

# Available Product Analysis

Improving the Grand Prix experience  
for F1 viewers at home

S8 Graduation FHICT

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# Introduction

An available product analysis can be conducted to assess the competitive landscape and existing products or services within a particular market. The goal of this research is to provide insights in similar products or services that already offer a solution to visualizing data with 3D elements, possibly with the intention to make a product more interesting for consumers. These insights can eventually be used as inspiration in the ideation phase of the Double Diamond.

Since it isn't yet specified what kind of product will eventually be realized, this research will focus on visualizing sports in 3D.

# The current market for 3D applications in sports

Market research is conducted to get a good understanding of the industry, trends and consumer preferences. Below are a couple of interesting topics listed that are found online.

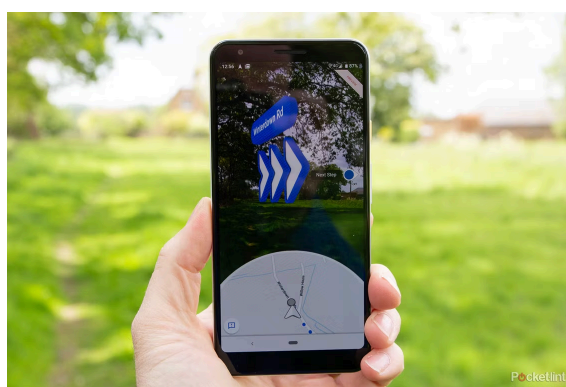
## Digital Twins

Technologies, U. (n.d.). What is a Digital Twin? Unity.

<https://unity.com/solutions/digital-twin-definition>

Digital Twins are virtual copies of physical objects or environments. They're used for simulations and produce insights by combining real-time data with real-world environments in an interactive and immersive way. Examples of usecases are 3D marketing, demographic simulations, urban planning and much more.

In the last couple of years, the rise of real-time 3D allowed for even more usecases like the Metaverse, 3D AR/VR guidance and more.



Google Maps AR Navigation

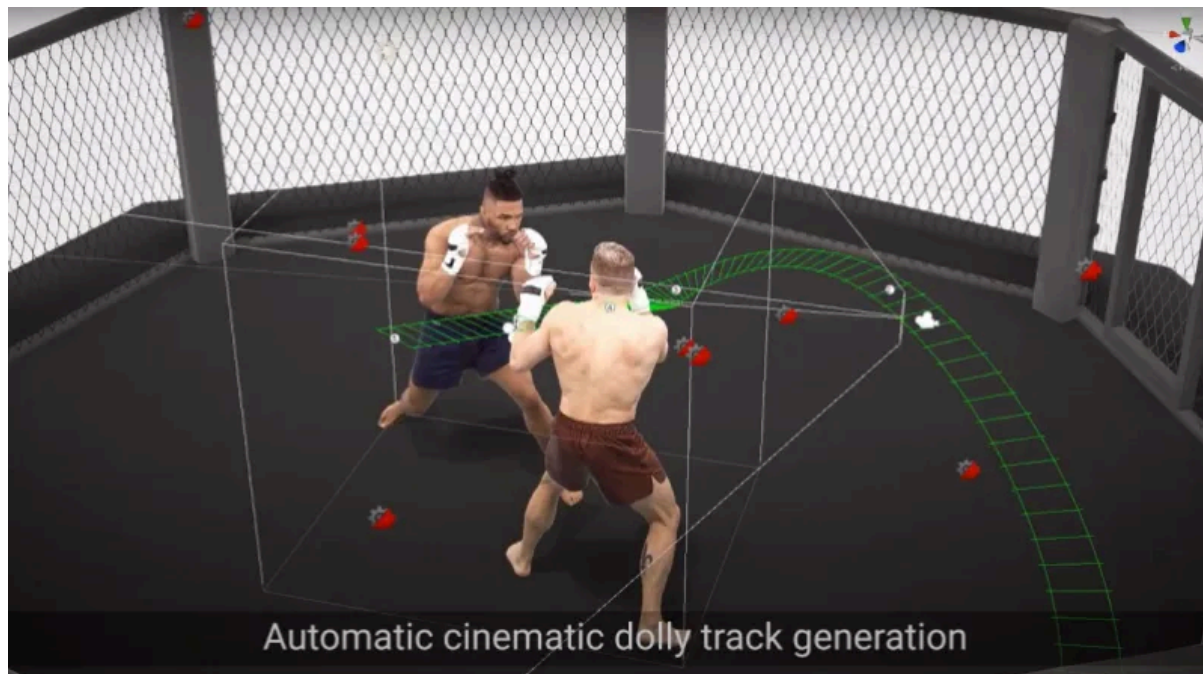
## Unity Metacast

Takahashi, D. (2021, October 8). Unity unveils Metacast real-time 3D platform for sports broadcasts. VentureBeat.

<https://venturebeat.com/games/unity-metacast-is-a-real-time-3d-platform-for-sports-broadcasts/>

Unity's Metacast is a technology by Unity's sports division. Using green screen technology, Unity is able to make a live 3D model of a UFC match. Cameras are used to capture multiple angles of the match. This videofeed is sent over to servers that process it into a 3D model and send it to broadcasting services that can use it to make custom footage.

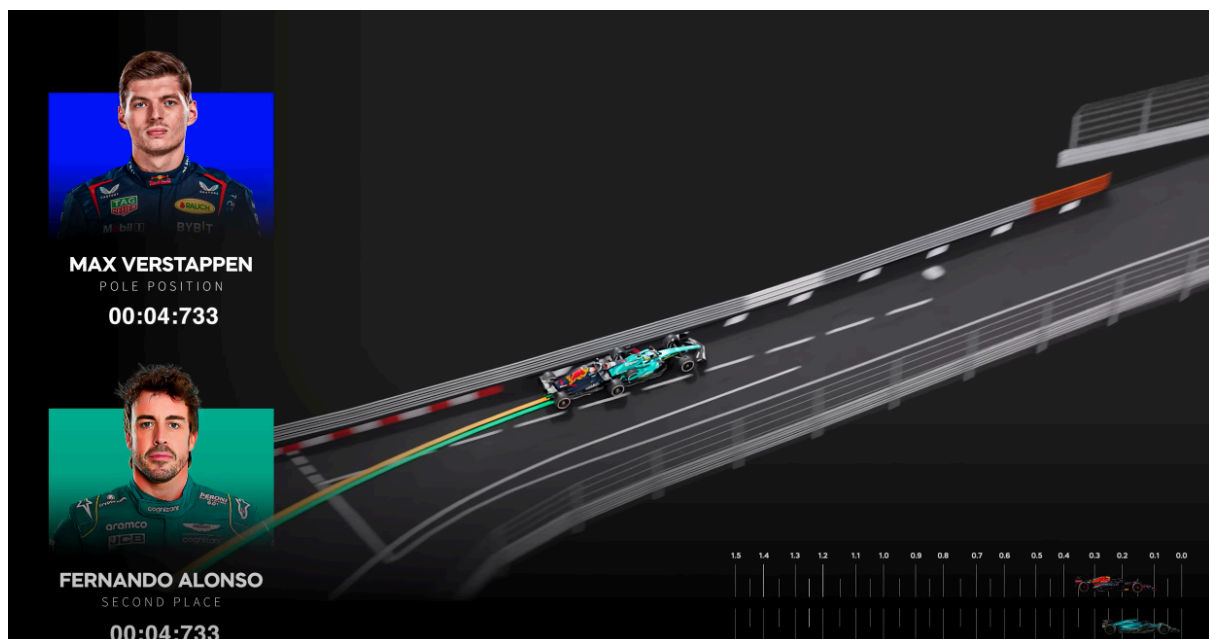
According to Unity, true sports fans love to analyze the action at every level of detail and this technology allows in depth analysis like never seen before. Unity says that the technology will be used for the very first time, next year in Las Vegas.



 Unity's Metacast tech demoed with UFC fighters

## F1 Qualifying 3D Analysis

Formula Addict is a YouTube channel making 3D analysis video's of F1 qualifying. A few weeks ago a video about Max Verstappen's qualifying in Monaco went viral visualizing in 3D how he beat Fernando Alonso. In the video, the entire track is rendered with the position of both cars simultaneously.



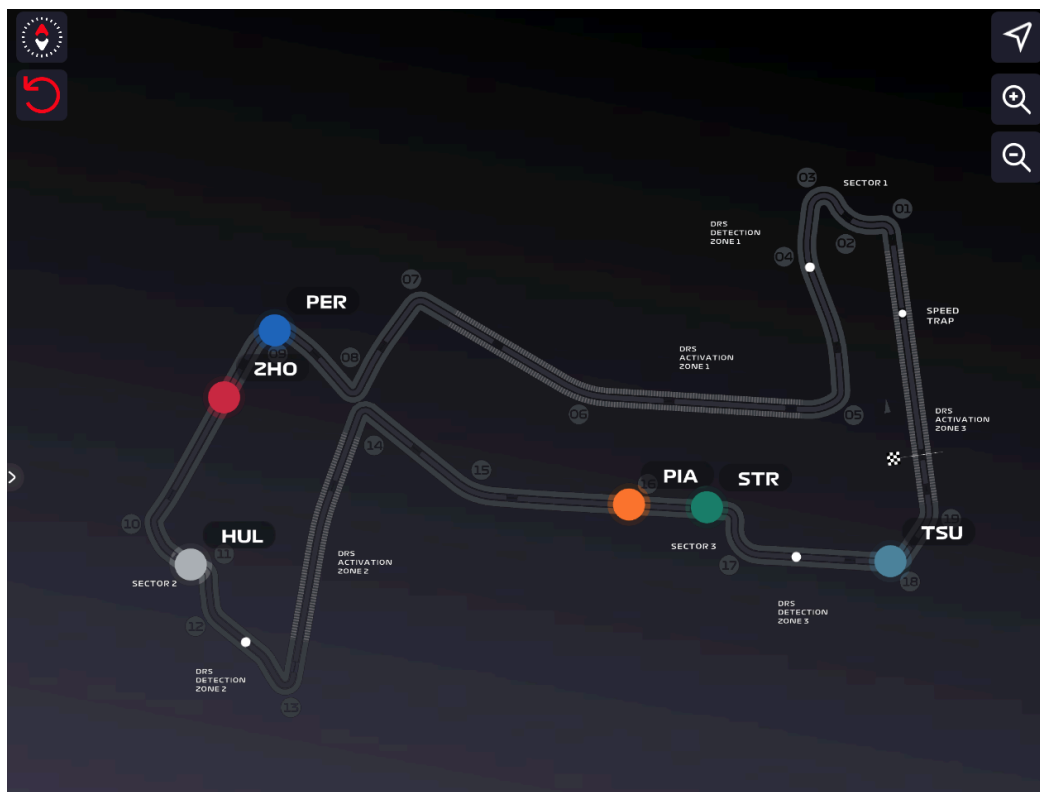
[Formula Addict - YouTube](#)

# The current market for F1 data visualizations

The products found above focussed on 3D visualizations within sports. However, there are also products that focus on visualizing pure Formula 1 data. Existing products found online are summarized below.

## F1TV Pro

Formula 1 itself already has a live tracker available in their live timing dashboard that comes with the F1TV pro subscription. Besides providing a bunch of raw data in tables, it also shows a map of the racetrack showing each driver's live location.



# F1 Race Visualizer

Another project found during the available data analysis is the F1 Race Visualizer. This project is based on the Ergast API that provides Historical data about F1. By utilizing lap time data, this app visualizes the progression of each race.

<https://f1-visualization.vercel.app/>

## Formula 1 Race Visualizer

Built by Yannick Gloster - Source Code

Ergast API Status: ● Checked at: 10:10:57

The Formula 1 Race visualizer is an unofficial visualizer of races from 1996 onwards. The site will update with the latest races after they happen. Once you select a year and a round, you can select a lap or click play to see how the gap to the leader evolved over time.

You can click or hover over a driver for additional driver, constructor, and race information.

Powered by the [Ergast API](#).

*In the case of any error, refresh the page.*

*In the case of the Ergast API becoming unavailable, the page will revert to backup data.*

*Viewing on mobile devices may cause strange behavior and is discouraged.*

Year

2001

Round

Austrian Grand Prix

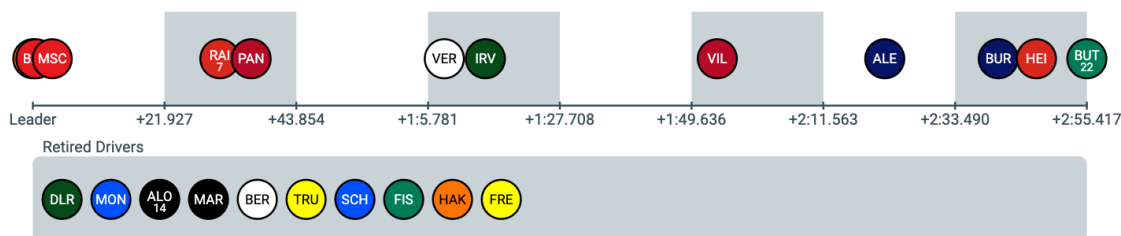
LOAD RACE

Lap

57

Race

▶ PLAY RACE



### Constructor Legend

○ Arrows

Enrique Bernoldi (BER)

Jos Verstappen (VER)

● Jaguar

Eddie Irvine (IRV)

Pedro de la Rosa (DLR)

● BAR

Olivier Panis (PAN)

Jacques Villeneuve (VIL)

● Jordan

Jarno Trulli (TRU)

Heinz-Harald Frentzen (FRE)

● Benetton

Giancarlo Fisichella (FIS)

Jenson Button (BUT)

● McLaren

David Coulthard (COU)

Mika Häkkinen (HAK)

● Ferrari

Michael Schumacher (MSC)

Rubens Barrichello (BAR)

● Minardi

Fernando Alonso (ALO)

Tarso Marques (MAR)



# Conclusion

In this analysis are a few interesting products found. Digital Twins is a concept that can almost apply to anything and therefore also F1. By making a digital twin for an entire F1 race, or maybe just a part of it, like a pit stop for example, allows for detailed analysis by fans.

Unity Metacast is particularly interesting to use as an example of what the possibilities of digital twins can actually do. The technology cannot be copy-pasted to F1, because it relies on green screen technology. However, it's very useful for inspiration.

The videos from F1 addict are also a great example of what's possible with 3D and F1. The disadvantage of this concept is that it takes a lot of time to make these videos. This however also results in an interesting idea; Is it possible to automate this process using ThreeJS, and visualize a race in 3D?

F1TV Pro is probably the best example of an available product that already exists. It visualizes data by plotting the drivers position on a map of the circuit. However, this isn't in 3D. It's expected that making a 3D version of this, results in a more in depth analysis by F1 fans, which results in more engagement.

Finally, F1 Race Visualizer is an app that takes an approach in historical racing data. This app only displays race progression, however, there's much more data to be found in the Ergast API and this product doesn't have any 3D elements.

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# Summary

I conducted an available product analysis to find existing solutions on the problem statement for my project. These existing solutions can be used for inspiration in a later stage. I scalped the internet looking for interesting things that have anything to do with data visualization within sports. There are five products or concepts that I found that are interesting.

First, there's a concept called digital twins. It is a broad term as it means that a digital twin is a digital version of something physical from the real world. However, it can also be applied to sports. I included this concept as I consider digital twins to be an interesting concept to apply in Formula 1.

Next, I found Unity's Metacast. This is a variation of green screen technology, but with multiple cameras to create a 3D model of a moving object, MMA fighters in this example. Metacast provides a high-resolution model that allows for super detailed analysis of the sport. Of course, it's not possible to wrap an entire Formula 1 track in green screen, but I included it as it might be interesting to use for parts of a race, like analyzing pitstops etc.

The videos of Formula Addict on YouTube are a great example of how 3D visualizations can be implemented in F1. This also allows for a more detailed analysis by fans. However, these videos are made after the event. I included this example because I am curious to see if it's possible to automate this process or even present it live for the users.

F1TV Pro's 2D visualization of track positions are a great example of data visualization within Formula 1. I included this example because I'm curious if a 3D variant of this product would add value for F1 fans.

At last, I included a little project called F1 Race Visualizer, this tool is built on the Ergast API that serves historical Formula 1 data. I included this tool as I found it interesting as

it uses historical data instead of live-timing data, and I'm curious if historical data could also play a role in my project.

These five examples will be presented during the focus group discussion where we're going to ideate the first idea's as these examples will be a great source of inspiration during the brainstorming session.

## Learning Outcome Clarification

- Learning Outcome 1: Professional Duties
- Learning Outcome 2: Situation-Orientation
- Learning Outcome 4: Investigative Problem Solving

This deliverable is a professional duty on a bachelor level in the activity of Analysis as I analyzed for interesting existing products to gain inspiration for my project. This is in line with IT-area User Interaction. Therefore, Learning Outcome 1: Professional Duties applies.

This deliverable is relevant and valuable as it plays a role in the orientation phase of the project and will provide an input for the focus group discussion later in the project. I also worked in a methodological and structured way as an available product analysis is a proven research methodology. Therefore, Learning Outcome 2: Situation-Orientation applies.

This deliverable is a research method on [ictresearchmethods.nl](https://ictresearchmethods.nl). and it is an effective approach to find valuable insights for the orientation phase. Therefore, Learning Outcome 4: Investigative Problem Solving applies.