

HE<sup>VD</sup>  
IG

MEI

Media  
Engineering  
Institute

# Conception collaborative des Serious Games

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University of Applied Sciences  
of Western Switzerland

Imagine...

Développer un nouveau  
serious game



# Vous entrez dans la phase de design (conception)



Source: Freepic, tirachardz

Différents choix de design => différents jeux

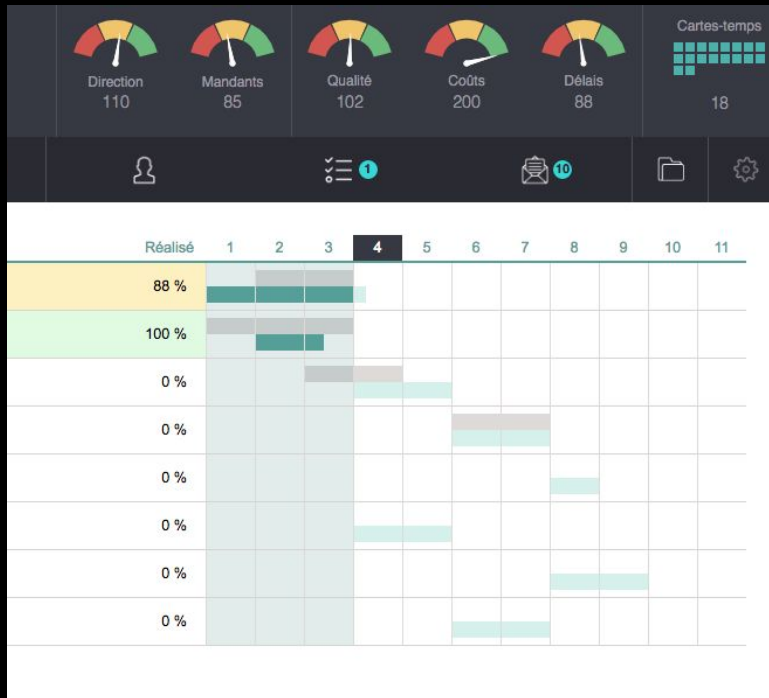




# Design d'un serious game pour la formation au management de projet



# Project Management Game (PM-Game)



## Etudiants

- prennent le rôle d'un(e) chef(fe) de projet
- gèrent un projet virtuel



# Travail d'équipe



# Choix parmi différentes options

The screenshot displays a project management dashboard for a game. At the top, a progress bar shows the current phase is 'Planning', with 'Initiation', 'Execution', and 'Closing' as previous phases, and 'Next phase' as the upcoming one. To the right, five gauges monitor 'Management' (100), 'Users' (100), 'Quality' (0), 'Costs' (0), and 'Schedule' (0). A 'Time budget' of 10 is also shown. The main navigation bar includes 'HOME', 'PROJECT', 'TASKS', 'GANTT', 'RESOURCES', and 'EVM'. Below this, a list of tasks is shown, with 'Customers' and fitters'/repairers' needs analysis' selected. The right panel provides a detailed description of this task and offers two options: 'a) Accept' and 'b) Refuse', each with a 'SUBMIT' button.

**Project Management Game**  
Test team

Initiation **Planning** Execution Closing **Next phase**

Management 100 Users 100 Quality 0 Costs 0 Schedule 0

Time budget 10

HOME PROJECT TASKS GANTT RESOURCES EVM

Questions to answer this week

- Customers' and fitters'/repairers' needs analysis**
- Development environment training
- Video-conference and remote control testing
- Processing programming
- New promotion strategy

**Description**

**Customers' and fitters'/repairers' needs analysis**

An engineer claims that there is no need to include the fitters in the "Requirement Analysis" task. He argues that the fitters' and repairers' needs are already well-known. This would substantially cut expenses by two person-weeks.

a) Accept

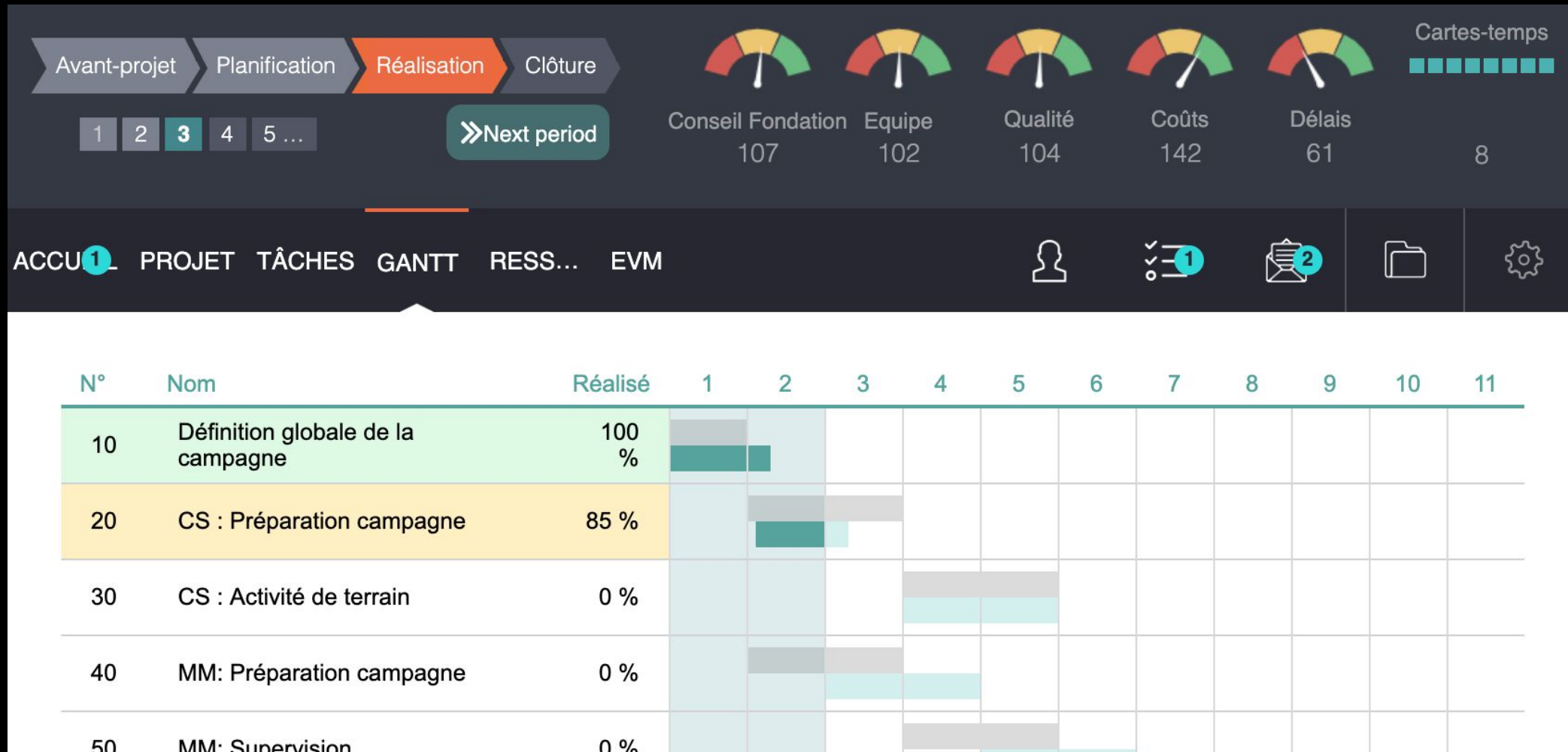
You accept this proposition and will execute the task "Requirement Analysis" without the fitters. You are hence saving the respective costs. **SUBMIT**

b) Refuse

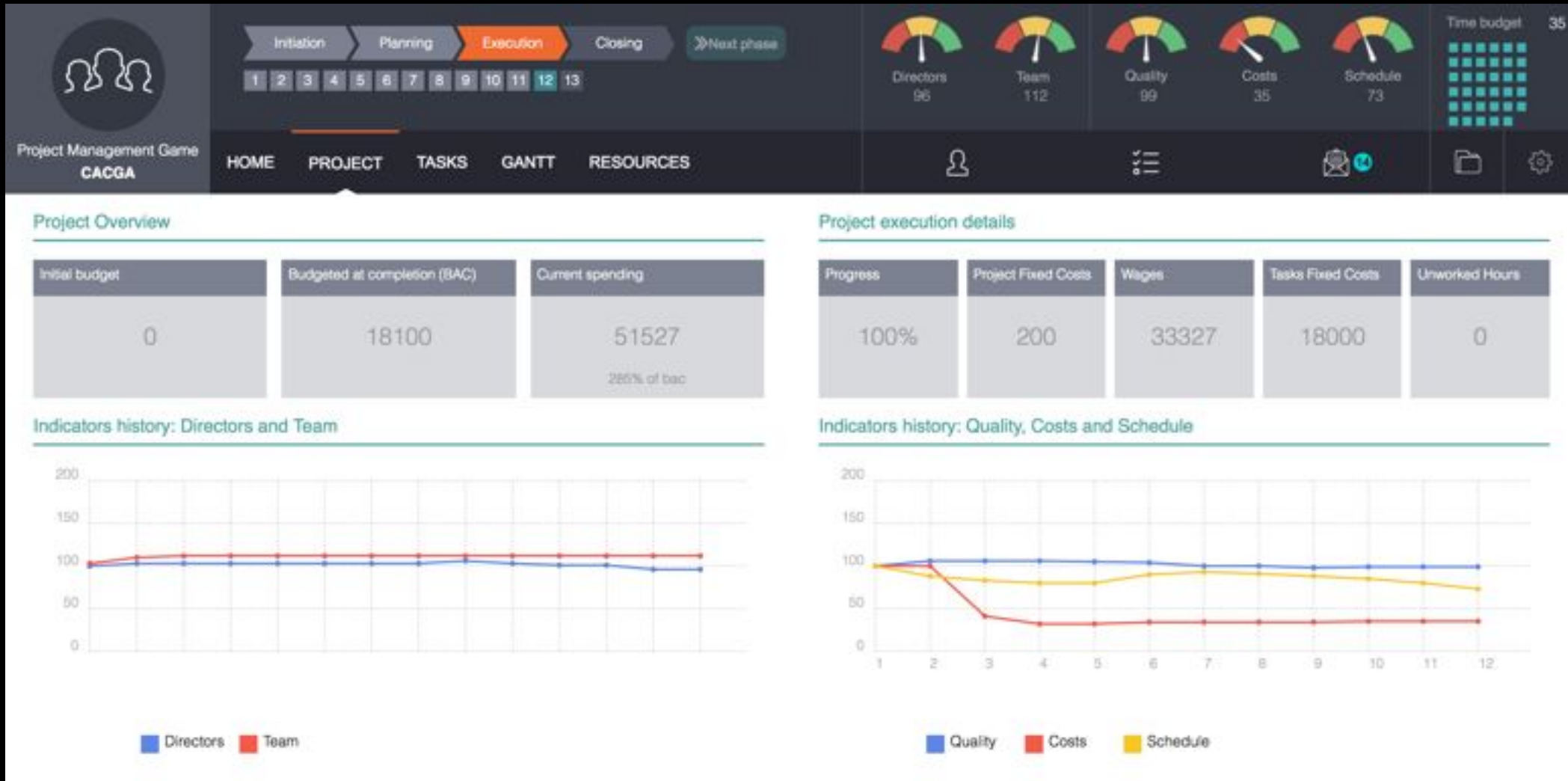
You refuse this suggestion and keep the current variant. **SUBMIT**



# Planification du projet



# Suivi de la qualité, coûts, délais





# Jeux de rôles

- Joint venture Kempinski → Raison d'Etre
- Spin off du groupe Kempinski doté d'un million à la date de création 2009
- Le plan sera terminé lorsque le premier spa sera opérationnel
- Date de terminaison Juin 2013



Marie-Laure PAUW

Gabriel GERBE

Martine MARI



# PM-Game

> 15'000 users

- University of Lausanne
- University of Geneva
- X Polytechnic Paris
- University of Marseille
- Indian Institute of Technology
- Agder University, Norway
- Cnam
- University of Bordeaux
- ...



# Design d'un serious game pour la formation au management de projet





# Yet Another Project Management Game





Lequel est le meilleur ?



Tellement facile d'échouer...

Conception collaborative  
des serious games ?

Recette  
miracle ?

Mais un Design  
Framework peut  
aider



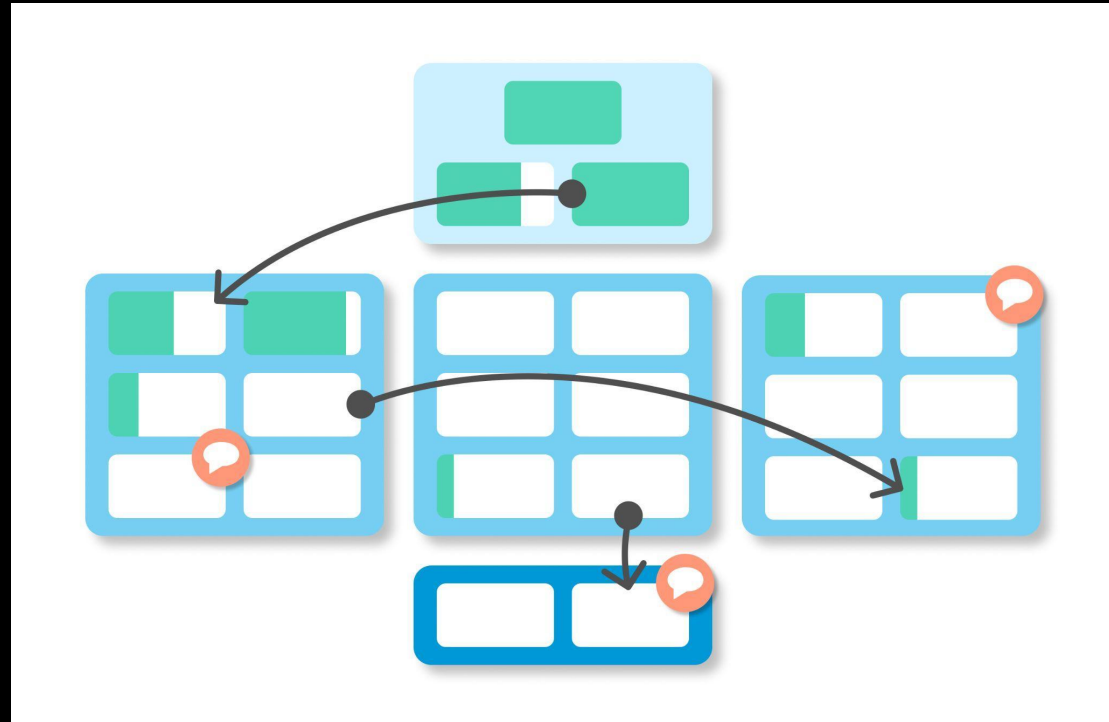


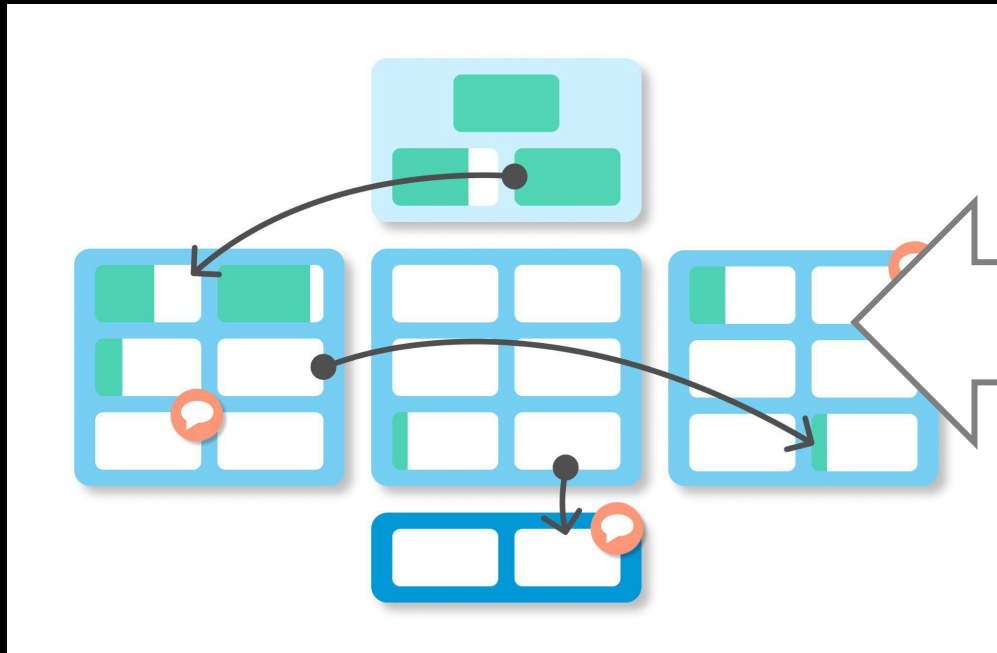
# co.LAB

## Serious games

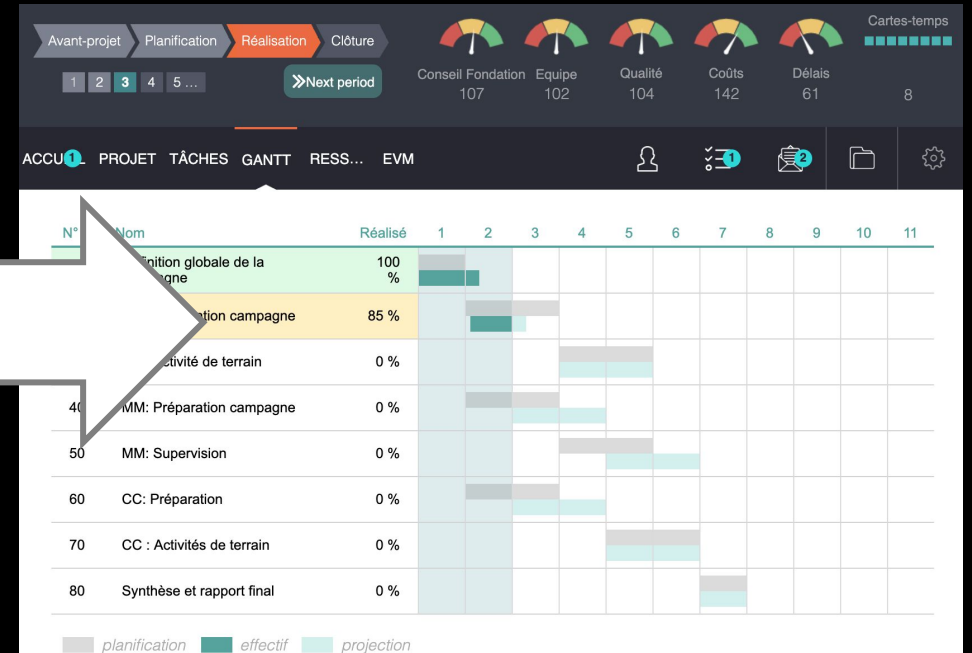
### Design Framework

- 10 ans d'expérience
- SNSF Research project - NRP 77 (HEIG / Unige)





Principaux éléments de design



PM-Game

## Context

- Context of usage
- Problem to solve

### ***PM-Game***

*Context: Academic and professional education.*

*Problem: Difficult to develop practical competencies and soft skills in ex cathedra lectures.*



Context

Learning  
Goal

Briefly define the serious goal.

***PM-Game***

*Develop*

- *practical competencies*
- *soft skills*

Context

Learning  
Goal

Game  
Outline

Pitch your game in one sentence.

### ***PM-Game***

*Take the role of a project manager and successfully manage your project by taking the right decisions*

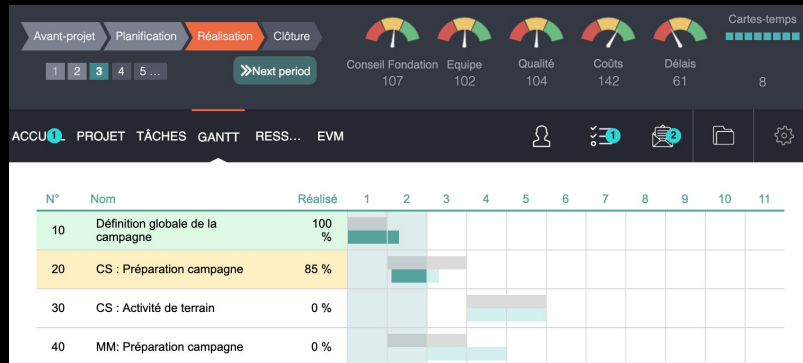
## Context & Objectives

Context

Learning  
Goal

Game  
Outline

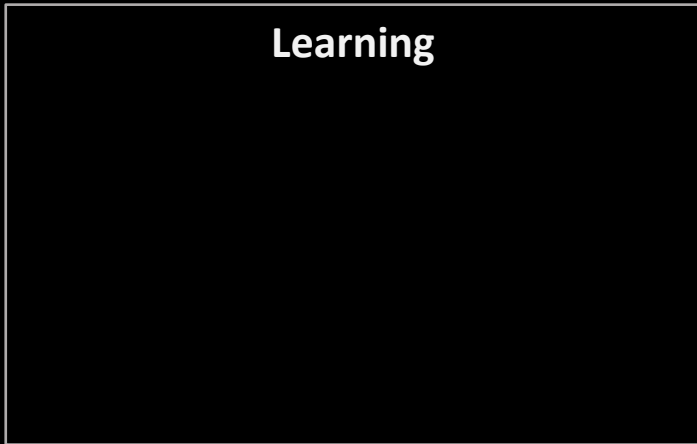
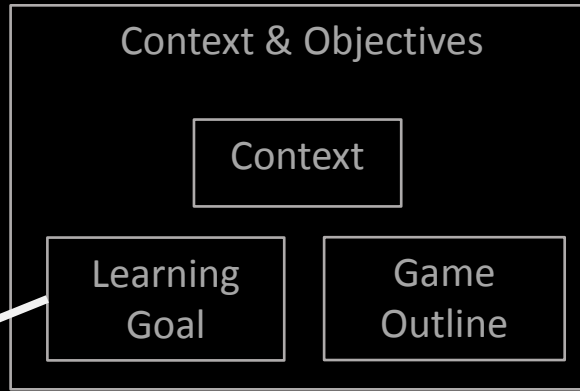
# Is it consistent ?



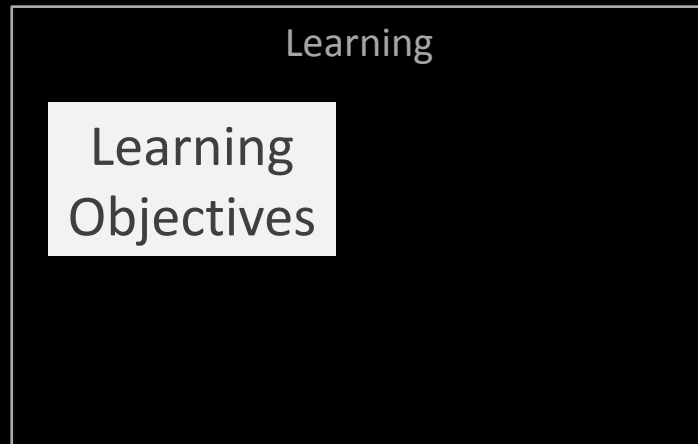
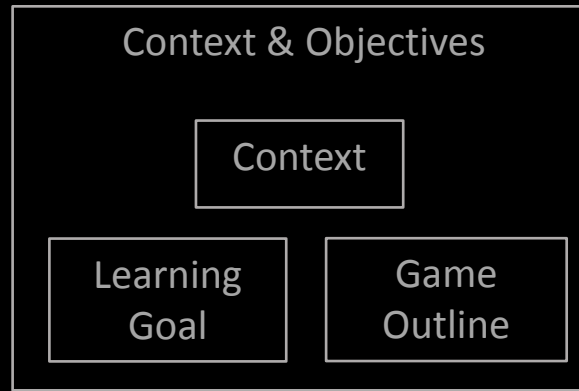
*PM-Game*



Precise the  
serious goal



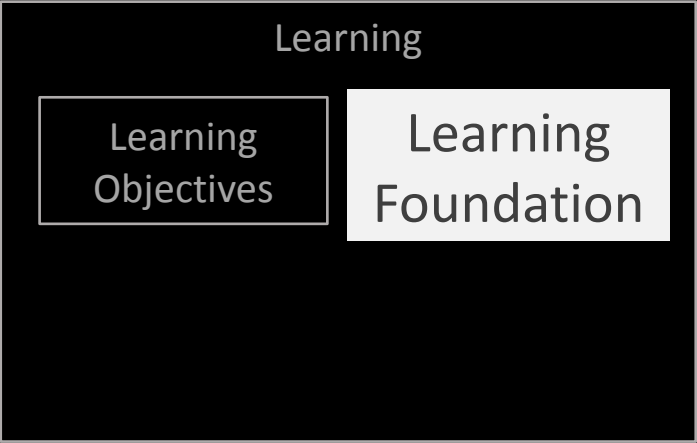
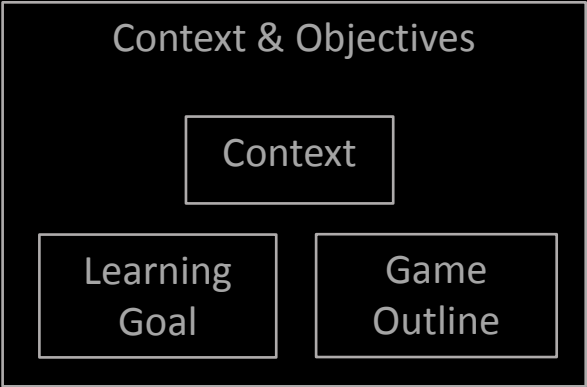




Break down the Learning Goal into smaller elements.

### ***PM-Game***

- *Create a project proposal*
- *Carry out a risk management process*
- *Lead a steering committee meeting*
- *...*

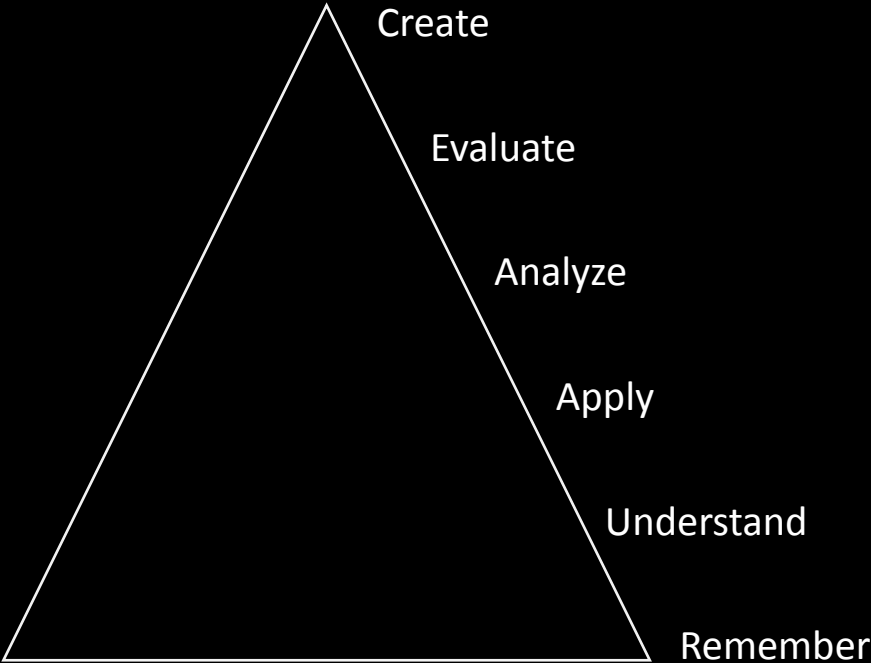


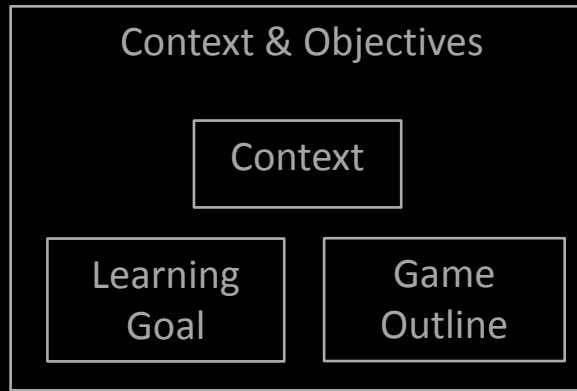
Explain of how you will reach your Learning Objectives.

Scientifically grounded.

High-order

Low-order





Explain of how you will reach your learning objectives.

Scientifically grounded.

### ***PM-Game***

*High order thinking skills.*

- *Not rote learning*
- *Construct the knowledge*

## Context & Objectives

Context

Learning  
Goal

Game  
Outline

## Learning

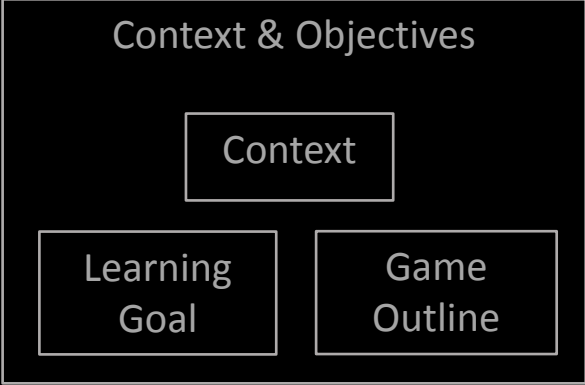
Learning  
Objectives

Learning  
Foundations

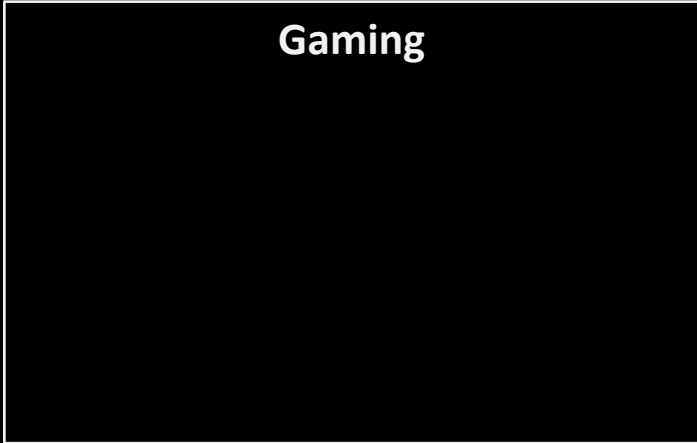
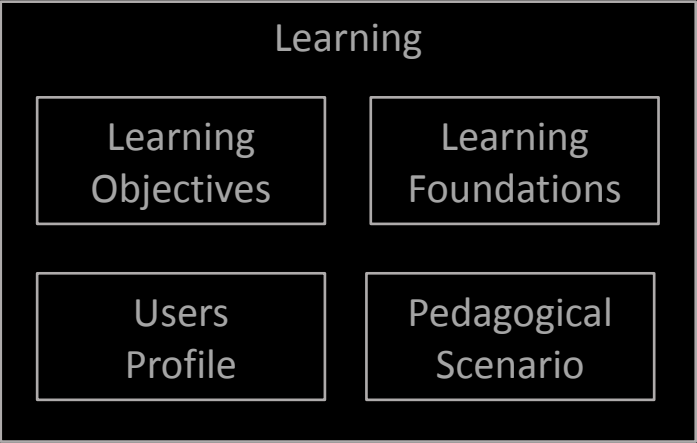
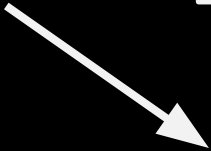
Users  
Profile

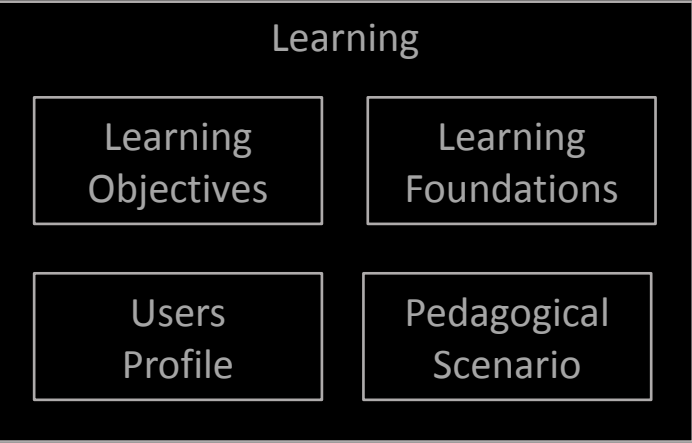
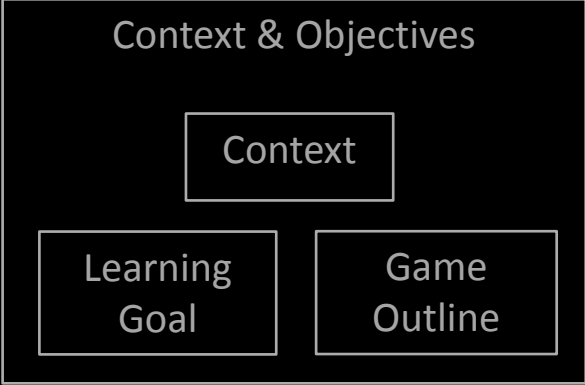
Pedagogical  
Scenario





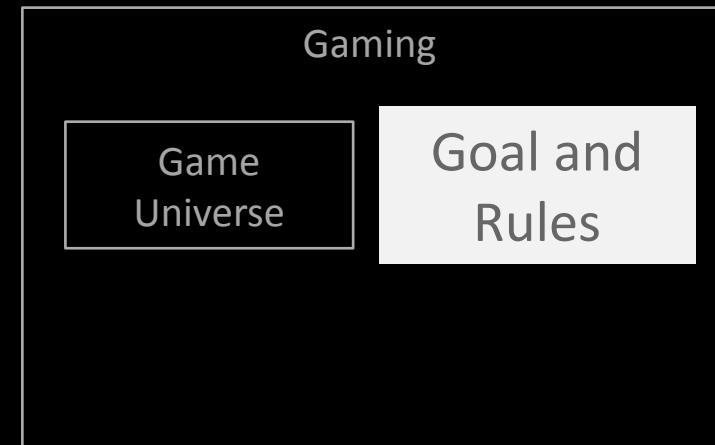
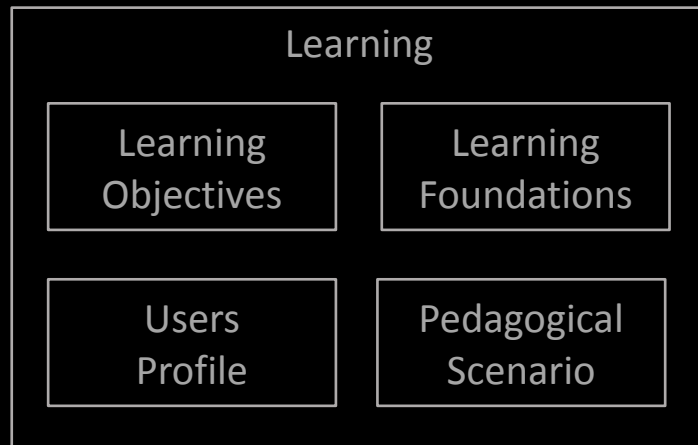
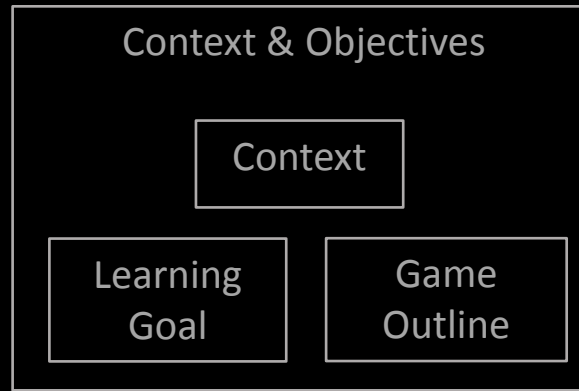
Design the game





The world in which the game will be played.

***PM-Game***  
*A corporate environment.*



Find a clear goal, achievable with simple rules.

***PM-Game***

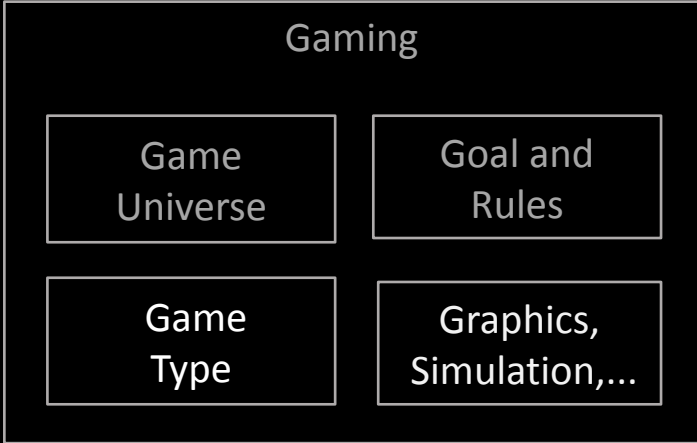
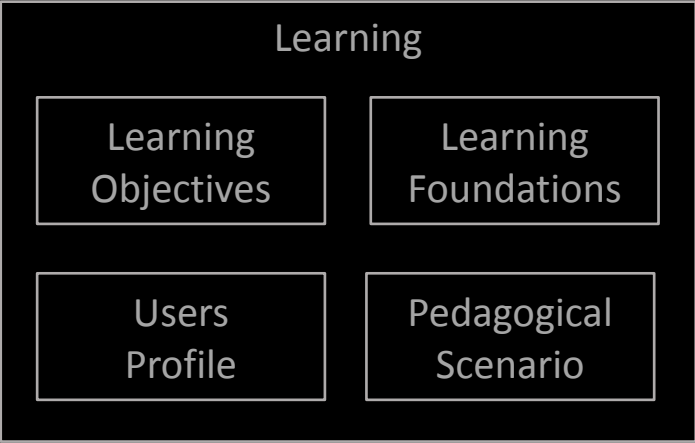
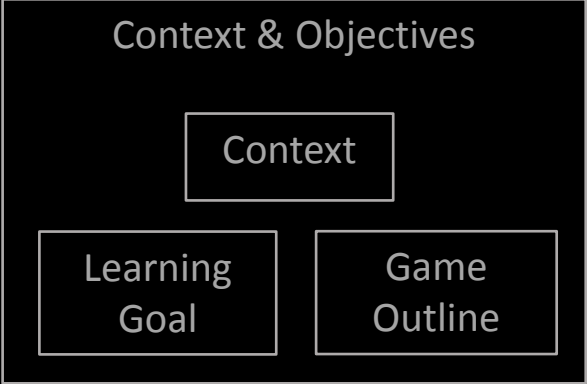
*Complete your project, within pre-defined objectives, costs and schedule.*

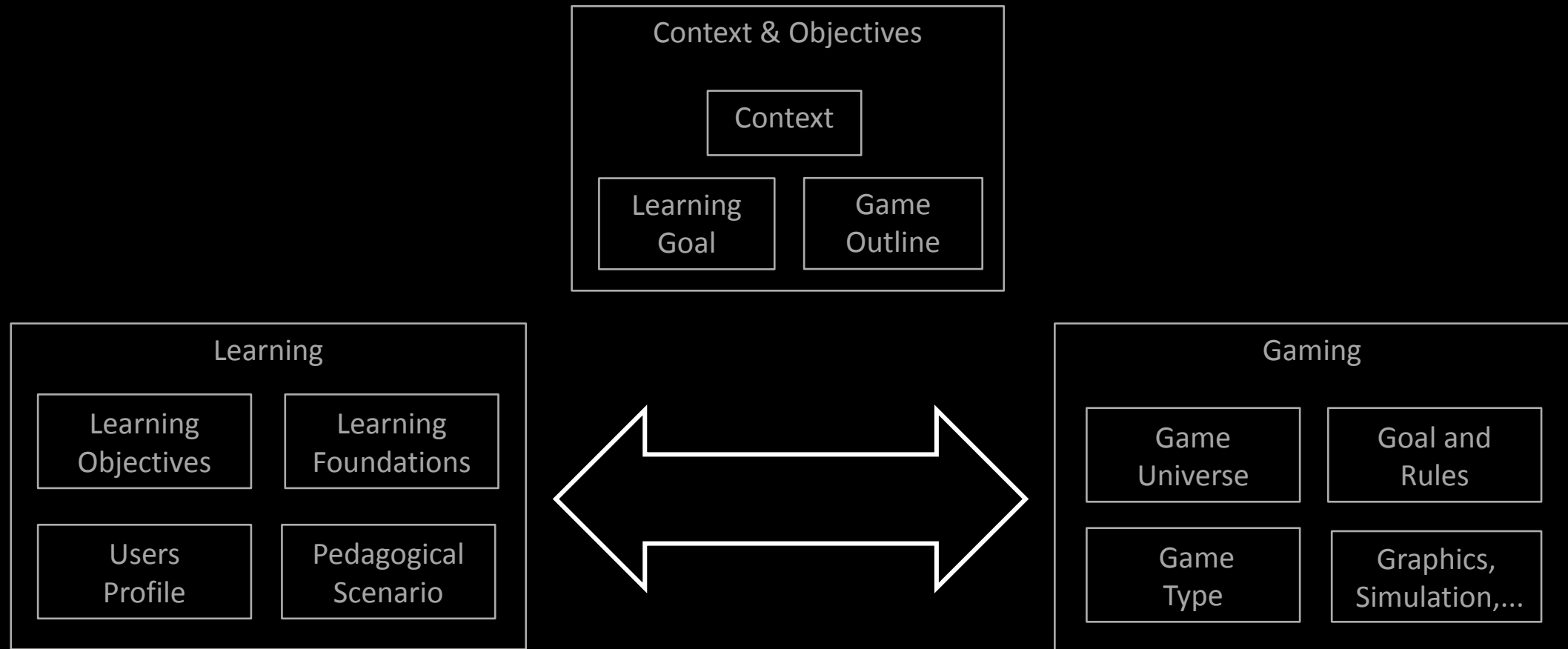
*Rules*

- *There's no going back*

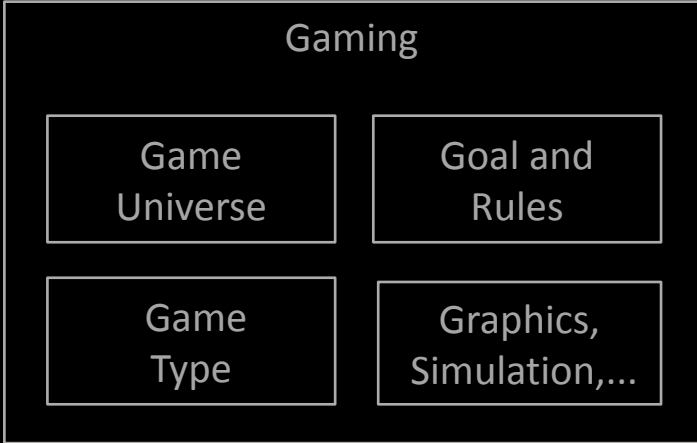
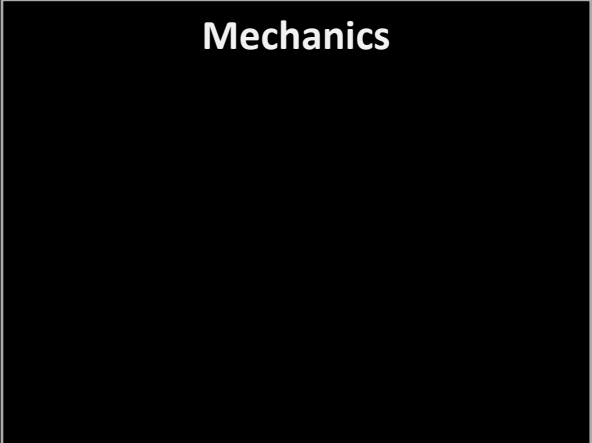
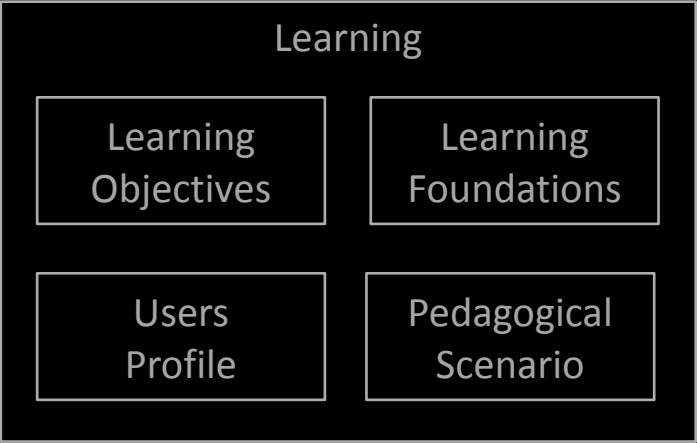
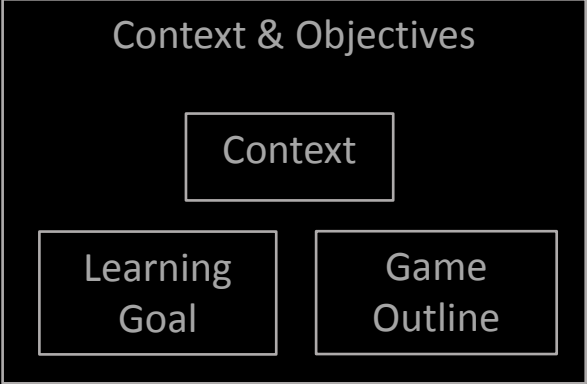
- ...





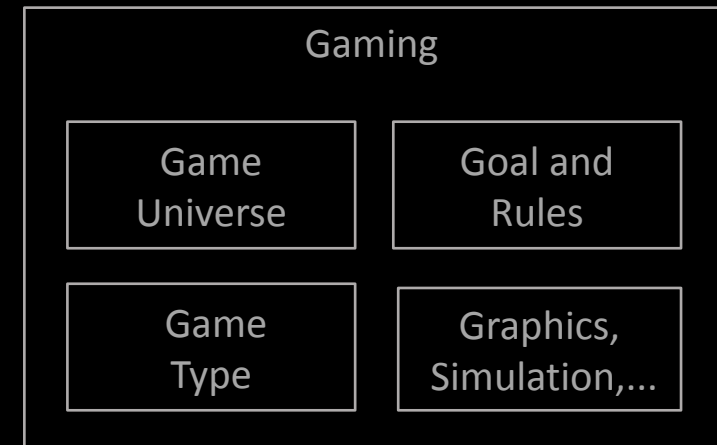
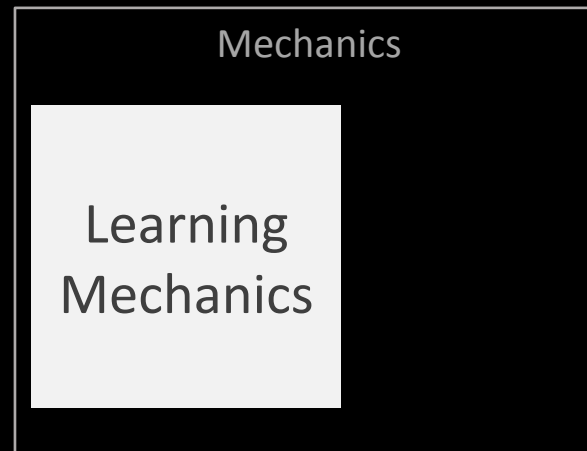
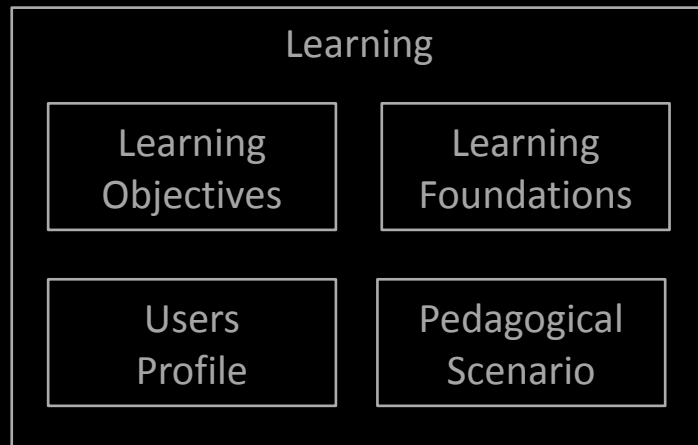
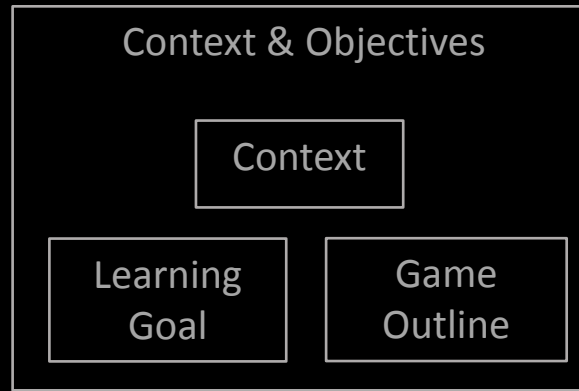


How to you link that ?



# Mechanics' Alignment

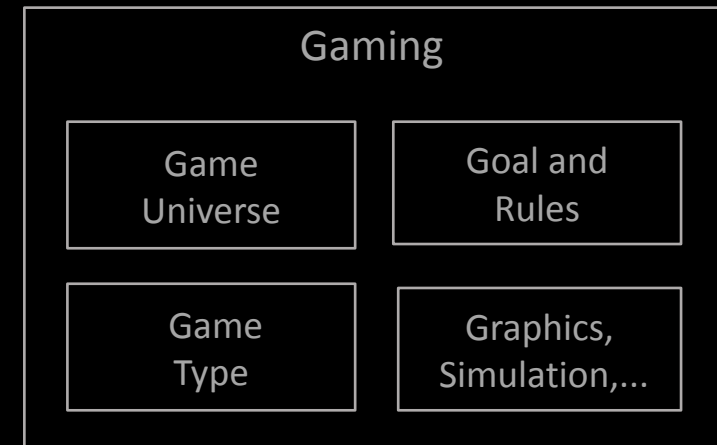
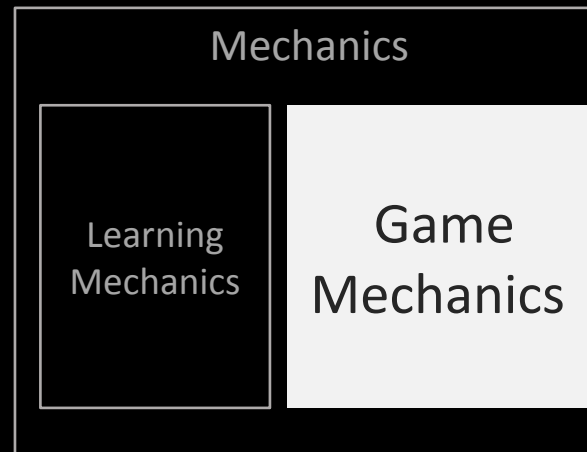
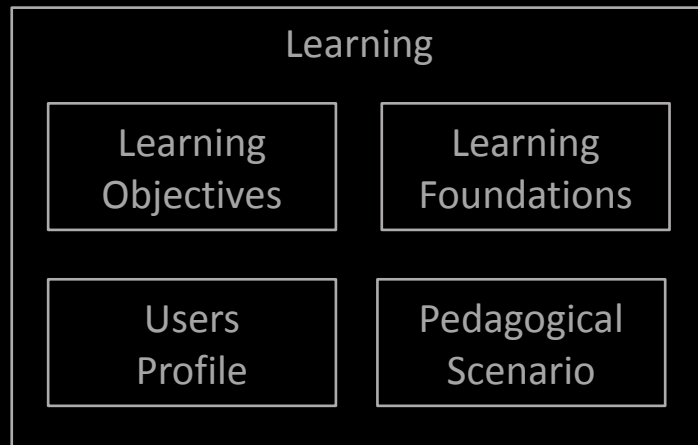
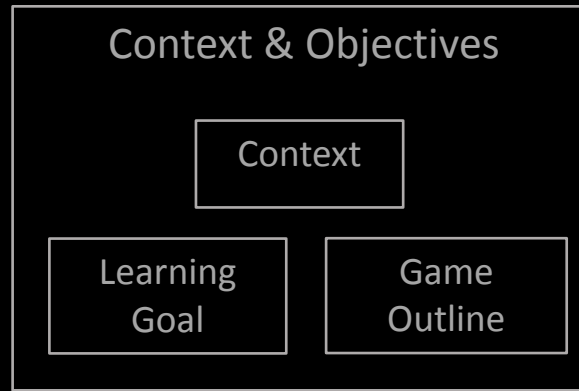




Elementary learning activities that are repeated throughout the game.

### ***PM-Game***

- *Apply knowledge to a practical situation*
- *Simulate, analyze results*
- *Take decision in teams*
- *Participate in debates*



Elementary players' actions repeated during the game.

### ***PM-Game***

#### *Core Mechanic*

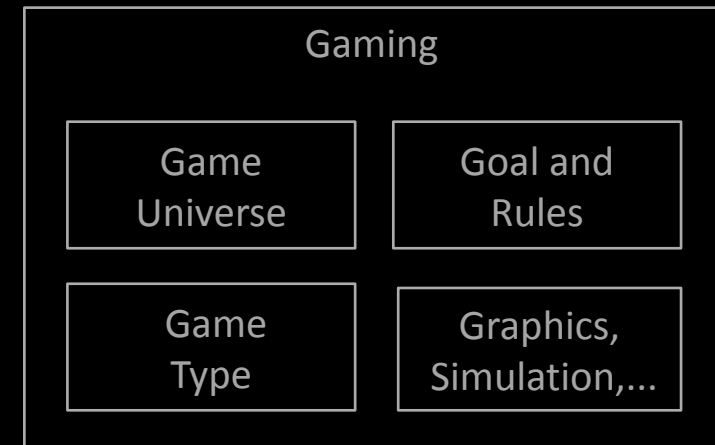
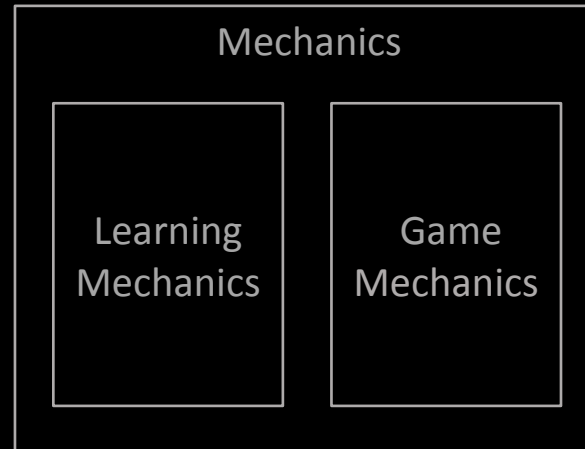
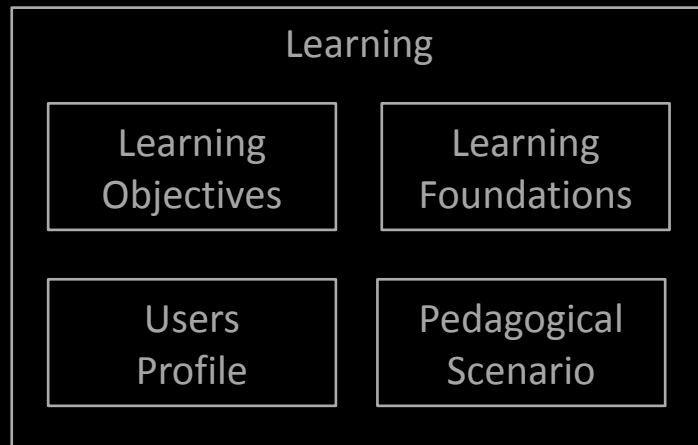
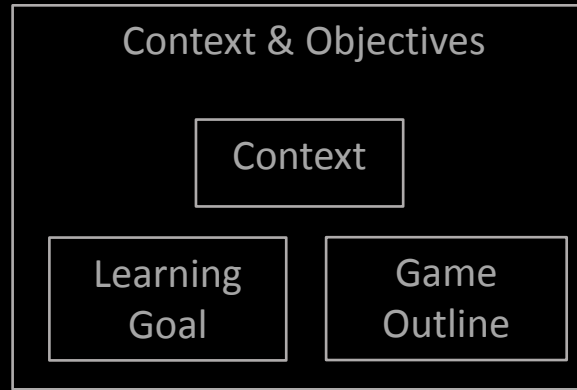
- *Decision-making (choices)*

#### *Secondary Mechanics*

- *Activity planning*

• ...

# Is it consistent ?



Learning Mechanics  
consistent with  
Learning Design ?

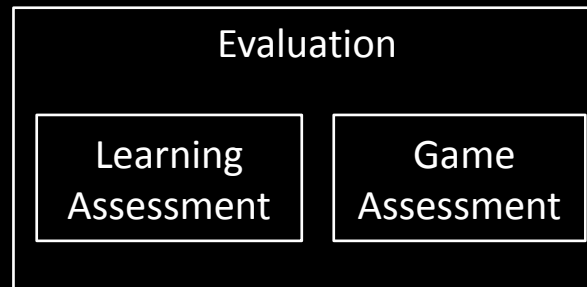
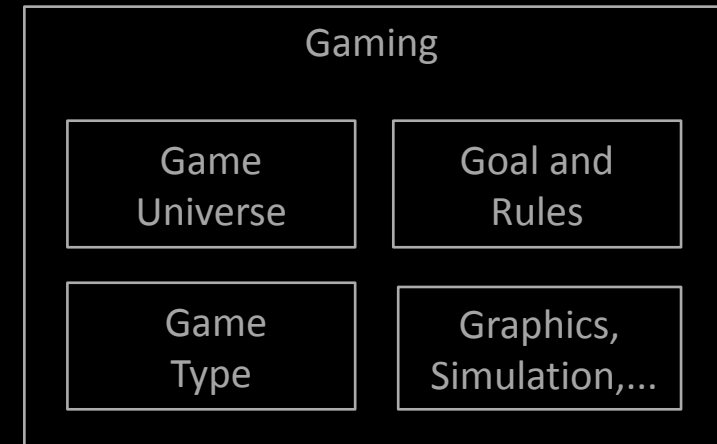
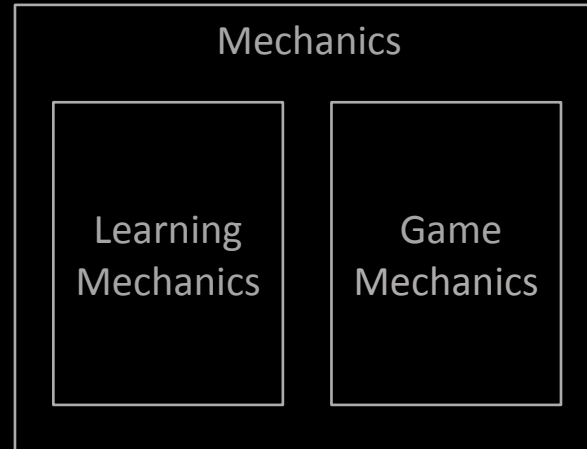
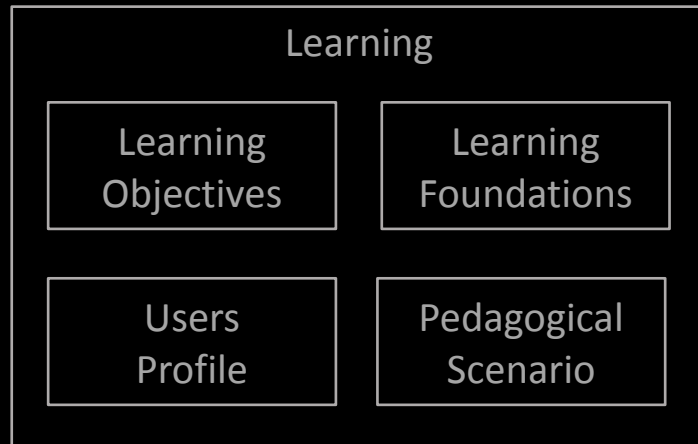
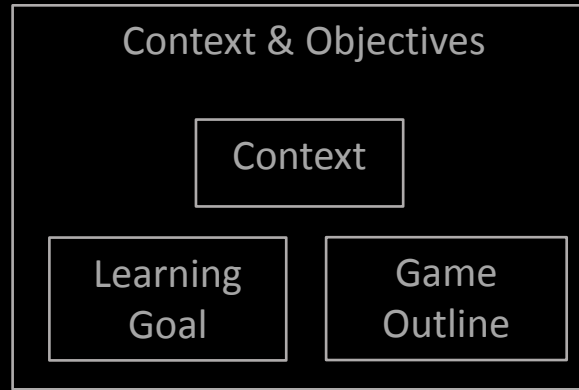


Learning Mechanics  
linked to  
Game Mechanics ?



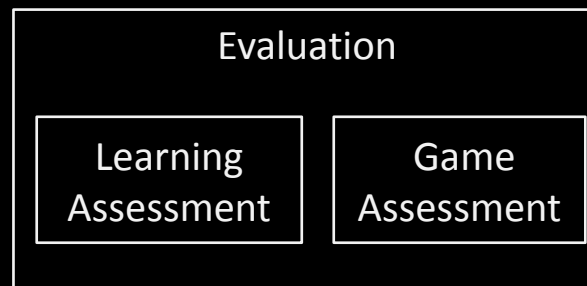
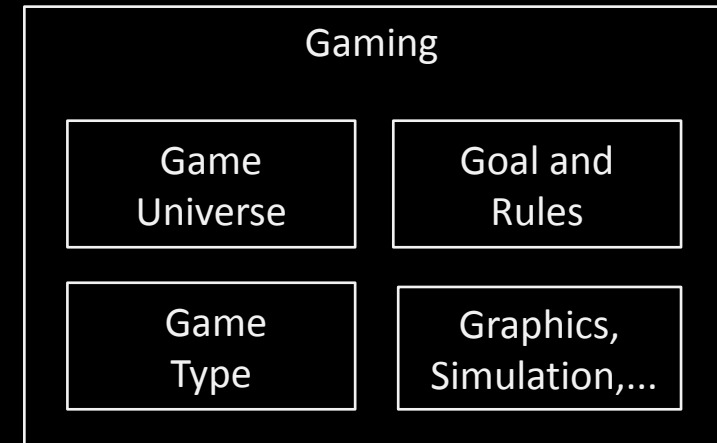
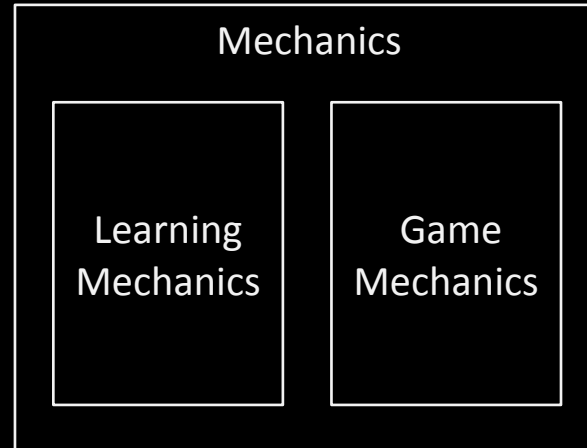
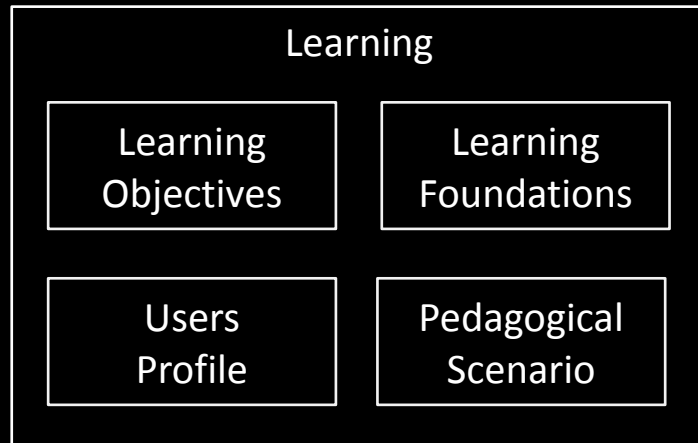
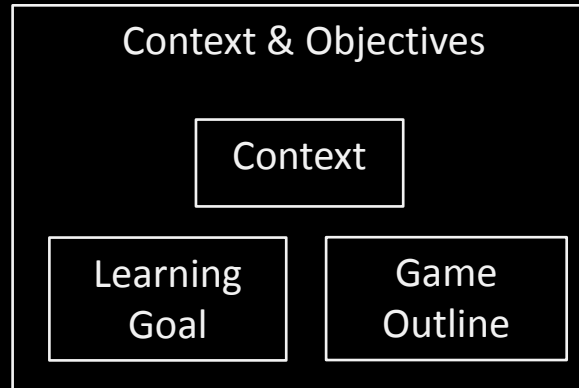
Game Mechanics  
consistent with  
Game Design ?

# How will we assess results ?



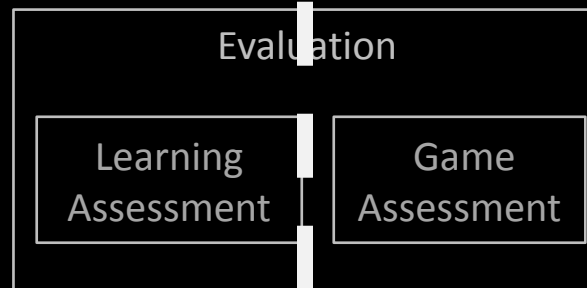
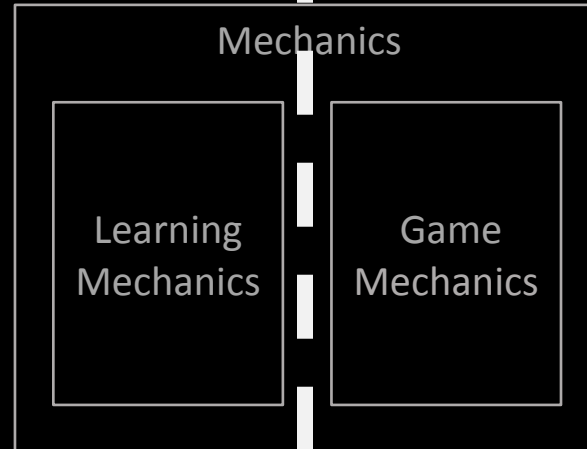
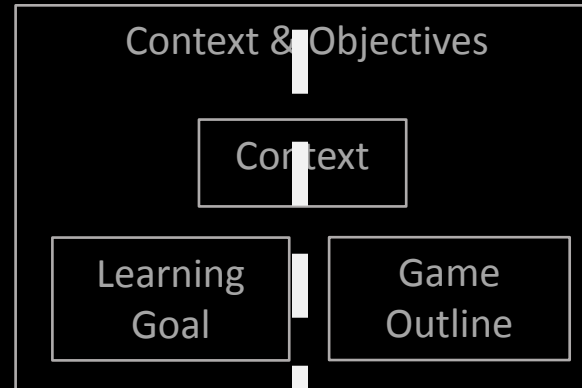
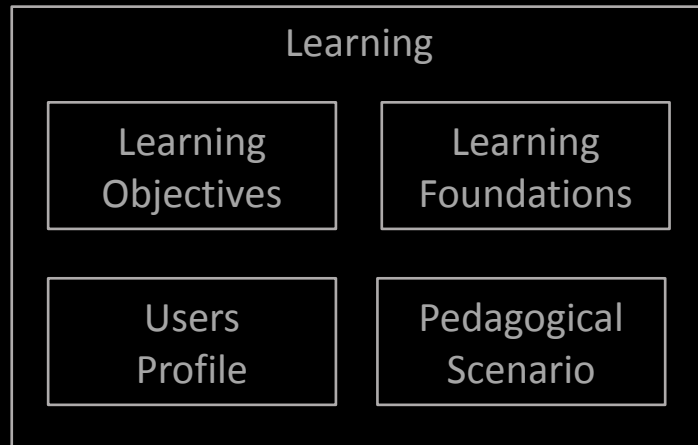


# Hey, we're done !



It's a ...

**Serious**

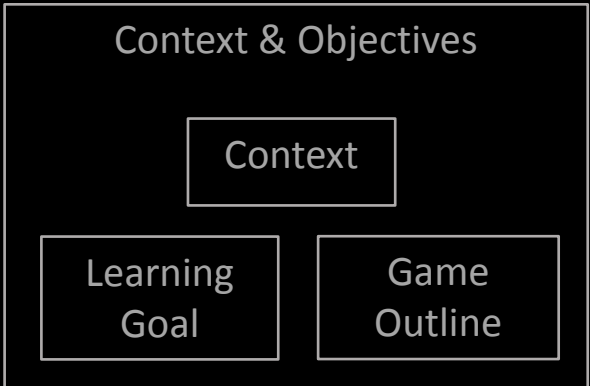


**Game**

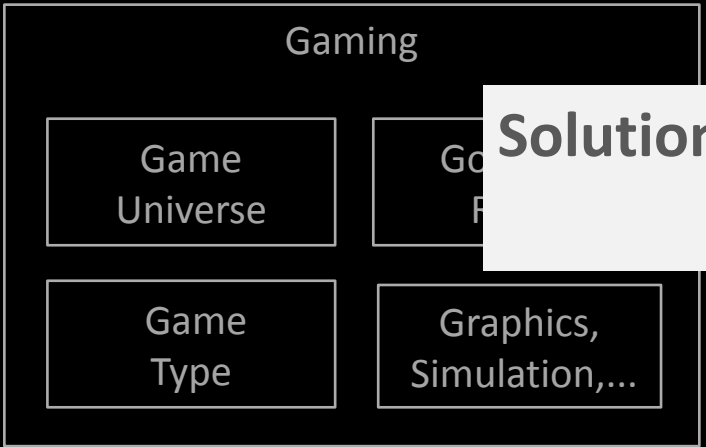
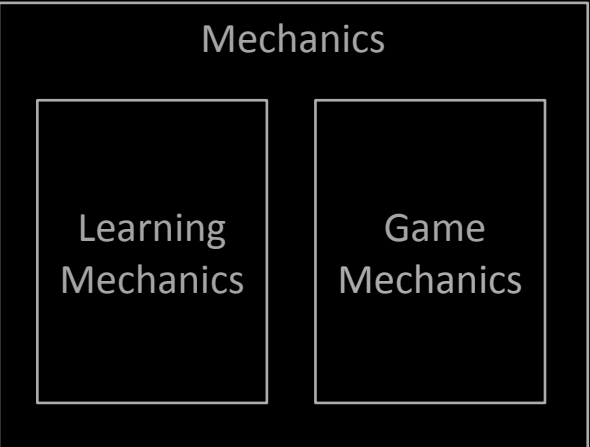
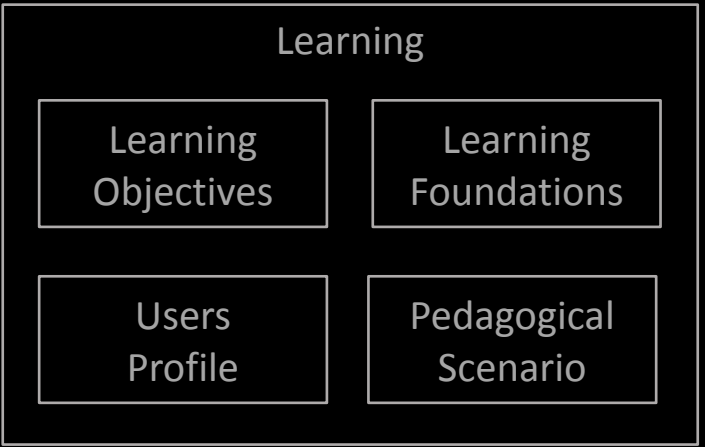


It's a ...

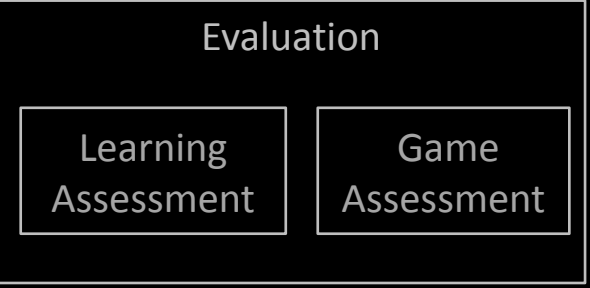
Project



Problem and objectives

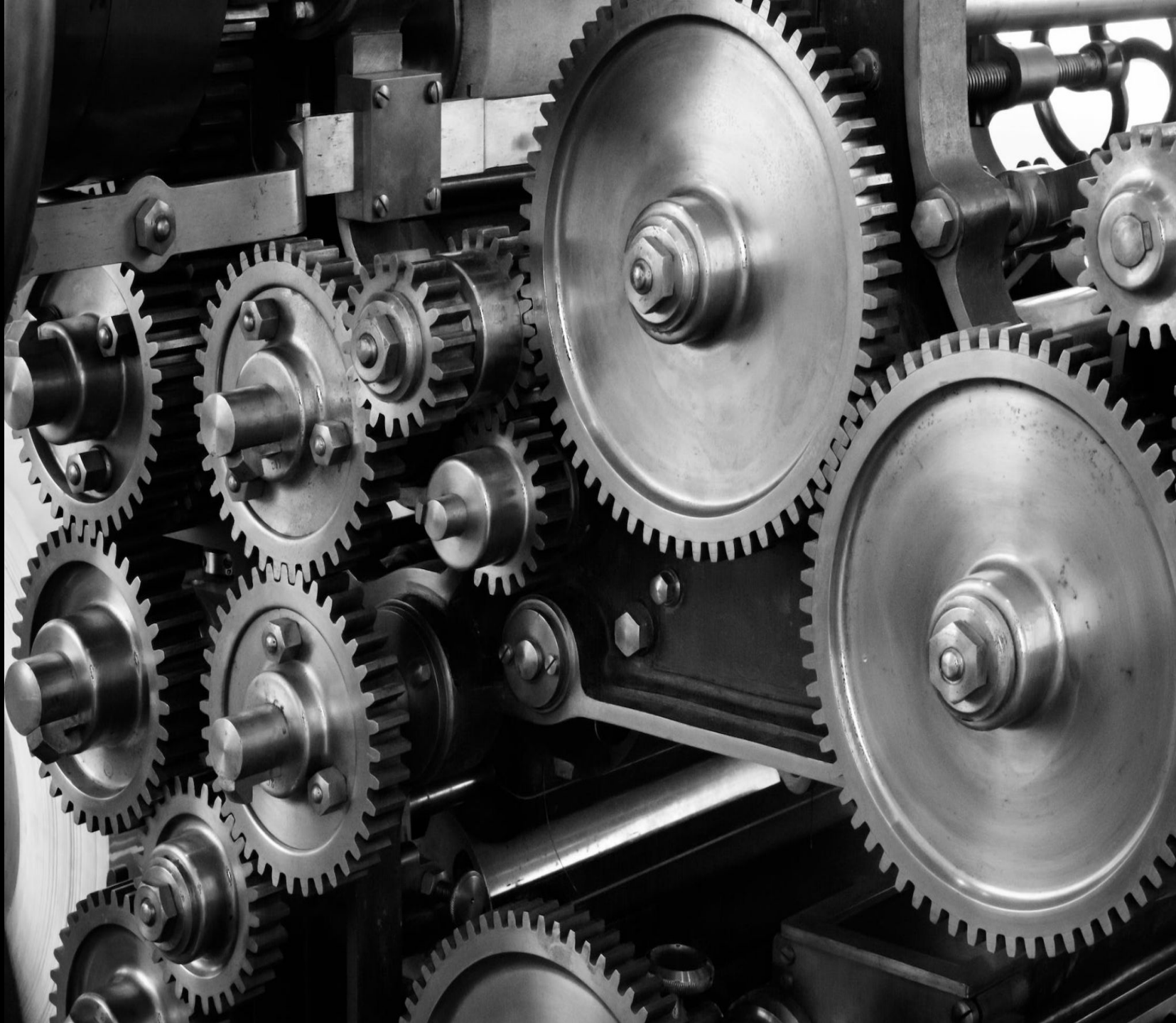


Solution



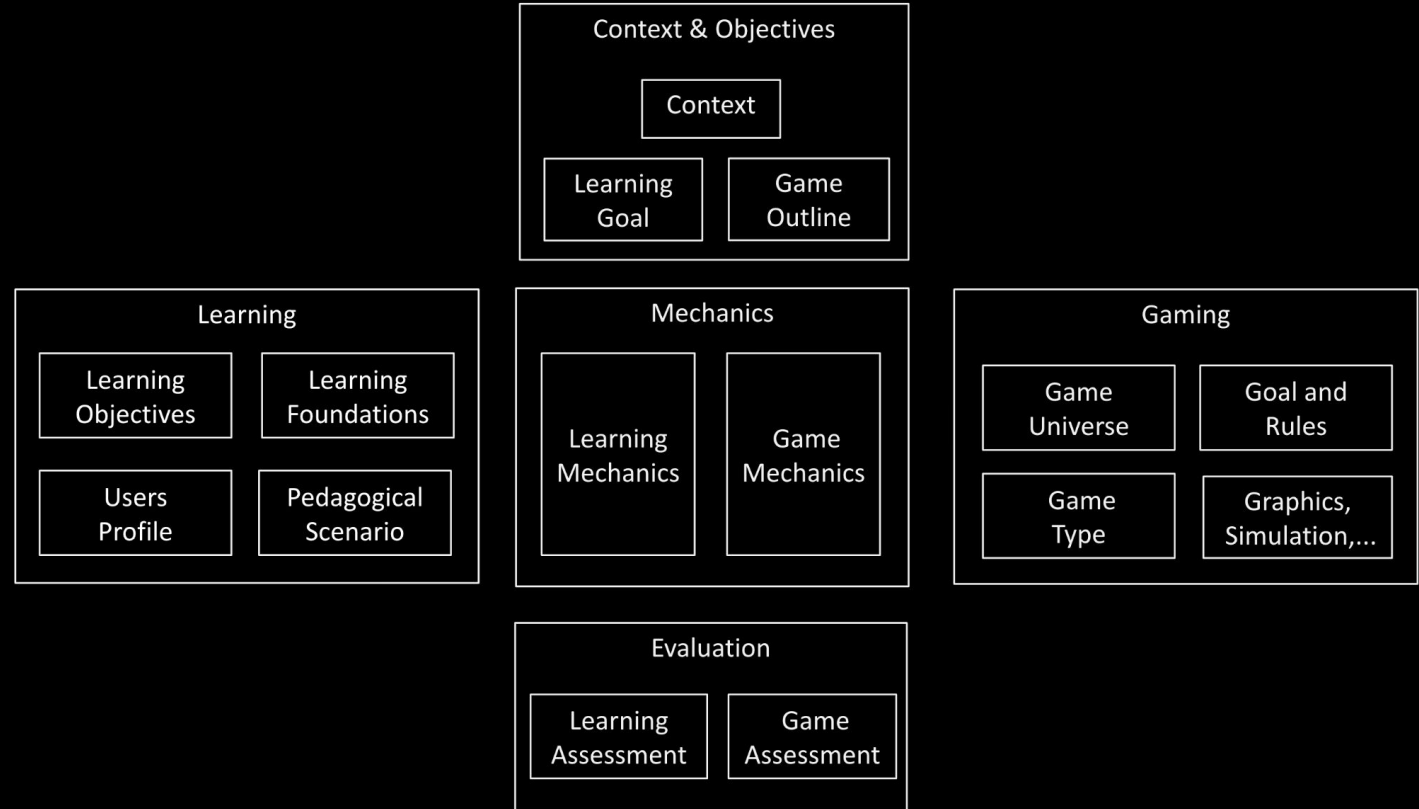
How the solution will be evaluated (success criteria)

Et ça  
fonctionne ?



# Hypothèse

- Supporte équipes multidisciplinaires





# Use-tests of the co.LAB framework

## Patients' Rights (HEIG-HESAV)

1 year project

Team of 8 persons

- lawyers
- educational researcher
- graphical designer
- computer scientists
- ...

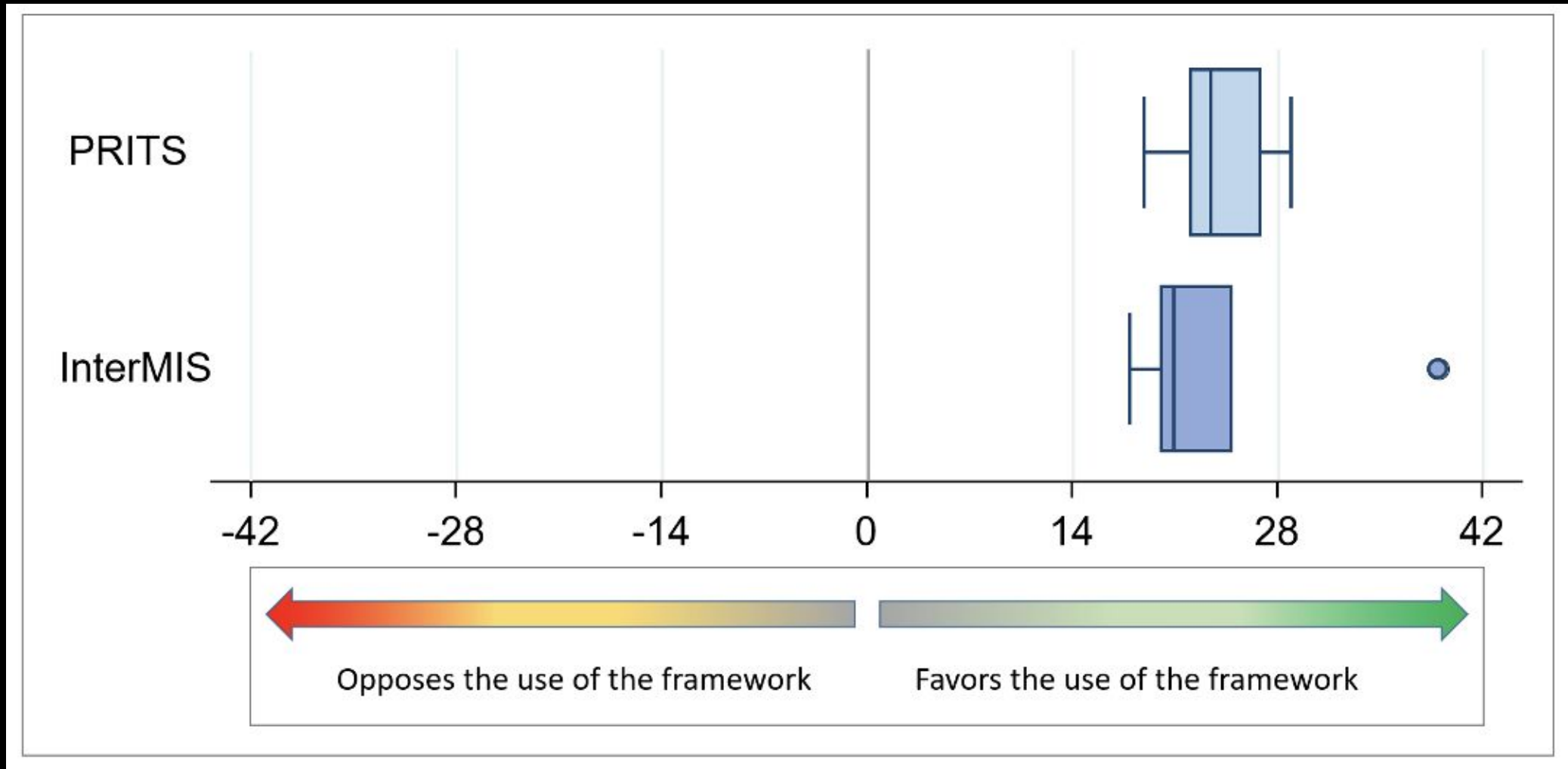
## Major Incident Medical Management (HEIG-HUG)

4 years project

Team of 15 persons

- medical doctors
- medical instructors
- computer scientists
- graphical designer
- ...

# Evaluation of the co.LAB framework



# Intégration du coLAB framework dans une plateforme web



# Démo...

The screenshot displays a web browser window with the address bar showing 'colab' and the page title 'SG design'. The interface features a sidebar on the left with a 'Projet' section and a main workspace containing several design modules, each with a title bar and a 'En cours' (In progress) button. The modules are:

- Context and Objectives** (grey background):
  - Context
  - Learning Goals
  - Game Outline
- Learning Design** (yellow background):
  - Learner Profiles
  - Learning Functions
  - Learning Objectives
  - Learning Foundations
  - Pedagogical scenario
- Mechanics** (green background):
  - Learning Mechanics
  - Game Mechanics
- Game Design** (light blue background):
  - Game Univers
  - Goal and rules
  - Game Type
  - Graphics
  - Simulation Model
- Assessment** (orange background):
  - Learning Assessment
  - Game Assessment
  - Project assessment

Each module's content is represented by white boxes with three vertical dots in the top right corner, indicating a menu or options. The 'En cours' buttons are located in the top right of each module's title bar.

# Collaborative writing

Learning Goals

Normal B I U A [color] [background color] [text color] [list] [link] [image] [table] [walk]

## Course Learning goals

The course aims to develop the ability to consistently apply project management tools and methods, integrating technical and human dimensions.

### SERIOUS GAME LEARNING GOALS

Within the course, the PM-Game aims to develop the ability to:

- apply project management tools
- work in a team, and present their project.
- approach project management from a global perspective, integrating soft and hard skills.

The interface shows a dashboard with several modules:

- Context and Objectives** (Validé): Includes Context, Learning Goals (highlighted with an orange box), and Game Outline.
- Learning Design** (En cours): Includes Learner Profiles, Learning Functions, Learning Objectives, Learning Foundation, and Pedagogic at scenario.
- Mechanics** (En cours): Includes Learning Mechanics and Game Mechanics.
- Game Design**: Includes Game Univers, Graphics, Type, Goal and rules, and Simulation Model.
- Assessment**: Includes Learning Assessment and Game Assessment.



# Shared documentation

**Learning Goals** [lock] [minus]

← → Normal **B** *I* U ↺ ↻ A [bulleted list] [numbered list] [link] [image] [document] [table] [person]

## Course Learning goals

The course aims to develop the ability to consistently apply project management tools and methods, integrating technical and human dimensions.

### SERIOUS GAME LEARNING GOALS

Within the course, the PM-Game aims to develop the ability to:

- apply project management tools
- work in a team, and present their project.
- approach project management from a global perspective, integrating soft and hard skills.

↔

## Documentation

1. How to ?

← → Normal **B** *I* U ↺ ↻ A [comment]

### What are learning goals?

Learning goals are a general definition of the skills we aim to develop in students or participants.

### What are they for?

Learning goals can be used to present the serious game to all players in the education sector.

### What to do?

In one short sentence, describe what the course or game aims to develop in students.

- Usually a sentence like "The course aims to ...".

**Context and Objectives** [Validate] [minus]

Context [minus]

Learning Goals [minus] Game Outline [minus]

**Learning Design** [En cours] [minus]

Learner Profiles [minus] Learning Functions [minus] Learning Objectives [minus]

Learning Foundation [minus] Pedagogic at scenario [minus]

**Mechanics** [En cours] [minus]

Learning Mechanics [minus] Game Mechanics [minus]

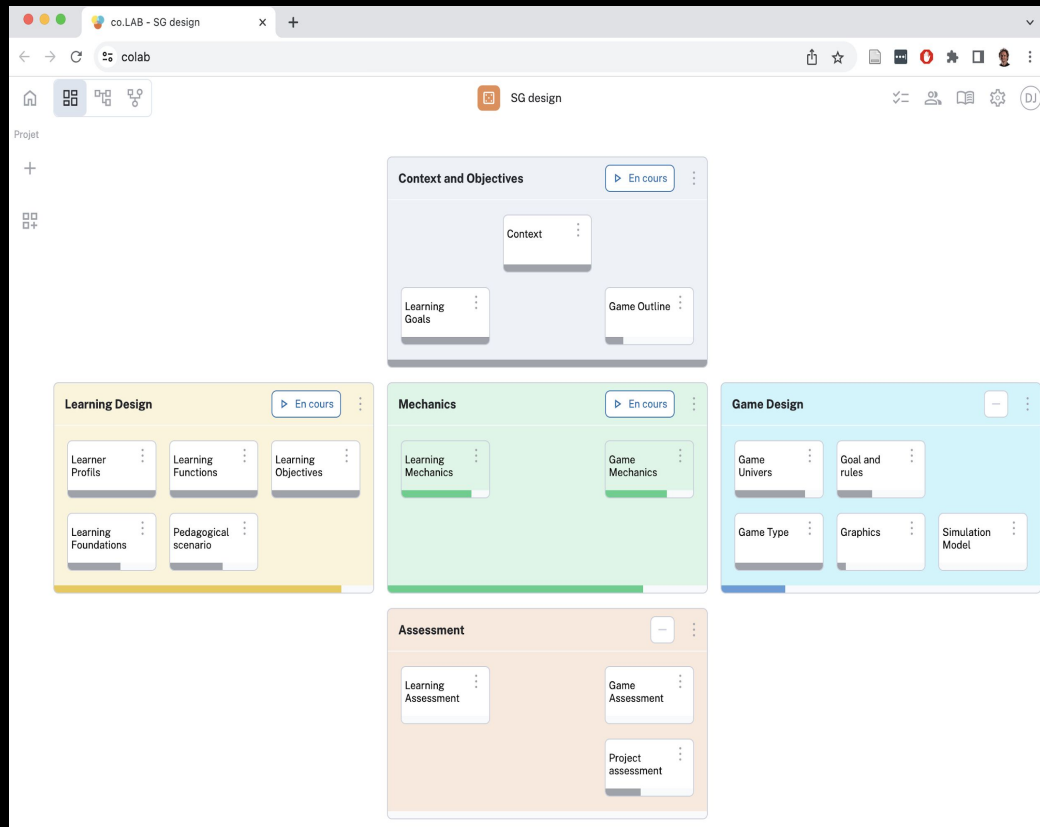
**Game Design** [minus]

Game Univers [minus] Graphics [minus] Type [minus]

Goal and rules [minus] Simulation Model [minus]

**Assessment** [minus]

Learning Assessment [minus] Game Assessment [minus]



[colab.albasim.ch](https://colab.albasim.ch)

Free access to the co.LAB  
webplatform

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