FORGING

INDUSTRY-ACADEMIA FORUM TO UNCOVER THE POTENTIAL OF EMERGING ENABLING TECHNOLOGIES

Theseus Foresight Simulator

Approaches to building an immersive foresight space

Ella Rasalo, Jaakko Airikkala and Samuel Putkonen

Funded by the European Union

Foreword

In a rapidly evolving technological landscape, aligning innovation with societal values, environmental sustainability, and human-centric design is more critical than ever. The FORGING project responds to this imperative by creating a pan-European forum that rethinks linear innovation pathways and promotes responsible, inclusive, and future-oriented development of emerging technologies.

Through its multi-stakeholder approach, FORGING brings together industry experts, academics, policymakers, civil society actors, and citizens to co-create new visions for technology trajectories, attentive to complex socio-environmental trade-offs and normative considerations. The project operates within the framework of Industry 5.0, seeking to center innovation around human values, resilience, and sustainability.

The Theseus Foresight Simulator is a development of one of the key exploitable results from the project, the Story of Theseus. It is developed as an immersive, narrative-driven platform that transforms abstract future scenarios into lived experiences. Through this, the methodology fosters anticipatory, participatory, and human-centered innovation practices. Where FORGING offers the conceptual, methodological, and governance-oriented scaffolding, Theseus operationalizes those ideas—bringing them into the hands of stakeholders as an experiential foresight tool.

A core strength of the Theseus simulator lies in its integration of multiple digital technologies. From spatial design and 3D modeling to interactive storytelling platforms, AI-driven narrative engines, and gamification frameworks, Theseus combines diverse digital elements into a single experiential foresight tool. Each of these technologies contributes to making foresight more engaging, accessible, and actionable—bridging the gap between technical research and societal imagination.

This report, in three parts, showcases the possibilities offered by generative AI to support futures workshops in the Theseus simulator. In addition, it presents the spatial concept and different technical elements that contribute to the development of the Theseus Simulator. Together, this report demonstrates how methodological innovation and digital tools can be combined to anticipate challenges, explore alternative pathways, and support inclusive decision-making about the futures of technology.

Espoo, 30.9.2025

Sofi Kurki
VTT

FORGING

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Generative AI Report

Ella Rasalo & Jaakko Airikkala

Funded by the European Union

Introduction

The purpose of this report is to provide an overview of the capabilities of AI video and image generators, highlighting what they can and cannot do. The report is designed to serve as an easy-to-use reference for beginners to do AI videos and images. We also present the main advantages and disadvantages of these tools, as well as recommendations on where their use makes sense and where it does not. We also briefly introduce sound generation with AI.

In this report, we mostly focus on exploring text-to-video and text-to-image: how well generative AI can create images and videos from text. To test this, we produced content using Google Veo 3, OpenAI Sora and Runway Gen-4. We have explored how generative AI can be used to create images and videos in specific styles, maintain consistent characters across scenes, produce longer videos, and generate videos with multiple scenes. Our tests also included lip-sync for talking characters, combining AI-generated video with AI-generated voice, and trend-to-video. We examined how to craft effective prompts to achieve results that are as accurate and vision aligned as possible. In general, producing images is easier than creating videos, as video generation is still a more complex and developing area. In this report, we share both the successful and less successful outcomes of our experiments.

First, in the Overview section, we introduce the general capabilities of AI in video and image generation. We then present the generative video AI models we tested, supported by easy-to-use tables that provide quick comparisons of their features as well as their pros and cons. In addition, we introduce task-specific models, such as AI voice generation. After that, in the Prompting section, we provide a practical toolkit for prompting: how to write good prompts and examples of effective ones. Then, in the Images section, we discuss the capabilities of AI in image generation and show comparisons between AI-generated images and those created by humans. Next, in the Use cases section, we highlight various use cases for these tools, such as trend-to-video. Finally, in the AI Video Limits section, we present behind-the-scenes insights into AI's limitations in video generation, based on our experiments, and introduce the general challenges we encountered. We also provide guidance on generating AI sounds to complement video and image creation. Lastly, in the Conclusions section, we discuss the current state of AI as well as our views on its future and development.

Overview

AI development is currently so rapid that if this report were written in 2026, it would look quite different. At present, AI can generate images and videos on almost any subject, with video durations ranging from 5 to 20 seconds. Audio within videos is a feature not offered by all providers — among the tools we tested, only Veo 3 was able to generate it. Longer videos can only be created by manually combining individual clips, as there are no AI tools currently designed for this purpose. Audio, however, can also be generated separately using AI voice generators such as ElevenLabs.

AI is already pretty good at creating images, but there are clear limitations to its capabilities. If style is not important and the AI is given freedom, the results are usually pretty satisfying. However, when a specific style is required, the AI may struggle to produce the desired outcome. We also observed that it sometimes fails at tasks that appear simple. For example, generating an image of a car's speedometer with realistic numbers in the correct order can be very challenging shown in **Figure** 1.

Figure *1:* The numbers are in the wrong order with irregular intervals and despite many attempts, they were never corrected. Cropped from a larger image. Generated with Sora.

Creating videos is clearly more challenging, and while AI can occasionally produce impressive results, the majority of outputs are not of high quality. Videos can be generated from text prompts, from images, and in some cases from existing videos. However, the process requires significant time and involves a great deal of trial and error. Based on our experience, it is difficult to predict when the AI will succeed and when it will fail.

We observed that human movements often appear unnatural or even absurd. Actions such as walking or jumping are challenging for AI to reproduce realistically. In one of our experiments, for example, generating a person walking on their hands turned out to be almost impossible to achieve in the correct way.

In practice, if the quality requirements are low, AI can be a quick and useful tool for producing something close to what is envisioned. On the other hand, if the output needs to be refined and improved, this process can require a significant amount of time and repeated trial and error.

Generative video models

We tested three different AI video generators: Google Veo 3, OpenAI Sora, and Runway Gen-4. Among these, Veo 3 provided the best overall results for videos. Sora can produce high-quality images, but its videos often lack consistency and can be chaotic. Sora tends to use too much imagination, often adding strange or unintended elements to the scenes — something that Veo 3 does not do at all. Runway, on the other hand, is less creative in image generation compared to Sora and Veo 3, yet its videos tend to be calmer and more frequently usable. In addition, here is Sora and Veo 3 comparison presentation: Comparison of Sora and Veo 3.pptx. Next, we provide a more detailed look at the individual models.

Google Veo 3

From our perspective Google's Veo 3 is currently the most advanced video generator. It is also the only one that can add audio directly to videos. At the time of writing, the model's availability in Finland is limited, and the number of videos that can be generated per day is restricted to just a few. Moreover, it does not yet support creating videos from images.

The overall video quality is clearly the best among the tested models, with sharper details, more stable motion, and better consistency across frames. Veo 3 can also generate audio for its videos, which sets it apart from the other tools. However, due to the model's recent release, its features remain limited, and the lack of image-to-video capability reduces its range of use cases.

Fun fact – Veo 3 performs well at producing ASMR-style videos, where satisfying visuals and audio are combined.

OpenAI Sora

OpenAI's Sora can generate both images and videos. While its image generation is often successful, the videos frequently fail in some way and are usually not usable. Unpredictable and strange elements often appear in the output, although there are occasional impressive results.

Sora offers easy-to-use tools, such as the Loop feature, which allows seamless looping so that the end of the video is indistinguishable from the beginning. Other tools work with varying levels of reliability. Overall, Sora is creative and cinematic in style, but it tends to add many odd or unintended details to videos, which often makes them impractical. If the user does not have a very strict vision, Sora can produce appealing results, especially in a film-like style.

Sora includes a Preset feature that allows style mimicking with a specific style by uploading five reference images. When creating new images or videos with that preset, the output adapts to the style of the reference images. Although the current limit of five images is low, the feature works well. We provide examples of using presets in the Images section of this report.

Sora tends to invent new elements rather than strictly follow detailed style requirements. It is well suited for creating cinematic videos where creativity is an advantage. However, since Sora essentially regenerates the entire scene, it is not well suited for "bringing a painting to life" or tasks that require faithful reproduction of a specific image.

Runway Gen-4

Runway Gen-4 can generate both images and videos. Its images are generally less creative than those produced by Sora, but its videos are calmer and contain fewer strange or unpredictable elements. However, it can be difficult to generate anything particularly interesting happening in the videos.

Runway provides a wide range of tools for editing videos and creating different video types. Besides traditional video editing tools, Runway has a tool for editing videos with AI which allows adding or changing anything in the video. For example, it is possible to change weather, lighting or camera angle in a video, or remove objects and people. In addition, Runway supports longer videos by combining video clips manually together. As a bonus, it also offers the ability to generate talking avatars, which expands its potential use cases.

The model is well suited for producing short, documentary-style videos with a realistic tone. Getting started with Runway requires some familiarization since there are a lot of features, and the learning curve is slightly steeper compared to other tools.

Comparison

The table below summarizes our findings by comparing these AI video generators in terms of use cases (what they can be used for), features (available functionalities), ease of use, and behaviour (their general tendencies and characteristics). As a rule of thumb, we recommend using Veo 3 to make videos, Sora to make images, and Runway to make long videos and editing videos with AI.

AI	Use Cases	Features	Ease of Use	Behavior
Google Veo 3	Trend-to-video Cinematic videos Videos with voice ASMR videos	Audio in videos Text-to-video (Coming soon: Image-to-video) Video duration: 8 sec	Easy to use Simple due to limited features Ask Gemini for assistance	Stabile Creative Cinematic
OpenAI Sora	Cinematic videos Images for design and visualization Advanced style mimicking Completing an existing image with imagination	Text-to-video Image-to-video Video-to-video Manual editing features: remix, re-cut, storyboard, loop, blend Style presets Video duration: 5-20 sec	Easy to use Intuitive features for beginners High quality UI Ask Chatgpt for assistance	High imagination Creative Cinematic
Runway Gen-4	Realistic videos Style mimicking Documentary images/videos Longer videos (with manual editing) Editing videos with AI Talking avatars	Text-to-video Image-to-video Video-to-video Prompting through LLM chat Extensive manual video editor including audio beforehand and merging videos Lip-sync Avatars AI video editing Video duration: 5-10 sec	Difficult for beginners to grasp due to many features Requires video editing skills Option to prompt through integrated LLM chat	Stabile Calm Keep it realistic Documentary

Pros & Cons

In addition, the next table below summarizes the main pros and cons of each tool. It helps to understand which generator may be best suited for different use cases.

AI	Pros	Cons
Google Veo 3	High quality videos Audio in videos Creative Easy to use	Features limited: no image-to-video, no presets, no editing features (at the time of testing)
OpenAI Sora	High quality images High quality videos if no clear vision Creates images Style mimicking advanced Easy to use Manual editing features easy to use Preset & Loop features are usable	No audio in videos If clear vision, videos can be chaotic Sometimes too much imagination Tends to add strange things to videos, often ruining the result
Runway Gen-4	Quality images Quality videos Creates images Versatle with many features Unique avatar feature Long videos possible by combining clips	No audio in videos Lack of imagination Not easy to use as a beginner (chat helps though)

Task specific models

ElevenLabs

ElevenLabs provides a wide range of AI-generated audio and is, in our experience, one of the best tools currently available on the market. Its audio types are divided into speech, music, and sound effects. Sound effects can include practically any type of sound. For speech, ElevenLabs offers a large variety of voices and languages, supported by an extensive pre-built voice library. In practice, it can generate almost any sound — the only real limit is imagination.

A fun fact is that you can even clone your own voice and use it in different contexts. Combining ElevenLabs with image and video generators can result in impressive and creative outcomes.

HeyGen

HeyGen is a video generator designed specifically for creating talking avatars, and it performs well in this task. The service can be subscribed to directly, or it can also be accessed through Canva. When used via Canva, users can combine HeyGen with many other generative AI tools available on the platform, which makes it a flexible option for different creative needs.

Prompting

Creating with generative AI begins with a vision of what you want to produce. This vision is then translated into a text prompt. Text prompt is an instruction, script, or description that guides the AI in generating the desired result. Once you have the vision, you can start prompting. In practice, a good prompt usually contains the following elements:

- **Environment** – where the scene takes place
- **Characters or objects** – who or what appears in the image or video
- **Style and mood** – specific style and atmosphere (e.g., cinematic, realistic, dreamy, dark or futuristic)
- **Action** – what happens in the scene
- **Technical details** – specifications like resolution (e.g., 1080p, 4K, or 8K), camera angle (e.g., wide shot, close-up, aerial view), or the type of camera used (e.g., "shot on an iPhone," "drone footage")

When creating a good prompt, the only limit is your imagination. However, a very short prompt may not work well, since AI is not a mind reader. Short prompts often lack important details, which forces the AI to invent them on its own. Sometimes this works out fine, but if you have a specific vision in mind, the AI's intuition is not enough to guess it correctly.

On the other hand, overly long prompts are not ideal either, as they may introduce confusion, hallucinations, or simply overwhelm the model with too much information. Contradictory descriptions in a prompt can also cause problems, since the AI must decide which one to follow, often resulting in distorted or inconsistent outputs.

Prompting is very much a process of trial and error. AI models tend to "like" certain words and interpret some expressions more reliably than others, which means finding the right wording requires experimentation. No one has a 100% reliable formula for successful prompting, and randomness is always part of the process. Here are our findings for best practices for prompting:

- **Keep your prompt clear and focused** — avoid unnecessary complexity.
- **Include key details** (setting, characters, style, mood) but don't overload with too much information.
- **Avoid contradictions** — make sure descriptions don't conflict with each other.
- **Experiment** with wording and be ready to iterate, since results often require trial and error.

We recommend using an LLM to support prompting or to ask for help when crafting prompts. For example, you can simply chat with an LLM, tell that you want to make a video or image prompt, describe your idea in broad terms, and use it as an external imagination to refine a good prompt. In our experience, ChatGPT works best for this purpose.

Practical prompting example

Here is a practical example of image generation with Sora, showing how editing the prompt leads to different results. By modifying the prompt, we can see how the outputs change.

Prompt 1: A park with a big fountain which has mermaid statue on it.

Prompt 2: A park with a large central fountain featuring a graceful mermaid statue. The fountain stands in the middle of a small circular plaza, surrounded by lush trees and abundant greenery. The image is captured from a distance, giving a wide view of the plaza and its natural surroundings.

Prompt 3: A photo of a park with a large central fountain featuring a graceful mermaid statue. The fountain stands in the middle of a small circular plaza, surrounded by lush trees, abundant greenery, park benches and lamps. The photo is captured from a long distance, giving a wide view of the plaza and its natural surroundings.

Prompt 4: A photo of a park with a large central fountain featuring a graceful mermaid statue. The fountain stands in the middle of a small circular plaza, surrounded by lush trees, abundant greenery, park benches and lamps. The photo is captured from a long distance, giving a wide view of the plaza and its natural surroundings. Sunset atmosphere.

Images

We tested image generation with OpenAI Sora, Runway Gen-4, Google Gemini's Imagen, and ChatGPT-4o's DALL·E. As noted earlier, image generation is highly advanced and, in our experience, easier than video generation. With these tools, we can produce realistic-looking people, artwork, photographs, and almost anything else. However, if we have a specific vision in mind, achieving it often requires extensive trial and error — and sometimes it may not be possible at all.

The most difficult task is replicating a unique artistic style created by a human that does not already exist online and therefore is not included in the generator's training data. We will next discuss this challenge in more detail.

Style mimicking – hand-drawn images

Although generative AI can produce images in many different styles, it struggles with entirely new ones that are not part of its training data. To test this, we experimented with reproducing the Theseus story illustrations created by Samuel Putkonen. Our tests focused on two tasks: (1) capturing the same style and generating completely new images on different subjects, and (2) capturing the same style and generating new images on the same theme.

Because Samuel's work has a unique and personal style, the AI was not able to produce new images of different subjects in exactly the same style. Imagen and Runway performed poorly on both tasks. With DALL·E, however, it was possible to generate a few new images of the same theme in the same style, although the model quickly began to lose focus after only a couple of attempts.

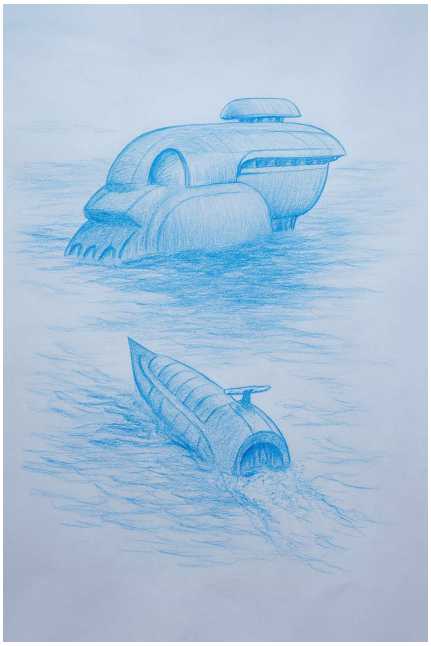
Below we show examples with DALL·E. Key to success was to give 1-5 reference photo and prompt: "Using same style, generate new image as if it were created by the same artist and belongs in the same series as the provided example". In addition, we tested DALLE to generate new photos from real people as well and it performed very well.

Picture by Samuel Putkonen

Picture generated with DALLE

Sketch by Samuel Putkonen

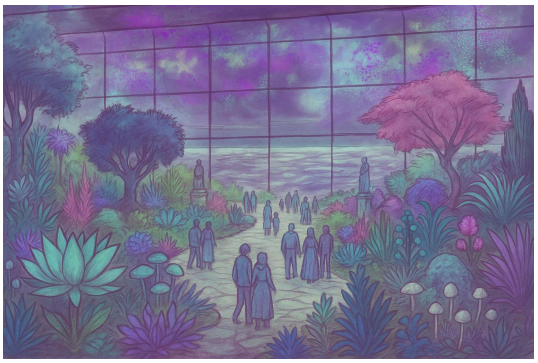
Picture generated with DALLE



Picture generated with DALLE

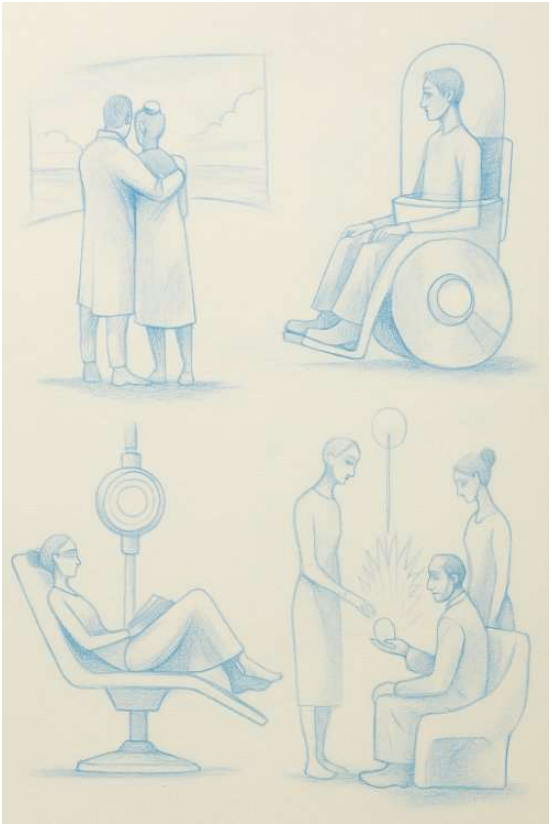
Below we provide examples of Samuel's original illustrations alongside imitations created with Sora. In these cases, we used Sora's Presets feature, which allows users to guide image style either by uploading 1–5 reference images or by describing the style in text. Both methods work reasonably well. However, we observed that Sora tends to "create something new" rather than strictly adhering to the given style, which makes consistent style replication difficult. The capabilities of this feature are further demonstrated in the Sora Presets.pptx presentation.

Food court of Theseus by Samuel Putkonen.

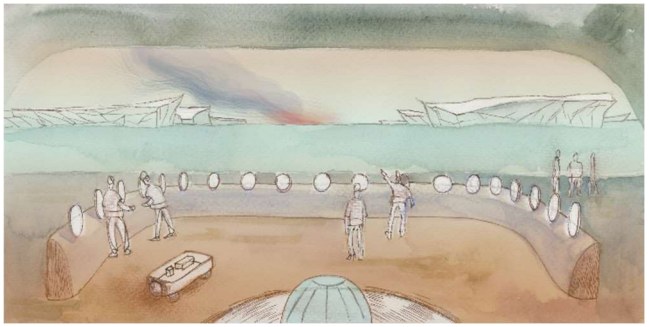


Garden inside Theseus. Generated with Sora.

Two sketches by Samuel Putkonen.



Imitations of the sketches generated with Sora.



The bridge of Theseus by Samuel Putkonen.

An attempt to replicate the bridge of Theseus. A detailed description of Samuel's bridge picture was given to Sora.

Use cases for Videos

Trend-to-video

We discovered that when turning future scenarios into videos, it is best to focus on a single trend, signal, or disruption to visualize. Since AI cannot yet generate long story arcs, the best practice is to keep the idea as simple as possible. This way, the resulting video can still deliver enough information in an engaging way. It is important to note that some themes, such as climate change, are easier to visualize than others, such as the increasing use of coding.

If more information is needed, videos can be combined scene by scene. One effective approach we tested was to structure the story across multiple videos: the first video introduces the trend, the second shows what is happening, and the final video illustrates where it might lead.

Examples of these approaches are presented in Trend-to-video.pptx

Videos with Consistent Characters

With AI, videos must be created one by one. Because of this, you cannot automatically get the same-looking people and environments across different videos. However, AI videos can also be generated from images, and by using this feature, it's possible to include the same characters and environments in multiple videos. That said, it can still be tricky to make people look exactly the same across several videos.

In the PowerPoint presentation below, you'll see the step-by-step process of creating a roughly 30-second video where the same mother and daughter appear in every scene.
Creating a video with consistent characters.pptx

Narrated Videos

Making long videos with AI can be a challenge, because it takes time and effort to keep characters and setting consistent in many successive video clips. An easier solution to create a longer video is to make a narrated video, where individual video clips do not need to share the exact same looking features and people. The narration ties the whole idea together,

while short individual video clips serve as illustrations to support the story. These video clips can be made separately, which makes the process much faster.

In the PowerPoint, you'll find two example videos. In the first one, a speaking avatar is combined with a few short clips as illustrations. The second video is built only from narration and individual video clips.
Narrated Videos with AI 5.8.2025.pptx

Talking Avatars

Creating talking avatars is one of the things AI does really well. The speech can either be AI-generated or recorded by the user. Avatars can look realistic or cartoon-like, but in practice, realistic ones usually work best.

There are two main ways to make talking avatars. The first way is using an image of an avatar and adding a voice to it. In this case, the avatar's lips and face move to match the speech. Depending on the tool, other parts of the avatar may or may not move. Some tools even add gestures automatically, like hand movements. Specialized avatar tools usually come with a big library of ready-made characters to choose from, as well as lots of voice options. To generate speech, you only need to type in text. You can also create an avatar from any picture, as long as the character is clear and detailed enough. And if you prefer, you can use your own voice recordings too.

The second way is recording yourself speaking and gesturing. This way, you control all the expressions and movements like hands and body. You can keep your own voice in the video or dub it with AI to some different voice or even language (possible with at least ElevenLabs). The AI is given a picture of the avatar you want, and it transforms your video so that you appear as that avatar, while keeping all your natural gestures and movements.

In the next PowerPoint, you'll see three example videos. The first is made with Runway, and the other two with Canva. They were all created using the first method described above.
Making talking AI avatars .pptx

AI Video Examples

AI-generated videos often turn out clumsy, especially when it comes to human movements such as jumping over a fence or doing flips. Complex movement by humans can look strange. Some things work better than others, and the best way to learn is simply trial-and-error. On the other hand, AI is good at making cute pet videos. The PowerPoint presentation includes some examples of both bad and good videos.
AI Video Examples

AI Sounds

AI can generate many kinds of sounds, and from our experience, ElevenLabs is one of the best services available. It can be used to create sound effects (almost any sound), music, and speech in different languages and voices. A wide selection of Finnish voices is also available.

For sound effects, the best practice is to keep the prompt very short and simple. Otherwise, the AI may lose focus. A prompt can be as simple as “iceberg cracking.” The key is to describe clearly what you want to hear. AI can also be used to generate ASMR sounds. We discovered that simple prompts with words such as “pure ASMR” or “relaxing” work best for this purpose.

Overall, AI sound generation works well enough, but just like with images and videos, it still lacks creativity and cannot do everything. We showcase music, speech, and sound effects generated with ElevenLabs here: AI Sounds

Conclusions & What's next?

AI currently appears to be a fast and effective tool, but it is still in a clear stage of development and comes with certain limitations. The output always depends on the training data, which means that biases and preferences can appear. For example, AI more commonly generates people with a European appearance, which in the long run could contribute to a lack of diversity. It is important to remain aware of these biases and avoid outsourcing decision-making to AI.

Right now, certain tasks remain very difficult, such as bringing an artwork "to life," generating natural human movements like walking, stumbling, or jumping, and creating long story arcs in video. These are areas where the technology is not yet ready. In addition, AI tends to create polished-looking humans that do not reflect the imperfections and diversity of the real world. Looking forward, keep-an-eye-on:

- **Presets** are likely to become more advanced.
- **Audio** features will expand to Sora and other models.
- **Competition** will increase with new tools entering the market.
- **Integration of generative AI into media** will accelerate. We already see AI-generated ads, social media content. In the future, we may see full AI-generated movies or AI artists.
- **Applications** will diversify, with new creative and commercial use cases emerging rapidly.
- Businesses and organizations **integrate AI tools into existing tasks** and continue to find new ways to apply them.
- **Legal questions** about copyright will increasingly arise.

At the same time, we must consider sustainability. Generating content requires significant computing power, which consumes a large amount of electricity. In practice, sustainability means having a clear vision before creating AI content, so that unnecessary generation can be avoided.

Our experiments also showed that AI should be treated as **an external imagination**: when it produces bad results, trial and error can improve the outcome. It is a powerful assistant, but not a replacement for human creativity or judgment.

Future models will likely provide more stable results and reduce today's limitations. Until then, let's enjoy the AI chaos while we can!

Ella & Jaakko

STARYARD FUTURE SPACE

Peek behind the veil of time.

Feel the future in your bones.

Act today.


STARYARD

The Staryard future space is a lightweigh outdoor structure facilitating an immersive future experience, emerging technologies showroom and an interactive co-design space. The space is designed to serve both future experts and end users by making the future more immersive and tangible.

Staryard future space aims to make the future tangible by both harnessing the power of imagination and also by creating an accesible platform for showcasing emerging technologies in a physical space.

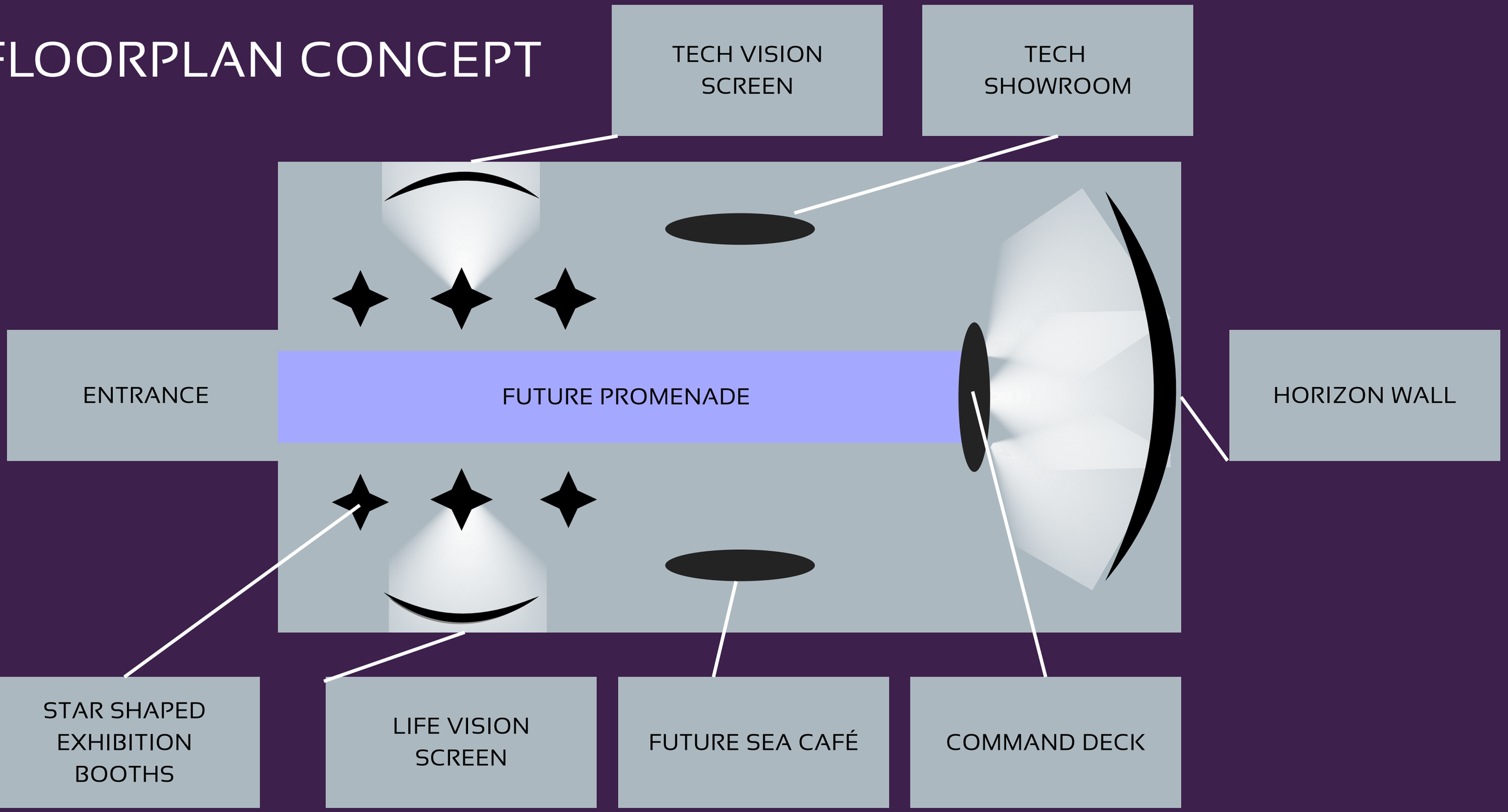
The space is thematically framed to evoke a sensation of entering a futuristic shipyard and a massive cruiser ship under construction.

Why the future space?

The world is changing with a rapid pace. We are living at the advent of highly intrusive technologies being interwined into our everyday life. Decitions about the utilization and regulation of these technologies is being made every day yet, how can we make decitions if we are not informed, if can´t feel the future in our very own bodies?

New emerging technologies might give us access to unimaginable potential to make our life's better, yet not all change is for the good. We must feel out the change to make it tangible. To make informed decitions. The future belongs to us all, experts and laymen alike, companies and policymakers, dreamers and sceptics too.

FLOORPLAN CONCEPT



ENTRANCE

In the entrance to the space, visitors are transported to another time and place. They enter a state of mind, a world of could be. The visitors are invited to explore the future seas, uncertain yet full of unimagined opportunities.

FUTURE PROMENADE

The first thing visible for the visitors is the future promenade.The promenade cuts through the space with exhibition booths on both sides. This is to simulate the effect of walking on a cruiser ship deck with small shops and boutiques to explore.

LIFE VISION PROJECTOR

On the right side of the space, there is the life vision projector. On this projector, a story unfolds. A story of a ship, Theseus, a massive cruiser ship destined to sail in the seas of the year 2050 with 15 000 permanent residents. Visitors are invited to participate in the design of this massive floating city. A video introduces some passenger who have already reserved a spot on the ships maiden voyage.

TECH VISION PROJECTOR

The tech vision projector is reserved for showcasing potential emerging technologies that the hypothetical floating city might utilize. The emphasis is on renewable energy solutions, circular economy and modular design. The tech vision projector is designed to facilitate game-like features allowing ship engineering simulation with AI powered generative tools.

FUTURE SEA CAFÉ

The future sea café is a small demo space for creating realistic experiences on future foods. The idea is to simulate how artificially produced foods could taste and what kind of other food related innovations the future might entail. The theme is sea food.

TECH SHOWROOM

The idea of the tech showroom (not a separate enclosed space) is to showcase emerging technologies with physical form. The concrete technologies showcased here is defined by potential collaborations with tech companies interested in showcasing their solutions.

COMMAND DECK

The command deck, the heart of the space facilitates an advanced interface that allows gestural and auditive commands of a system composing of a series of video projectors, light panels and a sound system. The system is integrated with software allowing real-time content creation of immersive future simulations.

HORIZON WALL

At the back of the space there is a curved film screen creating an illusion of a horizon. The horizon effect can be utilized in the making of immersive future scenarios.

Consepts for portable, lightweight exhibition infrastructure

An interactive future sea map is projected on the canvas from behind. The content for the map can be generated in co-design space.

Exhibition booths for showcasing emerging technologies

Cozy spaces for visualizing stories from the future

Concept design for the co-working space

Who the space serves (target groups)?

The future space has three major target groups:

1. Researchers and other future specialists,

2. Entrepreneur, investors and policy makers

3. End users and common citizens

For the researchers the space offers a unique platform for generating immersive and engaging future scenarios, arrange hands-on foresight workshops and have access to versatile user data from users of the space.

For the entrepeneurs and other future visionaries, the space offers a forum to make emerging technology accesible and tangible. Valuable end user feedback serves bussiness affiliates as much as the researchers. The space offer a unique platform for memorable presentations and company events.

Staryard future space serves the common citizen by allowing access to collective imagination of possible futures, professional design tools and the showcasing of emerging technologies.

Bussiness model

There are at least four major potential revenue streams for the Staryard future space:

1. Selling tickets to the exhibitions
2. Showroom licensing
3. Workshop facilitation
4. renting the space for hosting events and demo sessions

ROADMAP

See KER deliverable.

THESEUS FUTURE SIMULATOR

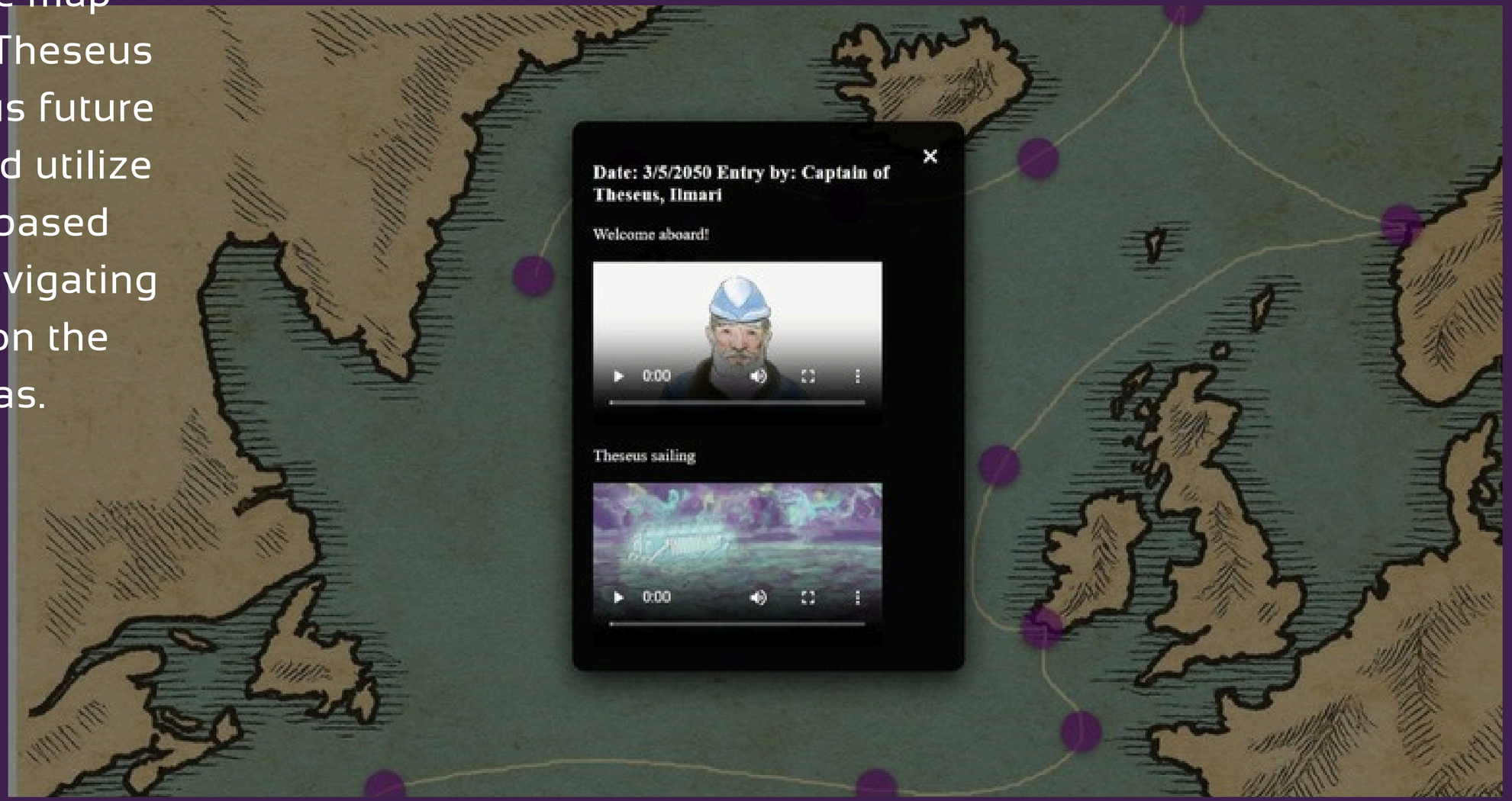
The Theseus future simulator is an interactive game designed to operate within the Staryard future space. In the simulator, teams of future specialists are invited to create immersive and realistic future scenarios in a story drive world set in the seas of 2050.

The design of the future space supports the game mechanism by creating context and physical, interactive elements to further enhance the future simulation features. The idea is that the Theseus future simulator works seamlessly with the content creation tools in the exhibition space.

The story-world of the Theseus future simulator is based on the stories developed for the EU-funded FORGING Project in 2024-2025. The stories follow a ship called Theseus- a massive cruiser ship and its inhabitants as they travel the seas of the year 2050.

The story follows the ship for 30 days, documenting its journey through different cities and locations representing future scenarios from utopias to dystopian settings. Theseus future simulator utilises the story-world created for the Forging project and invites future experts and wider audience to expand the world through play, co-design and co-imagining.

This is a scree nshot for an interactive map version of the Theseus stories. Theseus future simulator would utilize similar map based interface for navigating the journey on the future seas.




THANK YOU

The Team behind the Staryard future space:

Artist Samuel Putkonen

Senior scientists Sofi Kurki and Anu Nousiainen

Interns Jaakko Airikkala and Ella Rasalo (Special thanks for the interactive map for the Theseus stories)

FORGING

INDUSTRY-ACADEMIA FORUM TO UNCOVER THE POTENTIAL OF EMERGING ENABLING TECHNOLOGIES

VTT

Ideas for Futures Space

Ella Rasalo & Jaakko Airikkala

Funded by the European Union

AI-videos on the walls, ceiling, or floor

- AI-videos of future scenarios, could be images as well
- Switch world via button or timed automation
- Each "world" represents a unique scenario e.g. utopia
- Soundscapes change with each scenario
- Video sources: AI-generated with tools or traditional videos and images

Face reading and eye tracking

- **FaceReader** analyzes emotional responses – do users feel fear, indifference, or hope in each scenario?
- **Eye-tracking** reveals where users look first, what grabs attention, and what elements are most engaging
- These technologies can be used to collect data from the entire room – not just from the videos
- **GDPR**: data is anonymized, ask for permission

Projection mapping

- Images can be projected on any surface.
- E.g. the Earth can be projected on a sphere with the clouds moving in real-time.

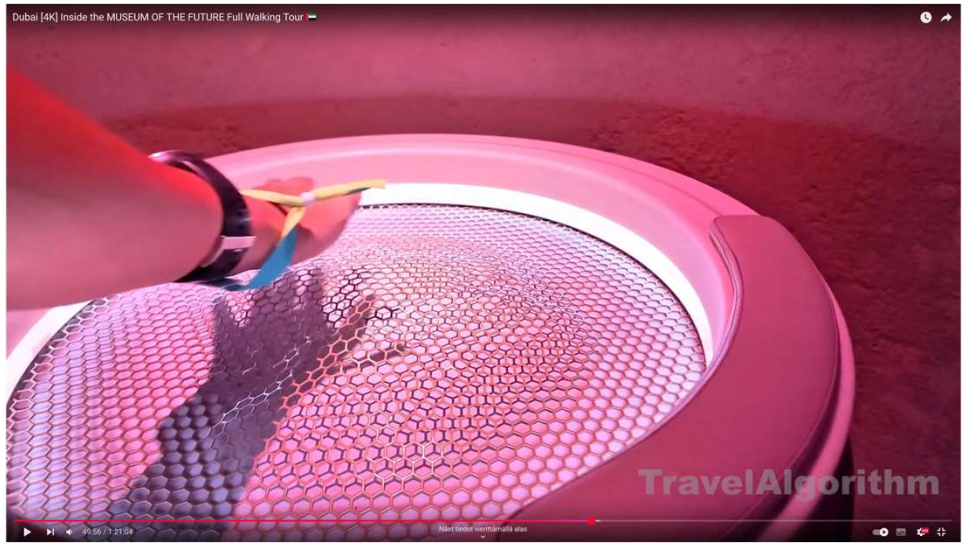
Earth projected on a sphere using a video projector. Image created with Sora.

Responsive Lightscapes & Interactive Projection Mapping

- Lighting and projected visuals react to user movement in the space
- Example: A rippling water surface is projected on the floor, reacting to where people walk
- Can include light that follows a user's hand on the wall or illumination that responds to gaze direction
- Particularly relevant for museums and exhibitions, but not yet common in everyday environments
- Can support energy efficiency: lighting adjusts based on movement, daylight, or room reservations
- Idea: Objects light up when looked at using eye tracking

Ultrasonic Haptics

- A device that creates sensations in mid-air using focused ultrasound
- Users feel touch without physical contact, just by moving their hand through the air
- Requires coding (e.g. Unity)
- Compatible with XR (VR/AR/MR)
- Implementation takes time and effort
- An emerging technology
- Used in product development for example



An ultrasound haptic device in the Museum of the Future in Dubai. Screenshot from a YouTube video: *Dubai [4K] Inside the MUSEUM OF THE FUTURE Full Walking Tour.* Travel Algorithm.

Digital scent technology

- A device that releases different scents into the air depending on the situation
- Can be synced with video content, so scents match what happens on screen
- Can be combined with other experiences e.g. VR
- The challenge is to make the technology feel purposeful and immersive to the user, not just like an ordinary diffuser

3D Printing from a VR World

- Users can design printable 3D objects inside a VR environment
- Option to design in VR, on a computer, or select a ready-made model
- Objects must be simple enough to be printable in a reasonable time
- Final prints can be displayed on a “submission wall” to showcase user creations

AR & VR

- Elements can be added to a room using AR
  - Furniture
  - Future inventions
  - A miniature model of Theseus
  - Interactive robots that can have a conversation
- Virtual worlds can be created using VR
  - Inside areas of Theseus could be modeled

ASMR Room – A Multisensory AI-Generated Experience

- **AI generates personalized ASMR audio**, including whispering, tapping, brushing, and subtle breath-like sounds (voice responsive environment)
- **Directional/spatial audio** makes it feel like sounds come from just beside the ears, between the eyes, or around the body
- Experience responds to user presence: AI adjusts based on whether the user lingers, moves, or breathes calmly
- **Multisensory layers**: subtle lighting changes, scent diffusion, and even airflow enhance immersion
- Enclosed room in the Future Space
- The ASMR experience lasts a couple of minutes

Other ideas

- With **spatial intelligence** AI system can generate 3D worlds from a single image
- Real objects and rooms can be scanned to 3D objects using a mobile phone
- Mantra generated by AI (not a real language), explore user interpretations
- Game in the Future Space
- Style of the Future Space: calm, dark-toned, atmospheric, subtle lighting
- **Potential collaboration partners**: museums / art galleries