Designer: Michael Wieser

What is Gamification?
Gamification is motivational design...
the use of game elements and game mechanics
in a non-game context.

AI and Data Science within Drug Development

Sententia Level 2 – Gamification Journeyman Certification - Itinerary

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Project Proposal

Program Title: AI and Data Science within Drug Development

Description: The main objective of the program is to provide a general understanding of the use of AI and Data Science in drug development.

Objectives: As a result of this program participants will acquire general knowledge on the use of AI for the key phases of Drug Development. They will be able to demonstrate basic principles of AI and application through individual cases studies.

Audience: Internal and External audience with high interest on Data Science and AI

Learning Outcome

By course end, participants will be able to:

- **Demonstrate** Curiosity on AI and Data Science for Drug Development
- **identify** AI Technologies and its uses to support the process of Drug Development
- **Explain** basic principles and application through cases studies

Modules

I: Drug Development in Novartis, phases and processes.

II: AI and Data Science in Drug Development

III: Technologies and systems and related Cases studies

Welcome to the Journey!

The main objective of the program is to provide a general understanding of the use of AI and Data Science in Life science in general and drug development.

In this program we would like to engage the participants to acquire general knowledge on the use of AI and Data Science for the key phases of Drug Development and having foundational knowledge about Data Science. Participants should bel be able to understand basic principles and application through cases studies.

With using and applying elements of gamification during this learning journey we would like to make sure to engage with the learner, creating appetite for the topic of AI and Data Science and getting attraction to the topic and Course.

Why Gamification

Learner Engangement - We would like to create appetite for this topic and therefore apply elements of gamification during this learning journey will help us to engage with the learner and also demonstrate the importance of creating new ways of learning solutions.

The Why - The world in learning is changing and growing fast and especially during a pandemic we need to find an even more creative way to engage with our learners. Therefore, i think it is critical and highly relevant to invest into future learning solutions, try to think outside the box and how to make a learning solution more compelling and interesting for the associate.
That`s why i believe in gamification for learning solutions. During all the design phases we should always keep in mind, that not every associates is willing and has the time to spend going through an entire learning journey. Therefore, knowing your customers and understanding the WHY is critical.

Learning Outcomes

By course end, participants will be able to:

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Goals and Objectives

WHAT?	WHO?	HOW MUCH/MANY?	BY WHEN?
1. **Demonstrate c**uriosity on AI and Data Science for Drug Development	GDD Associates	60% of Associates will have access to necessary related resources	Within 10 weeks of program start date.
2. Participants went trough available Resources in LinkedIn and Coursera	GDD Associates	65% of Associates went through the courses and with a passed score of at least 75%	Within 12 weeks of program start date
3. Participants will have access to resources (e.g. equipment, reference materials, knowledge, time) needed to engage in aerobic activities.	GDD Associates	30% of FTEs will have access to necessary related resources	Within 12 weeks of program start date

Objectives and Key Results

Objective	Key Result 1	Key Result 2	Key Result 3
become familiar with drug development in Novartis, its phases and processes	Increase of 60% at least through knowledge checks	70% solving use cases with a score of 75% and more	
identify AI Technologies and its uses to support the process of Drug Development	70% of learners knowing AI Technologies	Associates using AI in their projects	People talk to each other about AI within Drug Development
Creating Community of Practice	At least 100 Associates within the Community of Practice	Associates with Regular Posts	Townhall Presentation

The main objective of the program is to provide a general understanding of the use of AI in Life science and drug development. Using a gamified approach should trigger the interested of the Novartis Associates and should also demonstrate the value and diversity of learning for the outside world

Persona

Name	Chelsea
Demographics	36, female, no kids, Expad, based in Switzerland, originally from Singapore
Psychographics	Team-player, result-oriented, agile, collaborator, highly motivated and visible
Experience	8 years in the company, 2 years on the job
Biggest challenges on the job	Managing work-load and expectations
What he/she values most about the role?	Highly visible role and if she is doing well in here role, she can influence the business, being a role model
Workday flow	Start with virtual meetings with the India Colleagues, followed by F2F Meetings with Basel Colleagues and then time to work before meetings with US Colleagues starting
Technology and how it is used	Interested in using new technologies, but have not a deep understanding
Where training will take place	Busy agenda, so training need to align with business objectives and should not go the entire day. Should be doable between meetings
Games played	Monopoly and Treasure Hunting were the games they played when they were young
Fears and Frustrations	Biggest fear is that she can meet business objectives but has not enough time for individual learning and development and how to align.
If you gave them $1,000 and a day off from work, how woul they spend it?	Would invest this money for personal development attending a conference

The Experience

CHARACTER: Who is your main character, and what is your character like	The main Character of the story is Heidi. The character of Heidi will be an Avatar in the entire story and the gamer needs to guide Heidi through the entire game and learning experience. Heidi is a young lady born in Singapore, but she lives since her age of 3 in a very small village in the swiss mountains. After she finished her high-school in Bad Ragaz she started to study pharmaceutical at the University of Zurich and now she is highly interested to get a job within Novartis as Data Scientist as she is very passioned about Drug Development , Artificial Intelligence and Data Science. Heidi gained that interest over the last couple of years at University, reading many eBooks and attended virtual conferences.
CHALLENGE: What challenge or problem must your character solve?	Heidi wants to work for Novartis as Data Scientist and therefore she needs to learn the Novartis Drug Development Process and how AI Technologies and its uses to support the process of Drug Development. She knows that Novartis is quite passioned about using new technologies like Artificial Intelligence in their internal process to reimagine medicines. During this game Heidi needs to proof that she is worth working for Novartis.
MOTIVE: What is prompting your character to solve the challenge?	As Heidi wants to work for Novartis and she knows that Novartis is very passionate about using new technologies Heidi is curious and motivated to learn and apply what she is learning along the journey. Heidi would like to learn from experiences and challenges she is doing throughout the game.
SETTING: Where and when does your story take place?	The story takes place in the year 2035, very futuristic environment. Everything starts in the hometown of Heidi where she is seeing an announcement on a big E-banner with announcement from Novartis that they are hiring. Heidi is on her way to travel to Frankfurt visiting a former colleague who is now working for Novartis. She is very curious to learn more about this announcement and therefore she is trying to find out more during her trip to Frankfurt and during her stay in this large European City. Some insights about the futuristic setting: (e.g.) futuristic voice recognized bots available guiding you through the entire challenge; electronical boards; no news paper; everything fully digital

The Experience

OBSTACLES: What obstacles stand in your Character's way?	Competitors along the way – other people who also would like to join Novartis as Data Scientist; she needs to be better then them. Timing (e.g sitting in the train going from A-B; make sure you to not miss the connecting train Do not find the Map from the City, how to navigate; how to find tourist information
CLIMAX: How does your character finally solve the challenge?	They gamer will guide Heidi on her journey. Through the used mechanics like Hints, Pills Drug Capsules and Mentorship Heidi will gain more and more knowledge around AI and Data Science and Drug Development. She will be able to solve the questions, knowledge checks after each individual module. Heidi will be able to get the individual badges for uploading to her 2035 futuristic LinkedIn Profile and can then apply for a job within Novartis and will get interviewed. Mentorship can also be replaced through some podcasts, movies and Ted Talks through experiences Novartis Employees. Maybe she will get some names from Novartis whom she may be able to contact or reach in the game environment – Challenges in the Modules can also be simple questions and puzzles…
OUTCOME: What is the outcome of the story?	The outcome of the story is that Heidi is comfortable to apply for a position within Novartis. As she went through the entire game, she know become familiar with drug development in Novartis, its phases and processes. By course end Heidi will be able to Demonstrate Curiosity on AI and Data Science for Drug Development, identify AI Technologies and its uses to support the process of Drug Development and she will be able to Explain basic principles and application through cases studies

Mechanics

to trigger action and give feedback/recognition/reward to actions taken.

Mechanic	How mechanics will be used in the Game	Where they will be used:
Achievements	The gamer will be able to see the achievements after finishing every module, this should help them to track individual status within the game. Every achievement contains as well a summery of content and at the end the gamer will receive a personal playbook for reference.	Available in all the Modules
Leaderboard	The Leaderboard will be available in the main Dashboard of the game and will show who is currently leading the game. This Leaderboard is also visible within the Gamer Community – Will help the learner to power up.	Track 1 Track 2 Track 3
Mentorship	Mentorship will be available in the final module to help learner to go into more detail of the content if they wish and the possibility for network. Mechanic of Mentorship will be introduced at the beginning of the game	After finishing all the Modules
Hints	Hints are provided to the learner through the entire game – With the usage of hints I would like to make sure that we can provide more detailed information around the content and to keep the players motivated to moving on.	Available in all the Modules
Drug capsules or pills	Drug capsules or pills floating in the environment as they roam or make even need to find them to be able to answer some questions	Available in all the Modules
Badges	Badges will be used to acknowledge the achievement of the individual learner. Learners will get a badge after successfully finish a Module and then of course the big bold badge, once they have successfully done the entire game. All the badges can be added to the individual profiles, attached to email address, etc.	After successful Course participation and also after every individual module

Prototype High-Level Overview

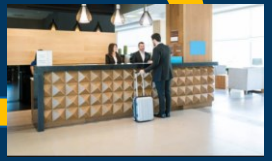
Marketing Campaign Message to all Associates

Registration

Module: Welcome and Introduction

Module 1: Drug Development in Novartis

Module 1: What are the main phases of Drug Development?



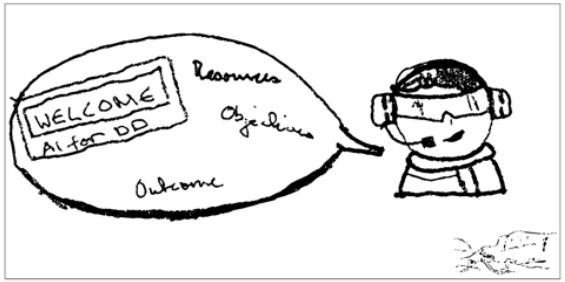
Module 2: AI in Life science

Module 2: AI in Drug Development

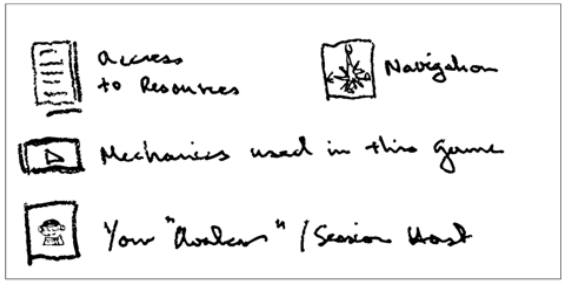
Module 3: Technologies and systems

Module 3: Case Studies

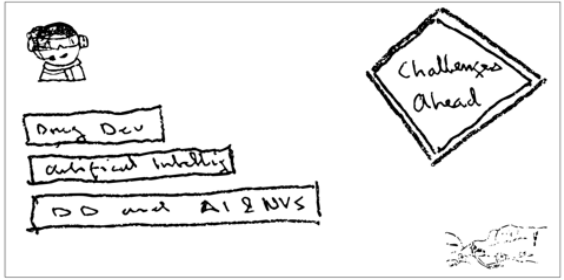
Closing, Certification Discussion with Talent Management



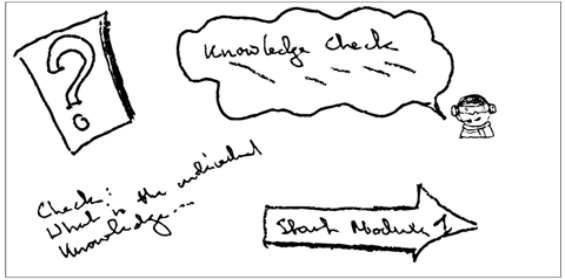
Highlevel Program Overview and Welcome



Navigation & Resources



Journey and Challenges



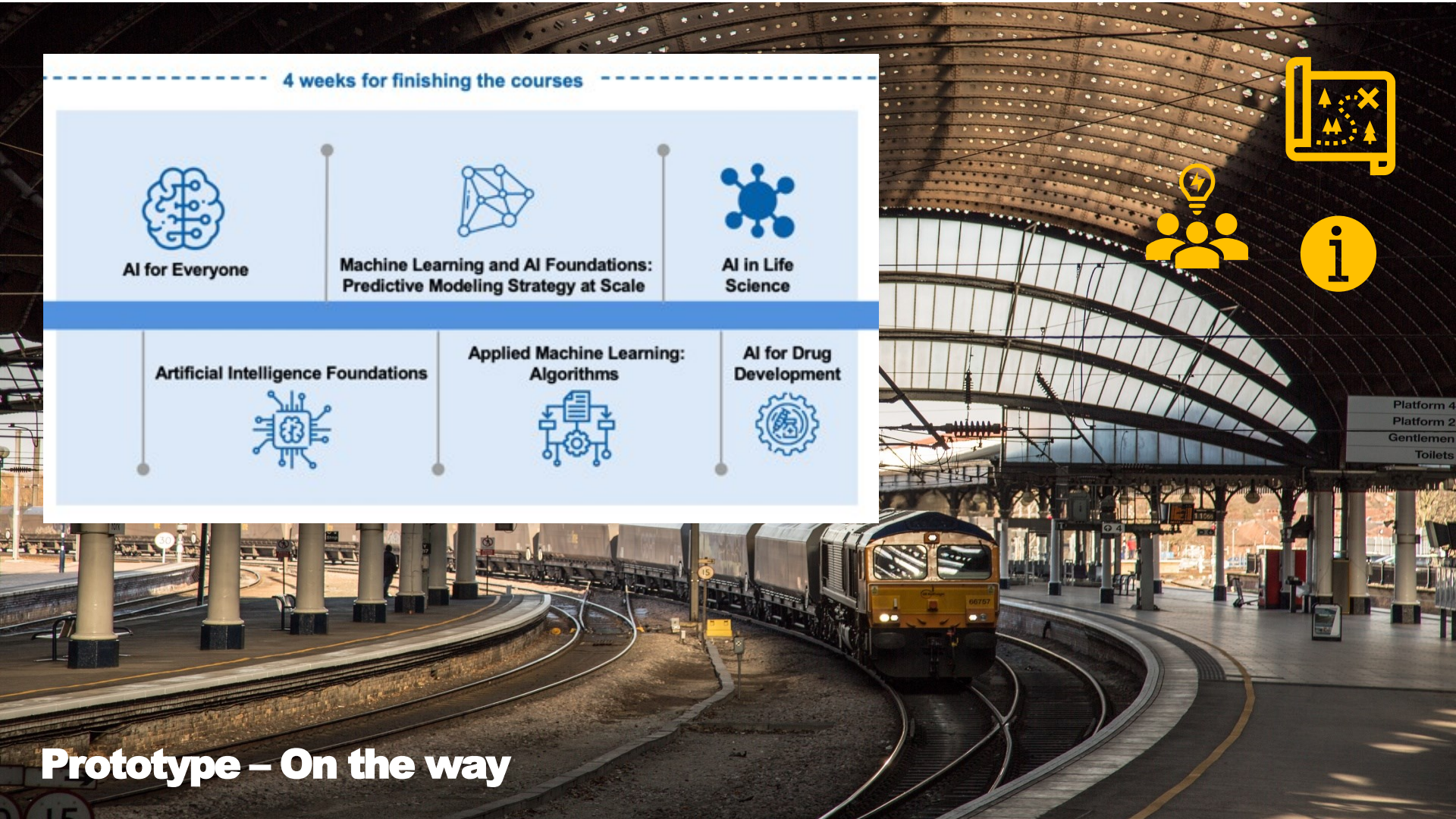
Quiz and Start of Journey

Prototype – Module Welcome and Introduction

Some challenges through Module 2:

- Understand Data & Data Science, key AI concepts and application
- Understand Data / AI's impact on Healthcare and Novartis with high-level use-cases
- Application of good data practices
- Foundations in analytical analysis
- Fundamentals of AI
- AI in Life Science
- AI in Drug Development

Prototype – In the City


4 weeks for finishing the courses
AI for Everyone
Machine Learning and AI Foundations: Predictive Modeling Strategy at Scale
AI in Life Science
Artificial Intelligence Foundations
Applied Machine Learning: Algorithms
AI for Drug Development
Platform 4
Platform 2
Gentlemen
Toilets
Prototype – On the way

Player Feedback

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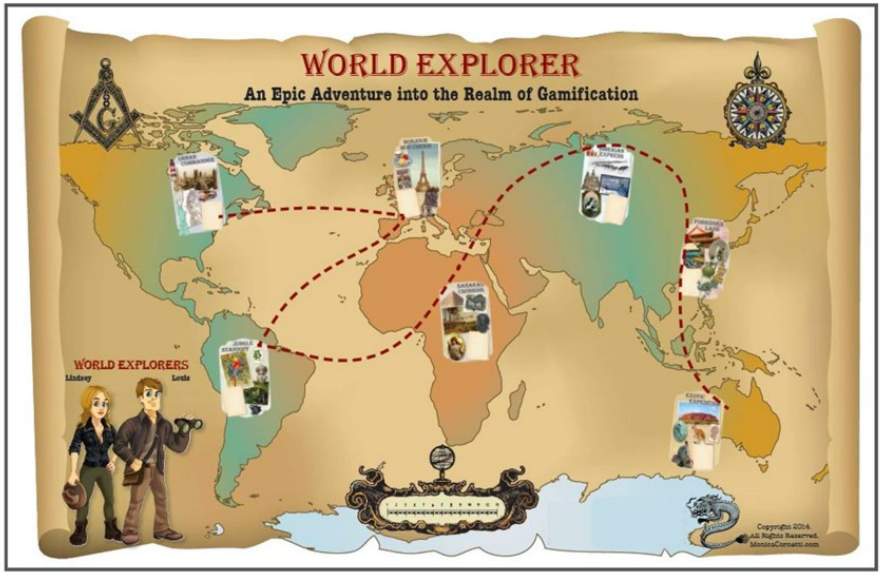
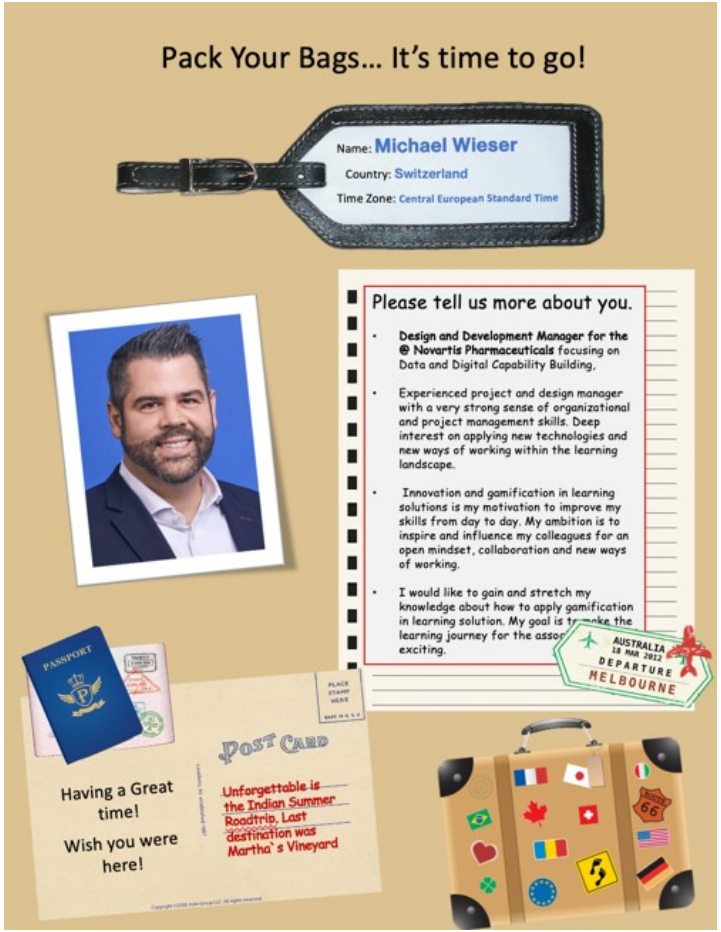
- Amount of Content might be a challenge
- What a about Company specific terminology of Data Science and AI
- maybe a segmentation of the target audience would be good
- How many associates are you going to target…?
- Nice flow outline
- How many hours has the associate for going throught his journey…?
- Where will you host the training…?
- How will you integrate the manager in the game…?
- Statements and welcome video from the Executive Committee would be nice





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