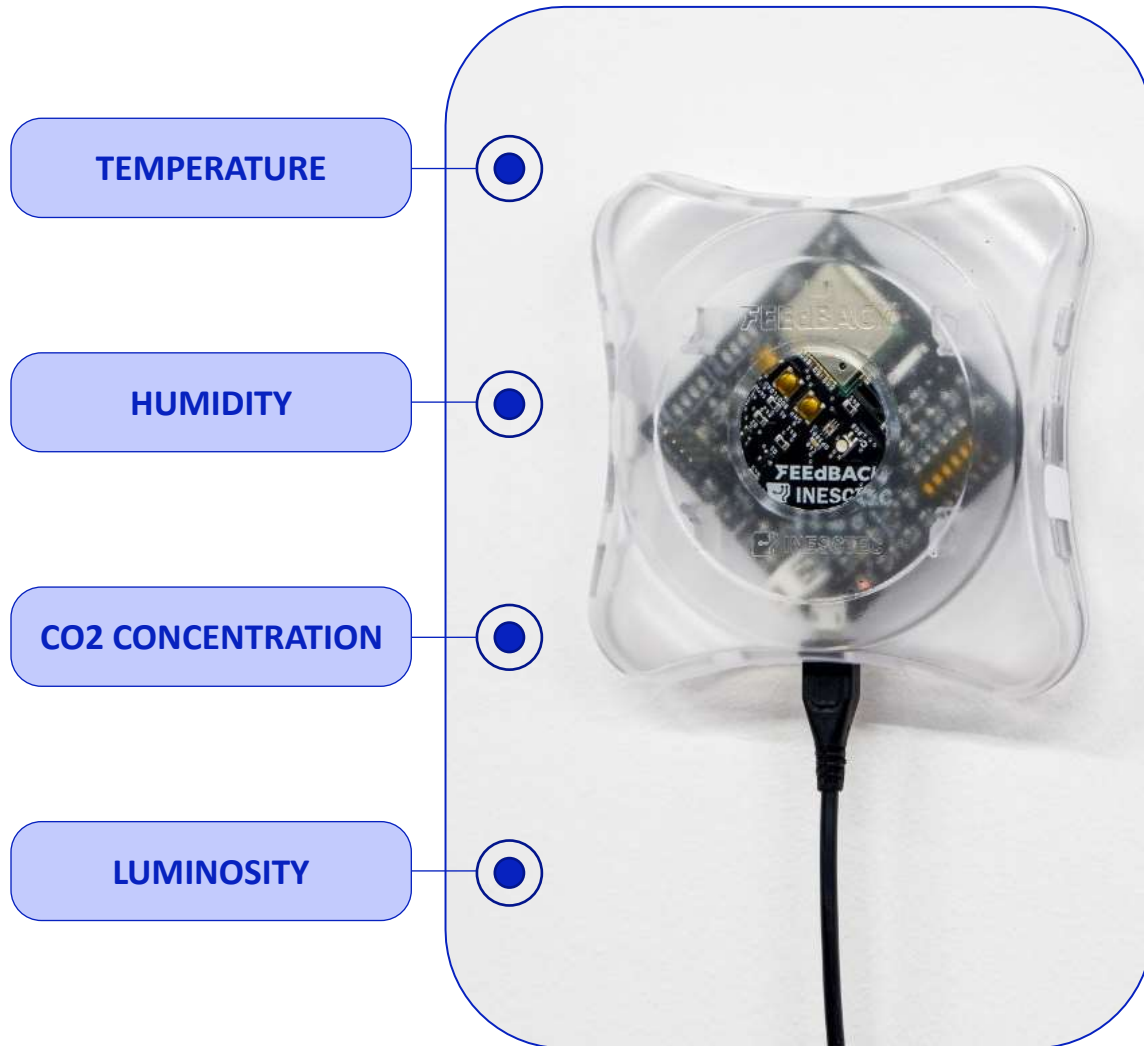**APPS DEVELOPED BY DIFFERENT PARTNERS**

INPUT & OUTPUT MANAGEMENT

PYTHON LANGUAGE COMPATIBILITY

DATABASE MANAGEMENT

Micro-service to integrate tertiary and residential load disaggregation apps into DEXMA energy management system

API to transmit inputs and access outputs to/from DEXCell by various users

Controlled container environment to execute apps' codes with associated libraries without affecting performance

Auxiliary scripts to import information from various DB (DEXCell, multi-sensors, pilots' metering)

Legal challenges

INFORMED CONSENT
- Information
- Comprehension
- Voluntariness

DATA MANAGEMENT
- Collection
- Protection (pseudonymization)
- Storage, retention, destruction

ETHICS ADVISOR
- Ethics advisors (per demo)
- EPFL human research ethics committee approval

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THANK YOU

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feedback-project.eu

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LIME TOOLS

Lippezukunft

TUDelft

EPFL
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

INESCTEC

DEXMA ENERGY MANAGEMENT

ERF
ESTUDI RAMON FOLCH I ASSOCIATS, S.L.