

Link: Designing Activity Tracking Solutions

For the Soccer Athlete

By

Copyright ©2015

Peter Henne

Submitted to the graduate degree program in Design Management and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Master of Arts.

Committee Chairperson:

Michael D. Eckersley

Committee Members:

Jeremy Shellhorn

Yoshi Sato

Date Defended: December 16, 2015

Abstract

The trending quantified self movement has seen the consumer activity tracking market explode over the past few years. These users have become more and more interested in not only tracking their activity but understanding the value of the data captured. Currently, many of these devices are purpose built for specific activities like walking, running, cycling, swimming, or hiking; all of which are very linear in motion. These movements however, differ greatly to what you would experience playing soccer. These athletes are lacking tailored solutions specific to their needs and unique types of physical movements.

My goal is to outline a framework of product parameters that would be necessary to develop successful activity tracking solutions for soccer athletes at the consumer level. I intend to do this by understanding the current market landscape, find gaps within current solutions, and identify valuable data points soccer athletes are looking for. Using this information I will begin developing a proposed product solution around these parameters.

Table of Contents

1. Introduction

1.1 Activity tracking trends.....	1
1.2 Intended target user.....	1
1.3 Problem statement.....	2
1.4 Research question.....	2
1.5 Objectives.....	2

2. Methods

2.1 Understanding.....	2
2.2 User research.....	2

3. State of the industry

3.1 Market size and growth.....	3
3.2 Market strategies.....	3
3.3 Technologies.....	4

4. References

4.1 References.....	5-6
---------------------	-----

5. Appendices

5.1 Presentation document	
---------------------------	--

1. Introduction

1.1 Activity tracking trends

Activity fitness trackers are meant to be valuable tools in which athletes can use to capture their physical exercise. The ability to record, view, and analyze each activity can become a powerful benefit to your physical and mental well-being. Depending on your fitness level or aspirations, that information can be used as educational, motivational, or socially engaging. All areas in which the user can better themselves in health and wellness.

In recent years, fitness trackers have proliferated as technology and cost have made them more accessible to the masses. Market segments like running, cycling, swimming, hiking, golf, and others have product solutions developed for their specific activity. Running watches for instance track your speed, distance, pace, heart rate, among other metrics that a runner finds as valuable information. The data captured may be used as a means to review performance, effort, reference to a training plan, or maybe as inspiration to beat their previous best.

Athletes in sports such as soccer however, are lacking elegant and purpose built solutions designed around them. Most fitness trackers today stay relatively confined to activities in which your physical movement is predominantly linear. A runner will generally move in a consistent line forward with some turns in between. In cycling, a rider's change in direction and speed is mostly gradual and with few sudden changes. Devices today work very well in situations like these but do not provide adequate value of information when your physical movements vastly deviate from this

model. Data may either be inaccurate or the type of metrics being captured are just not that relevant to be useful. A soccer athlete, over the course of a match or training session will make many sudden changes in speed and direction. They may jump, sprint, spin, slide, or fall to the ground at any given time. The suddenness and unpredictability of these movements make today's tracking solutions inadequate for the needs of a soccer player.

The form factor and method in which the device is worn can also often be a hindrance to an athlete participating in contact sports. Most fitness trackers today have displays, batteries, hard plastic or metal housings, and are worn on the wrist or attach to other equipment that is either not practical in an environment like soccer or seen as dangerous to be permitted to be worn during a game or in training. This problem alone has kept many of the products available today from being utilized in other sports like soccer.

1.2 Intended target user

The idea behind my thesis topic is to identify the specific needs of soccer players in order to develop an appropriate solution tailored to their sport. My intended target audience is the amateur soccer athlete that may range from recreational skill level to very competitive in league competitions. Most of the users in this range compete or have competed in some level of organized soccer leagues, attend practices, and have a fairly consistent training regime. These users will also many times play with colleagues, friends, co-workers, or some degree of social circle they belong too.

Studying how users interact with devices during their exercise is one critical

area that I intend to analyze. Are there conditions and opportunities in which to change how users interact with their device while in an activity? Another important factor will be what data metrics do users consider useful? Metrics that are tracked for analysis need to be valuable to those users or you are just capturing data for the sake of data and there is no benefit to that. Metrics captured for a runner is not necessarily the same type of data a soccer player may find adequate. Understanding these two perspectives will be important factors in developing a truly engaging product solution beyond what currently exists.

1.3 Problem Statement

There are currently no elegant product solutions that allows athletes to accurately track their activity while playing soccer. These athletes are lacking tailored solutions specific to their needs and unique types of physical movements.

1.4 Research Question

What are the product parameters necessary in order to develop a successful activity tracking solution for amateur soccer athletes in the consumer market? What could such a product solution look like?

1.5 Objectives

My goal is to identify solutions that soccer athletes find valuable in order to capture their activities and to then develop a proposed solution around those findings. It is important to understand the different requirements in soccer compared to other

sports so the product can address their specific needs and interests. I hope to bring the value of information, motivation, and social engagement in the form of a product concept. My thesis will be part market analysis, user understanding, and product solution development.

2. Methods

2.1 Understanding

I intend to gain understanding for the needs of soccer players by observing, discussing, and immersing myself into different situations playing soccer. This includes training sessions, workouts, as well as games. I currently participate in a range of competition levels in different leagues that will give me access to many athletes and different scenarios that will open up good opportunities to reveal important insights to solving the problem. Observational analysis, user interviews, data sorting surveys, and participatory feedback will help me reveal important information on the topic as well as keep the stakeholders involved through the process.

2.2 User research

I also intend to analyze the state of the market in soccer as well as the related fitness tracking wearable space in order to understand the opportunities and limitations around current products available today. Researching users in related fields will help me compare and contrast their needs and determine what I can build upon as well as what gaps exist that can be opportunities to propose unique solutions. Developing and iterating on solution concepts using scenario mapping tools, hypothetical situations, and

other techniques to get feedback from my target audience will be important.

3. State of Industry

3.1 Market size and growth

The fitness tracking market is estimated to grow to a \$5.4 billion dollar industry by 2019 from \$2.8 billion in 2014¹. Unit sales increased from 3.8million in Q1 2014 to 11.4million in Q1 2015². This growth has been fueled by the quantified self movement and the changing culture of interest in gathering personal data. Both large companies and startup ventures are trying to capitalize on this growing trend. These companies have driven diversification of segments within the wearables tech market to address various customer bases. There are many types of fitness trackers on the market today because of this. Some are designed to be very basic indicators of overall activity throughout your daily routine while others are intended to be full featured training devices for elite athletes at the professional level.

3.2 Market Strategies

Companies so far have decided to either develop both the hardware and software platforms in order to build a brand ecosystem, or concentrate solely on the software solution. Some have built strong brands around software and app development that customers can use as third party programs or apps. Companies like Strava, MyFitnessPal, and recently Nike are some of the more successful brands concentrating on this strategy. Nike was at the forefront early with developing some of

the products that helped move the activity tracking trend toward the mass market. Their Nike+ footpod and fuelband products were not the first activity trackers on the market but were the first to appeal to the larger mass market audience. They have since decided to focus on software platforms and let others concentrate on the hardware solutions. Fitbit, Garmin, Apple, and Jawbone develop both hardware and software solutions for the consumer market. Currently Fitbit and Garmin are the two largest competitors in the fitness tracking market who develop a range of products for various athletes. Fitbit made their name known by developing products for the everyday consumer targeting general activity like walking. They are beginning to expand their product portfolio to include higher end, more capable offerings to compete with the competition. Garmin conversely, began by offering full featured, more expensive products for the niche, elite athletes and are now developing entry level products that appeal to the mass market to compete with companies like Fitbit and Jawbone.

The target audience for each device will impact the design parameters a great deal in terms of design, size, and technology used. A use case such as walking, running or swimming will depend on the user wearing the device while in an activity. Most activities in this space requires the user to be wearing the device on them in order to track specific movements. Some markets however can be different in that the device may be mounted on another piece of equipment the person is using while in an activity. An example of this use case would be cycling where the activity tracker would be attached

¹ Park Associates report, 2015

² International Data Corporation (IDC) report, 2015

to the bike instead of the person. My thesis is mostly going to concentrate on the wearables space but will touch on the limitations or benefits of the differing approaches and potentially how the two could be used in conjunction for a more powerful solution.

3.3 Technologies

Tracking devices in the consumer market currently use two different types of technology in which to track your activity. These different approaches can have big impacts in how you design the product for your intended target customer.

The first method is to use global positioning satellites, GPS, as the primary technology in which to track the activity of the user. These products mainly rely on interaction from the user to begin and end a designated activity for which the device will record during that time. GPS technology is very power hungry and can put limitations on product size due to battery requirements needed to keep the device powered long enough for the intended use case of the activity. The power requirements of GPS can limit how long and often you can record an activity before needing to be recharged.

The second method is to use sensors in order to track the movement. These accelerometers, gyroscopes, and other sensors are used in tandem to make sense of the movement being recorded. Algorithms will attempt to identify and assign specific types of credit to that data. Using sensors in lieu of GPS can have benefits of reducing power consumption which allows for smaller, more compact form factors. Sensors can also have an effect on how the user interacts with the device as they can operate more autonomous and continuous without draining the battery of the device as quickly. Many devices today will be connected to a smartphone via Bluetooth and will update the data automatically throughout the day. There is very little interaction needed between the user and the device.

What we are seeing in the most recent products is the use of both GPS and various sensors together. Sensors are being used to track daily general activity but more specific workout activities will use GPS in order to capture more accurate data as well as the benefit of your location on a map. With sensor and GPS technology continuing to get smaller and more cost effective, this method can give you the best of both technologies with few tradeoffs.

References

Bernier, A. (n.d.). How will RFID sensors change the NFL? <https://www.punchkick.com/blog/2014/08/26/how-will-new-location-sensors-transform-the-nfl>

Bialik, C. (2014, June 10). The People Tracking Every Touch, Pass And Tackle in the World Cup. Retrieved December 18, 2015, from <http://fivethirtyeight.com/features/the-people-tracking-every-touch-pass-and-tackle-in-the-world-cup/>

Bolluyt, J. (2015, June 7). Wearable Tech Devices: The 5 Hottest Brands Right Now. Retrieved December 18, 2015, from <http://www.cheatsheet.com/technology/wearable-tech-devices-the-5-hottest-brands-right-now.html/?a=viewall>

Why New Advanced Soccer Stats Matter. (n.d.). Retrieved December 18, 2015, from <http://bleacherreport.com/articles/1597790-the-most-important-new-advanced-soccer-statistics-and-why-they-matter>

Carter, M. (2014, May 7). Infographic: All The Wearables You Could Be Wearing Right Now. Retrieved December 18, 2015, from <http://www.fastcocreate.com/3030158/infographic-all-the-wearables-you-could-be-wearing-right-now>

Chang, T. (n.d.). The 'So What' Of The Quantified Self. Retrieved December 18, 2015, from <http://techcrunch.com/2012/03/31/quantified-self-so-what/>

Detwiler, B. (n.d.). Break it down: A soccer ball with serious game - CNET. Retrieved December 18, 2015, from <http://www.cnet.com/news/break-it-down-a-soccer-ball-with-serious-game/>

Garrett, J. (n.d.). Retrieved December 18, 2015, from <http://www.jjg.net/elements/pdf/elements.pdf>

Gownder, J. (n.d.). JP Gownder's Blog. Retrieved December 18, 2015, from http://blogs.forrester.com/jp_gownder/14-12-09-the_data_digest_five_urgent_truths_about_wearables

Hartigan, M. (2014, June 17). How U.S. Soccer Digitally Tracks The "Training Load" On Every Player. Retrieved December 18, 2015, from <http://www.fastcolabs.com/3032017/how-us-soccer-digitally-tracks-the-training-load-on-every-player>

Hill, S. (n.d.). Pan Studio. Retrieved December 18, 2015, from <http://panstudio.co.uk/experience-identity-ideology/>

Hirst, E. (n.d.). NFL players to get tracking chips in shoulder pads. Retrieved December 18, 2015, from <http://www.chicagotribune.com/bluesky/technology/chi-nfl-players-tracking-chips-shoulder-pads-20140731-story.html>

Lamkin, P. (n.d.). Fitness tracker market to top \$5bn by 2019. Retrieved December 18, 2015, from <http://www.wearable.com/fitness-trackers/fitness-tracker-market-to-top-dollar-5-billion-by-2019-995>

Methods. (n.d.). Retrieved December 18, 2015, from <http://www.designkit.org/methods>

Parks Associates: Global Revenues From Connected Fitness Trackers to Exceed \$5 Billion by 2019. (n.d.). Retrieved December 18, 2015, from <http://www.marketwired.com/press-release/parks-associates-global-revenues-from-connected-fitness-trackers-exceed-5-billion-2019-2003533.htm>

Pine II, J., & Gilmore, J. (1998, July 1). Welcome to the Experience Economy. Retrieved December 18, 2015, from <https://hbr.org/1998/07/welcome-to-the-experience-economy>

RedFIR®. (n.d.). Retrieved December 18, 2015, from <http://www.iis.fraunhofer.de/en/ff/lok/proj/redfir.html#tabpanel-3>

Savov, V. (2014, October 28). How the NFL tracks everything on the field but the ball. Retrieved December 18, 2015, from <http://www.theverge.com/2014/10/28/7082683/nfl-real-time-motion-tracking-by-zebra-technologies>

Sung, D. (n.d.). What is wearable tech? Everything you need to know explained. Retrieved December 18, 2015, from <http://www.wearable.com/wearable-tech/what-is-wearable-tech-753>

Wearable Computing: Fitness and Health in Style. (n.d.). Retrieved December 18, 2015, from <http://www.parksassociates.com/report/wearable-computing>

Wearable Market Remained Strong in the First Quarter Despite the Pending Debut of the Apple Watch, Says IDC. (n.d.). Retrieved December 18, 2015, from <http://www.idc.com/getdoc.jsp?containerId=prUS25658315>

Wiegler, L. (2014, April 18). Fast Tracking: Measuring Advanced Sports Metrics With RFID. Retrieved December 18, 2015, from <http://blog.atlasrfidstore.com/fast-tracking-sports-analytics-rfid>

Wolf, G. (n.d.). Know Thyself: Tracking Every Facet of Life, from Sleep to Mood to Pain, 24/7/365. Retrieved December 18, 2015, from https://archive.wired.com/medtech/health/magazine/17-07/1bnp_knowthyself?currentPage=all

A blue metal goalpost stands on a green soccer field. The background is a hazy, grey sky. The word "LINK" is overlaid in large white letters on the right side of the image.

LINK

Designing an Activity Tracking Solution
for the Soccer Athlete

The trending quantified self movement has seen the consumer activity tracking market explode over the past few years. These users have become more and more interested in not only tracking their activity but understanding the value of the data captured. Currently, many of these devices are purpose built for specific activities like walking, running, cycling, swimming, or hiking; all of which are very linear in motion. These movements however, differ greatly to what you would experience playing soccer. These athletes are lacking tailored solutions specific to their needs and unique types of physical movements.

My goal is to outline a framework of product parameters that would be necessary to develop successful activity tracking solutions for soccer athletes at the consumer level. I intend to do this by understanding the current market landscape, find gaps within current solutions, and identify valuable data points soccer athletes are looking for. Using this information I will begin developing a proposed product solution around these parameters.



ABSTRACT



PROBLEM DEFINITION

There are currently no elegant consumer product solutions that allows athletes to accurately track their activity while playing soccer. These athletes are lacking tailored solutions specific to their needs and unique types of physical movements.



RESEARCH QUESTION

What are the product parameters necessary in order to develop a successful activity tracking solution for amateur soccer athletes in the consumer market? What could such a product solution look like?



THESIS OBJECTIVES

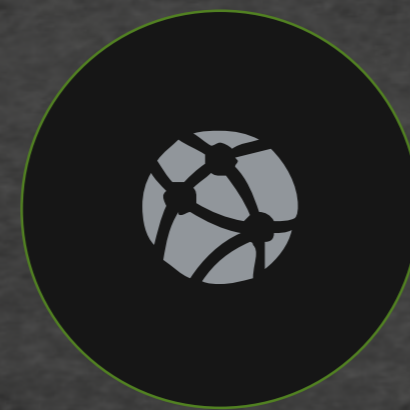
My goal is to identify solutions that soccer athletes find valuable in order to capture their activities and to then develop a proposed solution around those findings. It is important to understand the different requirements in soccer compared to other sports so the product can address their specific needs and interests. I hope to bring the value of information, motivation, and social engagement in the form of a product concept. My thesis will be part market analysis, user understanding, and product solution development.

SECTIONS



Understanding

Researching and learning about the related industries and markets that pertain to my topic



Discovery

User research and analysis to discover what important factors and needs soccer athletes have and find valuable in a solution



Design

Work to develop solutions that my target audience finds compelling



Future

Briefly touching on possibilities that exists within this market that lies beyond the immediate scope of my project



Conclusions

Thought on where this market can go and what parts of my work on this topic has the most potential to continue developing on

UNITING TWO MARKETS



The wearable technology space has continued to grow in recent years and companies are exploring new and unique markets in which to take advantage of the growing conscious of quantifying everything we do. Soccer is truly a global sport and still continues to grow in popularity in many countries, including the US. The time is ripe to explore what aspects of these two markets can serve each other in order to develop a compelling product for soccer athletes all over the world.

QUANTIFIED SELF MOVEMENT

The Quantified Self (QS) movement is a growing global effort to use new mobile and wearable technologies to automatically obtain personal data about everyday activities.

Victor R Lee, Utah State University

A new culture of personal data is taking shape.

Gary Wolf, Wired Magazine

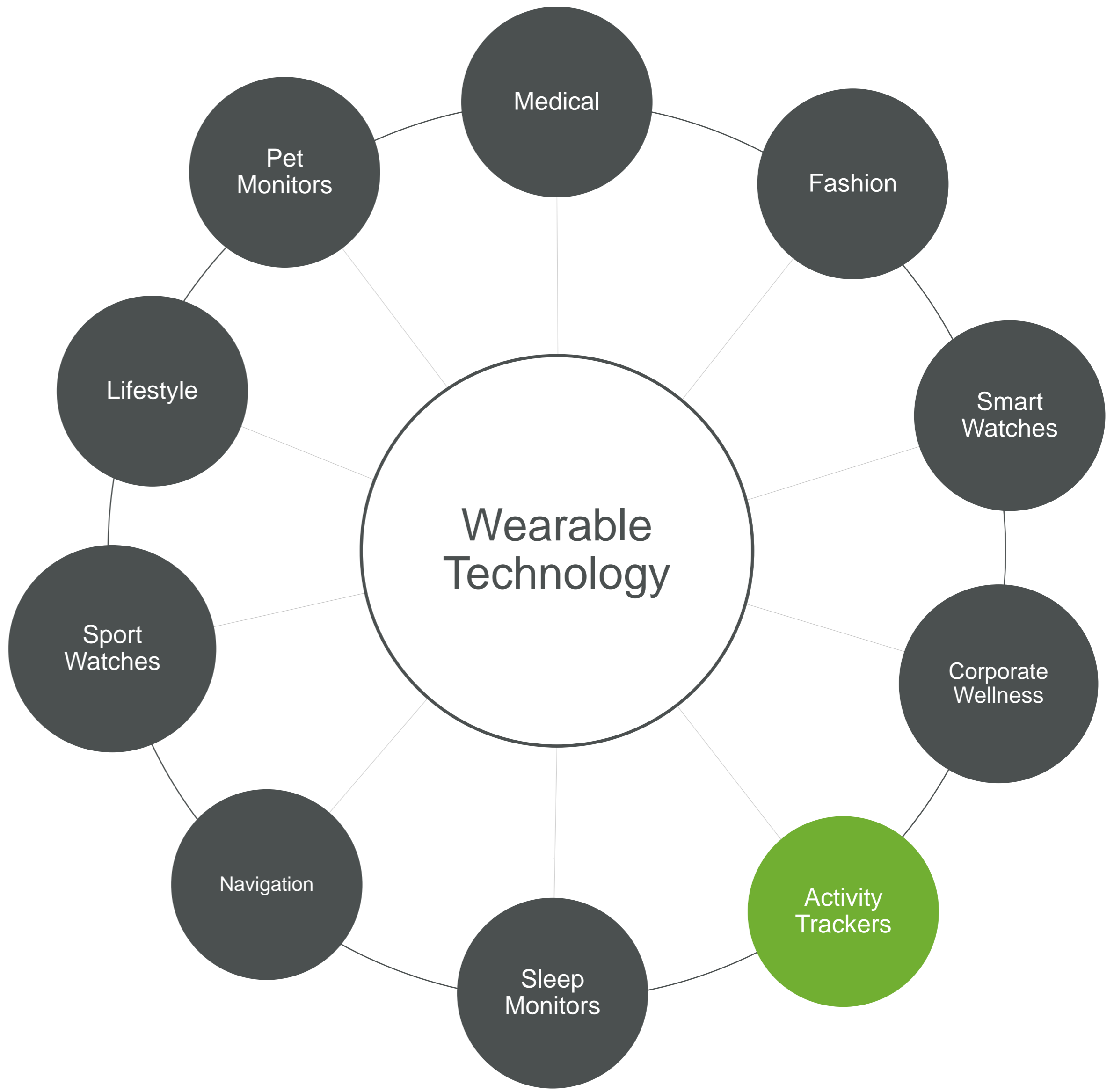
WEARABLE TECHNOLOGY

The wearables tech space is the umbrella market that defines the multiple segments that has diversified into many different product categories. Companies continue to find new uses for wearables technology and the demand for these devices are expected to continue to grow at least the next 5 years.

According to a report by Tractica this year (2015), the wearable tech market will ship over 88 million units. That is up from 28 million in 2011. They anticipate worldwide shipments to swell to over 213m by the year 2019. The demand for wearables is currently very strong.

There are many smaller segments within this space with just a few listed in the diagram here. Of all the categories though, just two dominate over 65% of the market share. These are the smartwatches and activity trackers, also commonly referred to as fitness trackers or activity fitness tracking. These two categories have reached the mainstream and have taken off in demand.

For my thesis, my focus concentrated on the activity tracking segment as it relates the most clearly to product solutions for soccer athletes. The activity tracking sector alone was a \$2.8 billion dollar business in 2014 and is expected to approach \$5.4 billion over the next five years.



ACTIVITY TRACKERS



2006

Garmin
Forerunner 305

2006

Nike
Footpod

2008

Fitbit
Classic

2011

Jawbone
Up

2012

Nike
Fuelband

2013

Misfit
Shine

2014

Apple
Watch

2014

Mio
OHR

2015

Fitbit
Charge HR

ACTIVITY TRACKERS

Activity trackers are devices that allow users to monitor and track fitness related metrics. These devices currently cover a broad range of target customers and will continue to target a broad range in the future.

Breaking users up by either activity levels or by general lifestyle is a good way to correlate the trends we are seeing from some of the more popular brands in this space today.

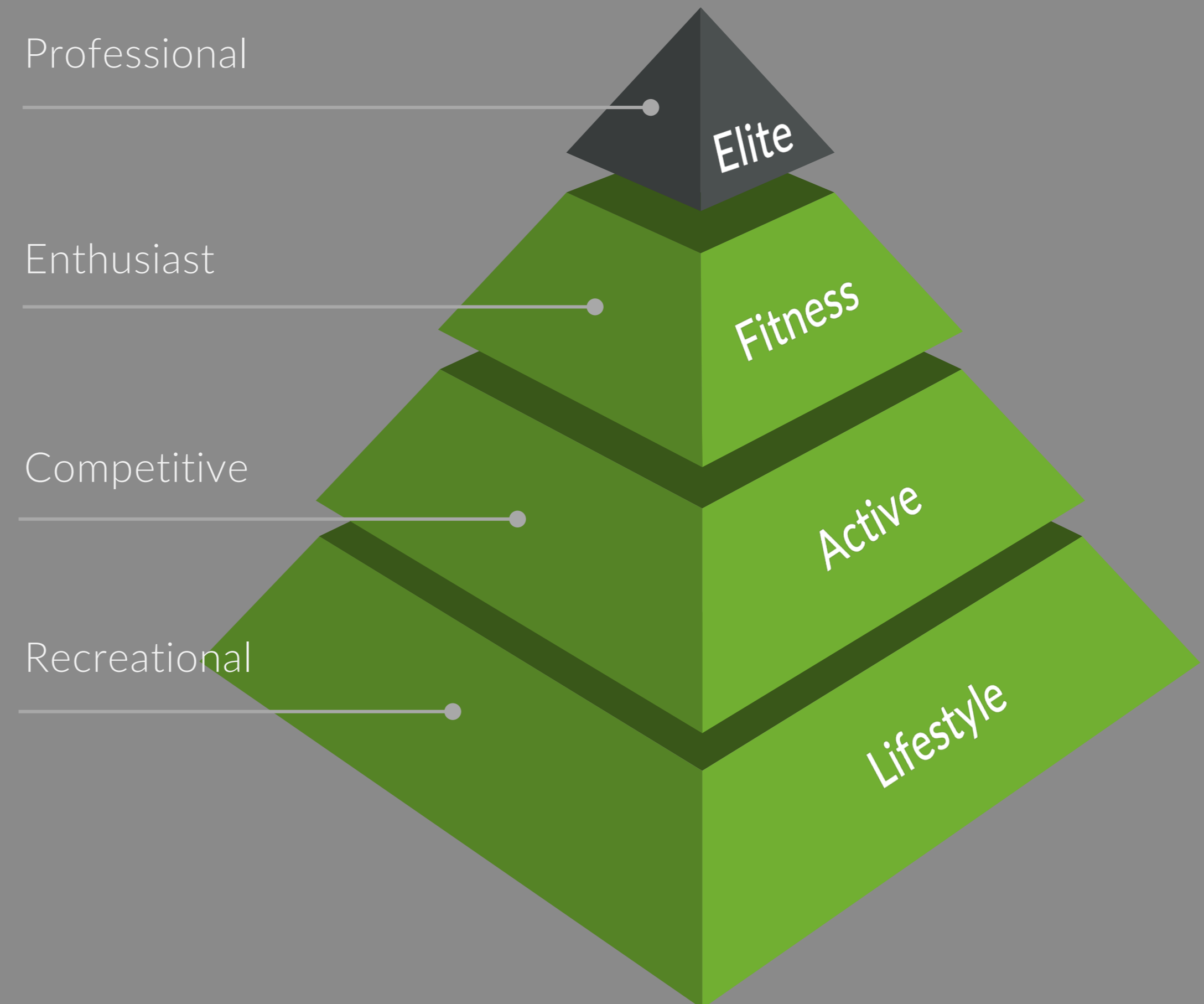
The bottom most level are your recreational users. These people may exercise but not consistently or desire to and are hoping an activity tracker will help. These users also may be physically active throughout the day and are curious to get credit for walking a lot or climbing flights of stairs. This group will be more conscious about product trends or fashion when looking for an activity tracker.

The next level up are people with an active lifestyle that probably exercise regularly and may be somewhat competitive about it. They may desire a product that still fits their clothing well but want a device with a few more features to help them in their workouts.

The fitness level are those who exercising is part of their daily routine. They take it seriously and is part of who they are. They are enthusiasts for whichever activity is in their interest. They train for events like marathons or league competitions and are looking for a device that can keep up. They want a full featured device with options and technology that will help give them the best workout possible.

The top of the pyramid are the elite, the professional athletes who usually have products either provided for them or they have coaches, trainers, and managers focused on analyzing their performance.

Since the professional athlete has many different needs and expectations than that of a consumer amateur level user, my focus was on the bottom three levels and not the professional space.



ACTIVITY TRACKERS

Fitness

Garmin enjoys a healthy market share at the top end of the fitness level in the pyramid. Garmin continues to resonate well with the serious athlete wanting full featured devices.



Active

Like Garmin on the fitness level, Fitbit currently dominates the active range with products like the Flex and Charge. These devices appeal to users who are looking for capable devices with a bit more focus on everyday lifestyle product design and easy, simpler user experience.



Lifestyle

The lower level of lifestyle has many competitors but Jawbone was one of the first players in the activity tracking market and continues to design tech-fitness products with a focus on fashion forward designs that appeal to users who want credit for everyday activities but want a device that is going to look attractive while wearing all day.



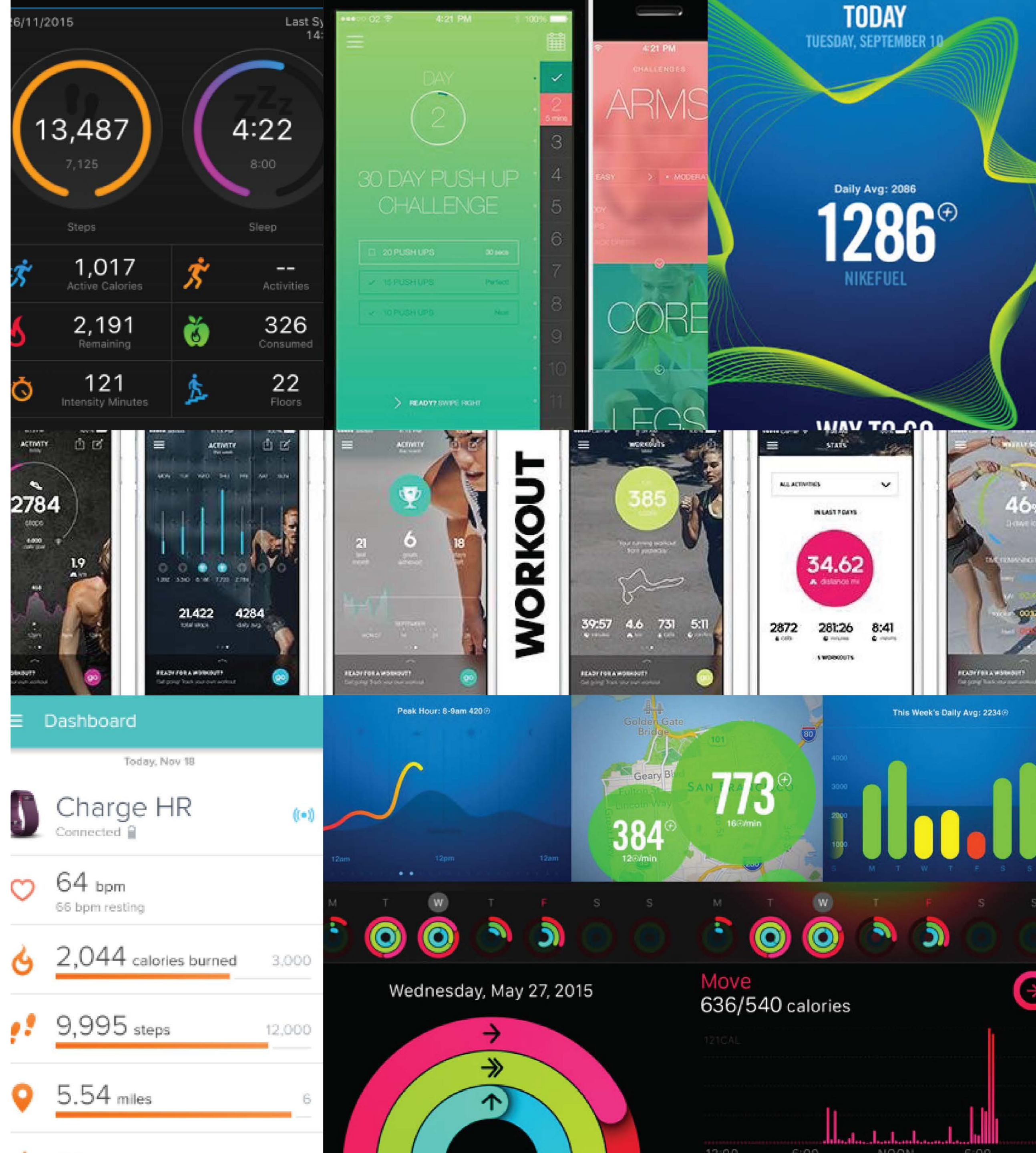
ACTIVITY TRACKER APPS

As technology evolves and devices become more autonomous at tracking the activity it is intended to, the user's interaction with the product becomes more and more about the app associated with the product or brand. Much of the user experience is influenced at how well the app works with the product. No longer can a product really stand up to other competition without a well executed app.

In the activity tracking market, many apps are geared toward user friendly and approachable designs. The presentation of the metrics recorded is almost as important as the metrics themselves. Activity trackers are meant to motivate and inspire you to become more active and in turn more healthy.

The app is the portal into the data and how well that app successfully connects with the user usually has a lot to do with how long and how much the user continues to use the product.

Companies that have put a lot of emphasis and focus on their app development are not coincidentally some of the leading brands in the conscious of users and prospective customers. Brands like Fitbit, Apple, and Nike make it a focus to present data to the user in an elegant, refined, friendly, and understandable fashion.

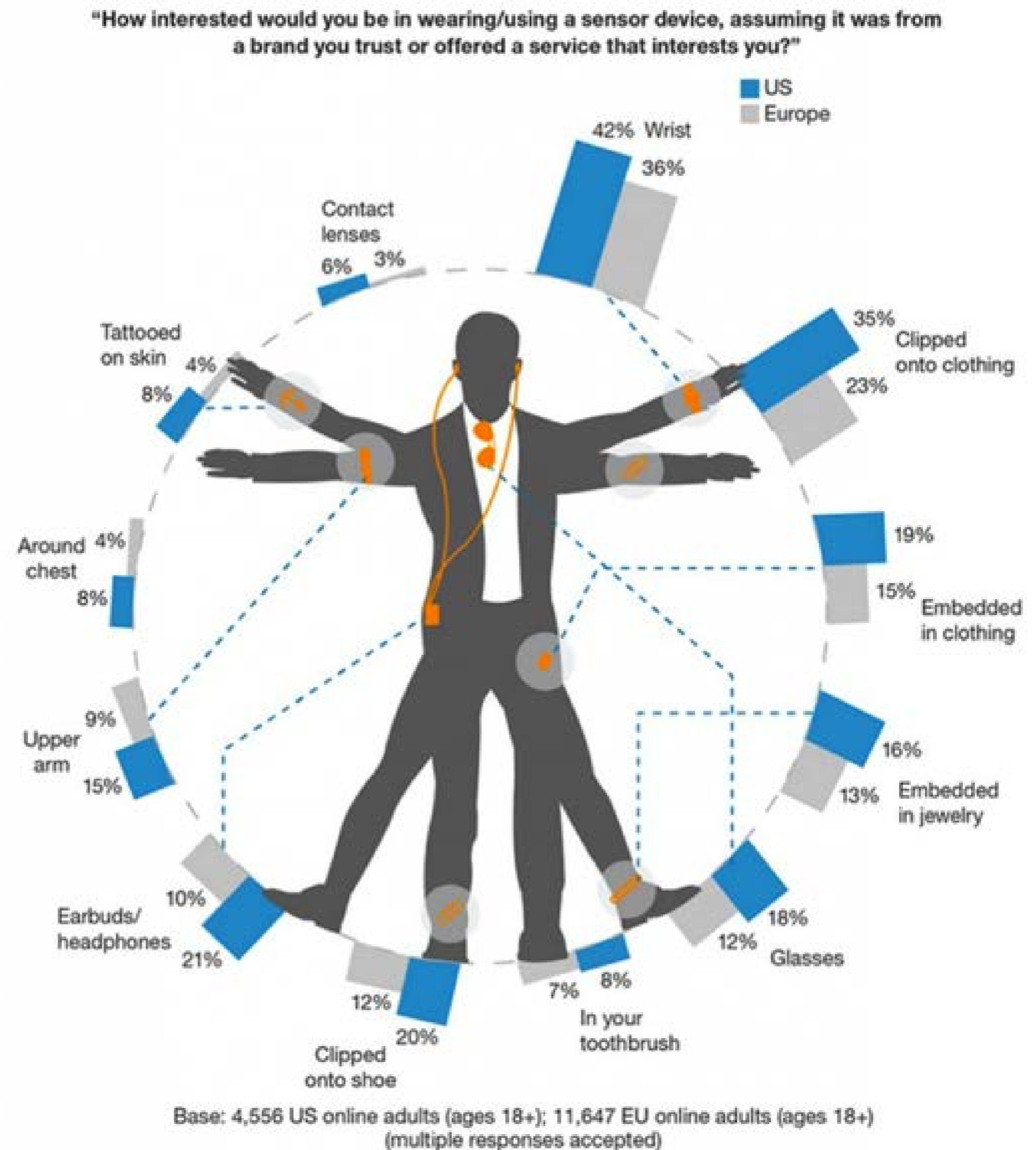


ACTIVITY TRACKING

A useful survey by the Forrester Research, Inc asked individuals in both the US and the EU where they would consider wearing an activity tracker provided the device met a service that interested them. There was not a huge surprise that the wrist was the most common response as it led both the US and EU respondents.

It was interesting however to see the increasing awareness and perceived acceptance for other areas of the body to be of interest. Such as embedded in clothing or jewelry which is a market that has seen good growth in recent years as more research has been put into smart apparel technologies. Also devices clipped or worn on clothing had a high response rate from the US in particular.

The shoe area also seemed to be reasonably represented by both groups of respondents. This provided some confidence moving forward with a soccer specific device as the foot could be an appropriate location to wear an activity tracker for specific metrics that may be of interest and unique to soccer.



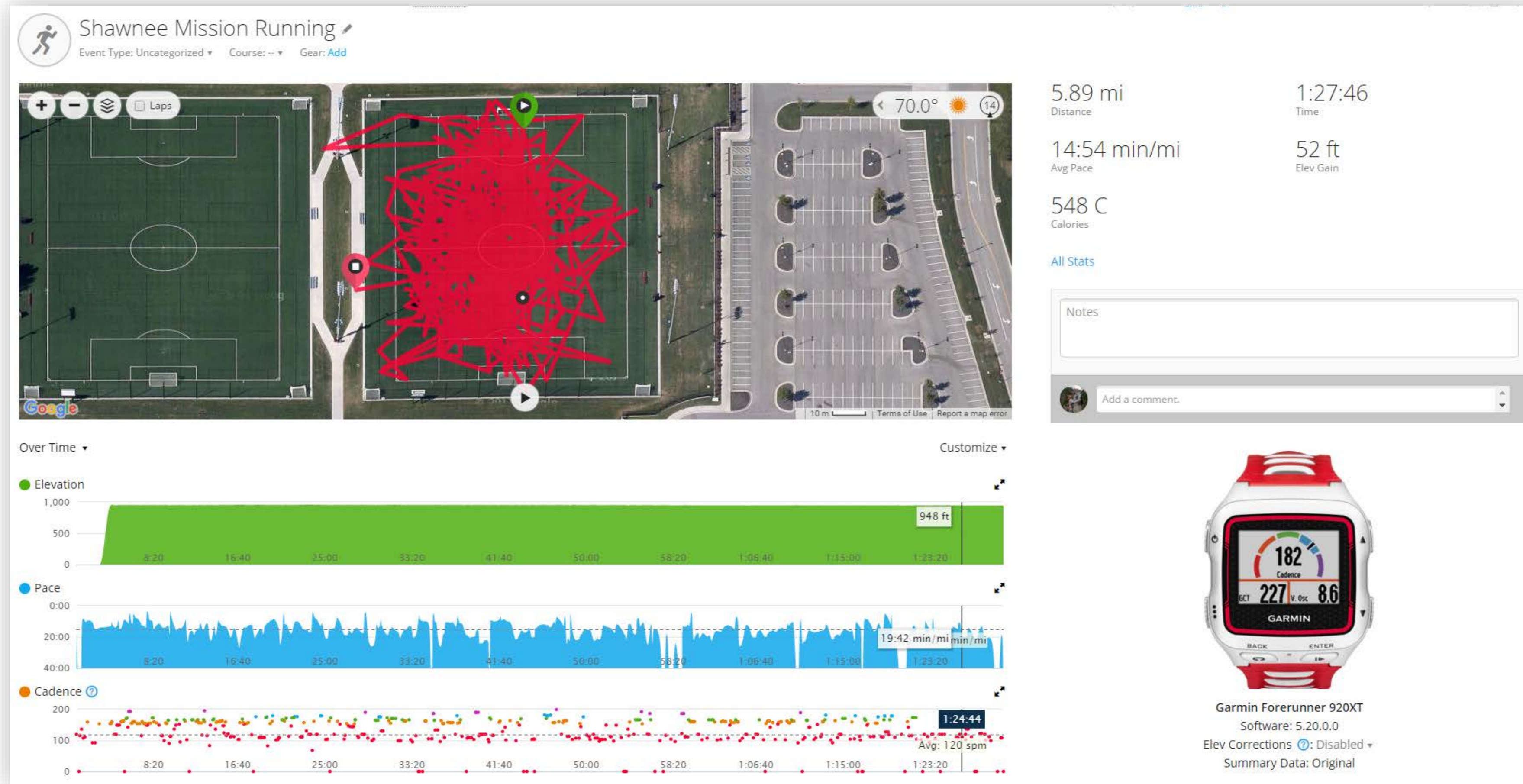
Source: Forrester's North American Consumer Technographics® Consumer Technology Survey, 2014, and Forrester's European Consumer Technographics Consumer Technology Survey, 2014

OPPORTUNITY?



So what is the opportunity for soccer? Why not just wear a current sports watch or activity tracker?

OPPORTUNITY?



A track log and data from a soccer match using a fitness watch

CHALLENGE



VS



Many activity trackers available today are tailored to similar movements like running, walking, swimming, and other similar activities. The fundamental action for most of these activities are linear. The predictability of movements play into the strengths of the technology.

In soccer however, a player's movements is anything but predictable. Sudden and quick changes of pace and direction make tracking these intricate moves challenging.

CHALLENGE



In addition to understanding the differences in movement from one activity like running to that of soccer, it is also important to understand the overall environment to which a player is exposed. There are safety concerns when wearing a device on certain areas of the body like your wrist, head, or neck. There can be durability concerns that a device will become damaged or broken from high impact incidents. It is also worth considering where on the person is most appropriate in order to measure relevant metrics. These can be in areas at risk of damage to the device or person from actions like slide tackling, kicking, headers, physical play, shirt pulling, and more.

CURRENT SOLUTIONS – CONSUMER

There are a few systems on the market, mostly used and geared toward professional teams. The Adidas Smart Ball is one product that is intriguing and no doubt points to the opportunity that others are recognizing in this space right now. The Smart Ball has sensors embedded into the ball that allow the user to track metrics like shot power, spin, trajectory, and ball flight. These are the type of metrics that are interesting to a soccer player and is a good initial product looking at relevant solutions for the intended user.

There are however, some obvious limitations to the Smart Ball that keep it from being a widely accepted and used product. The ball connects to an app via your smartphone and is only intended to be used for training in situational scenarios such as a free kick, penalty kick, or corner kick. You have to initiate the activity for each kick, not a use case for an in-game situation or in the run of play. Given that the sensors are embedded and not removable makes the ball expensive to manufacture and that cost is handed over to the customer at a retail price of \$200. That high price point also keeps the ball to a very niche market who may be an early adopter or looking for any product that provides metrics.

I've used the Smart Ball on a few occasions and it is a very neat tech-fitness product but only begins to scratch the surface of the potential for tracking solutions in this space looking forward.



CURRENT SOLUTIONS – CONSUMER

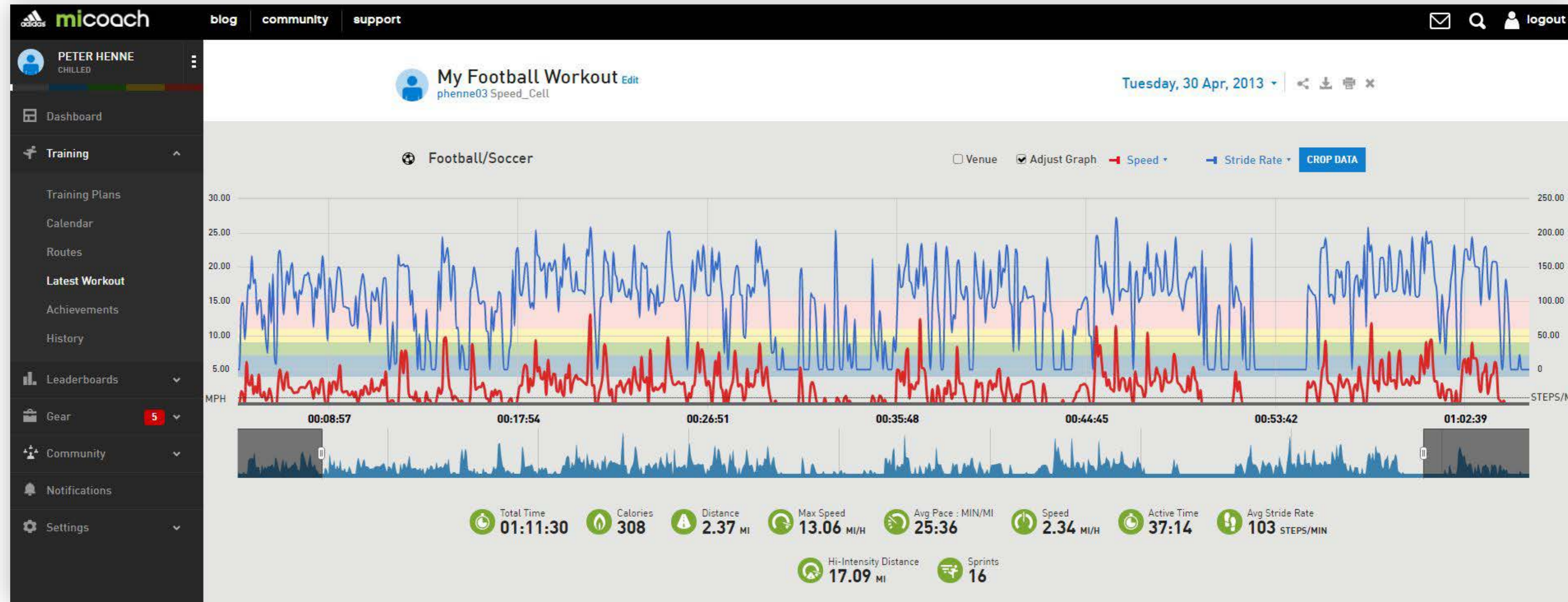
Another product that has been available for a few years now is also from Adidas called the Speed Cell. This product is very similar to footpods from companies like Nike or Garmin. The technology was first developed for the runner use case and was adapted to fit inside a soccer cleat. The Speed Cell is able to provide metrics like distance, number of sprints, and can also try to determine how many minutes of your activity was spent in different zones of intensity.

One limiting factor is that the pod either fits into designated cleats or straps onto the top of the laces with a clip. If you want the pod embedded into the sole of the shoe you are limited to which models are provided with the cavity most of which are at premium price points. Clipping onto your laces is also not ideal as there would be interference kicking the ball or injury concerns getting stepped on top of the foot with the footpod attached.

I have used this product for multiple years and provides some level of metrics that are more valuable than other activity trackers but also lacks the technology now and features like your relative positioning within the pitch that could really open the door for a more compelling product experience.



CURRENT SOLUTIONS – CONSUMER



Here is the desktop app from the Adidas Speed Cell. The metrics are not easily digestible and is hard to know where to begin looking at the data. The opportunity to develop and present the data in understandable and motivating methods will be important.

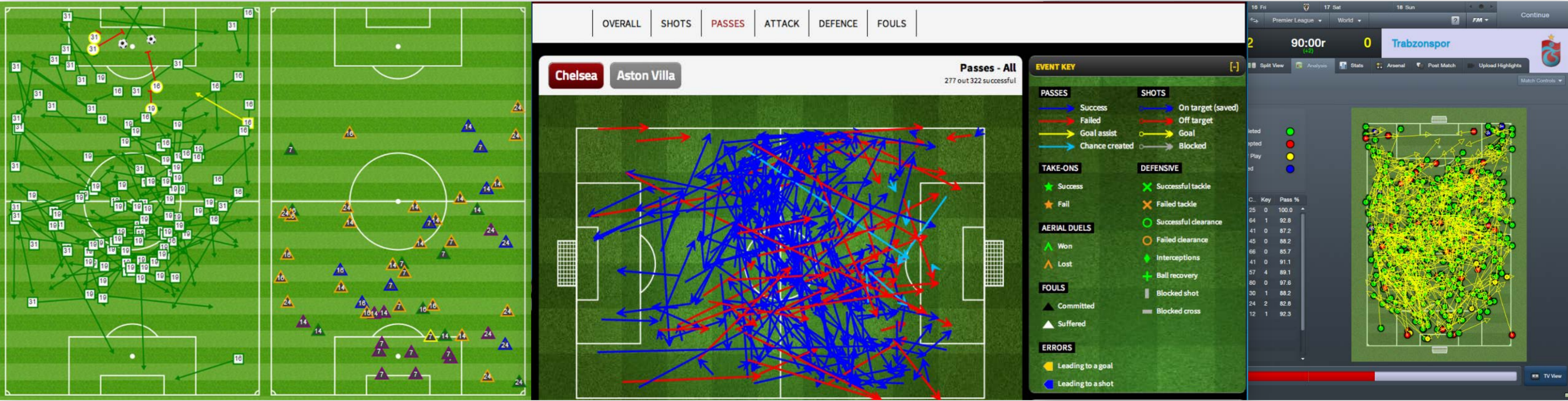
CURRENT SOLUTIONS – PROFESSIONAL



Professional

There are a few big players who provide teams of engineers and equipment to professional teams around the world to setup in stadiums or team facilities that track players during games and training sessions. Some of the products are safety driven, or focused on injury prevention. Other products are tailored to provide the viewing audience watch the broadcast of a game a better experience by being able to display performance statistics and graphics that would not be possible to the level of detail or accuracy without this technology.

CURRENT SOLUTIONS – PROFESSIONAL

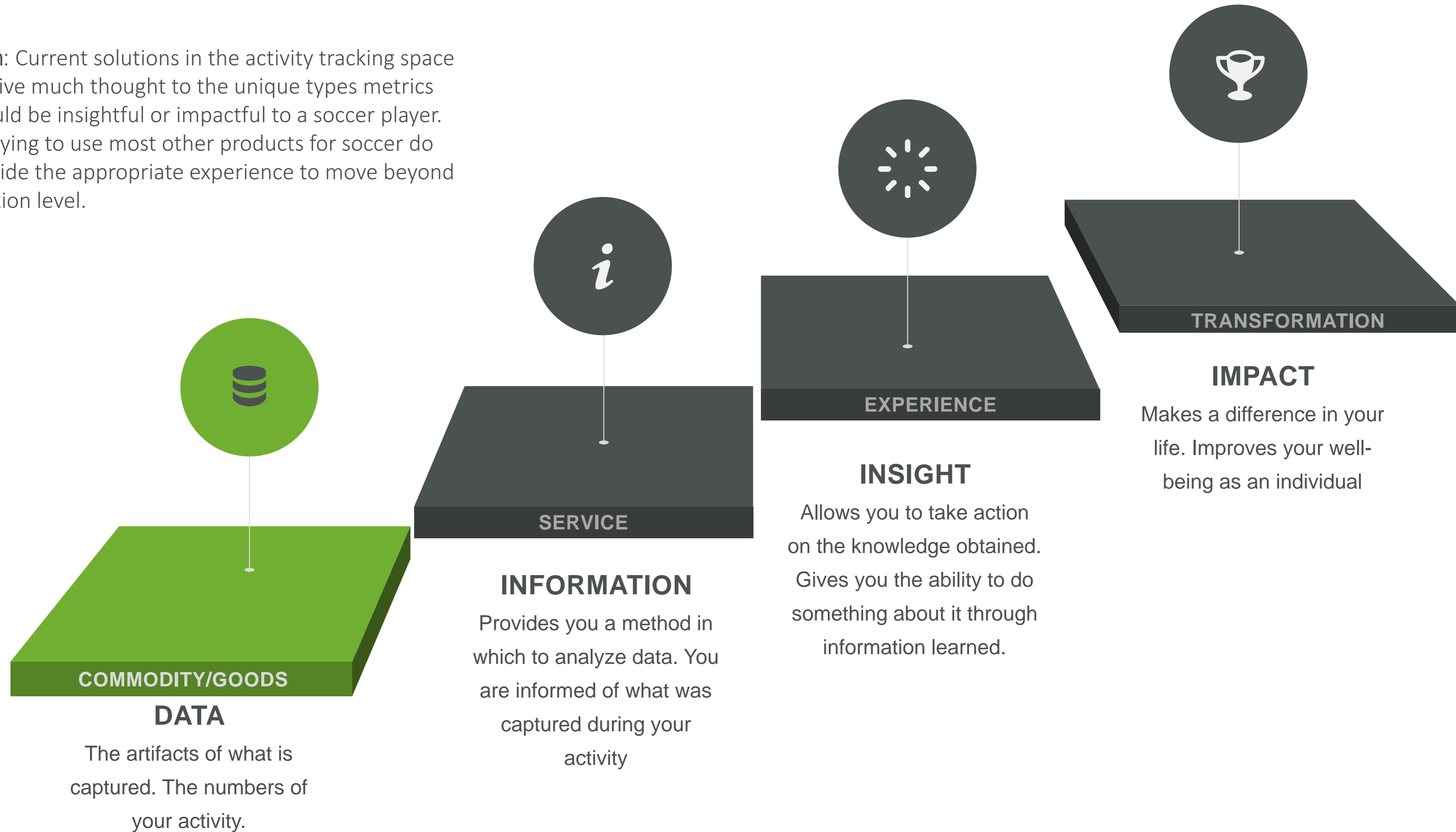


Professional

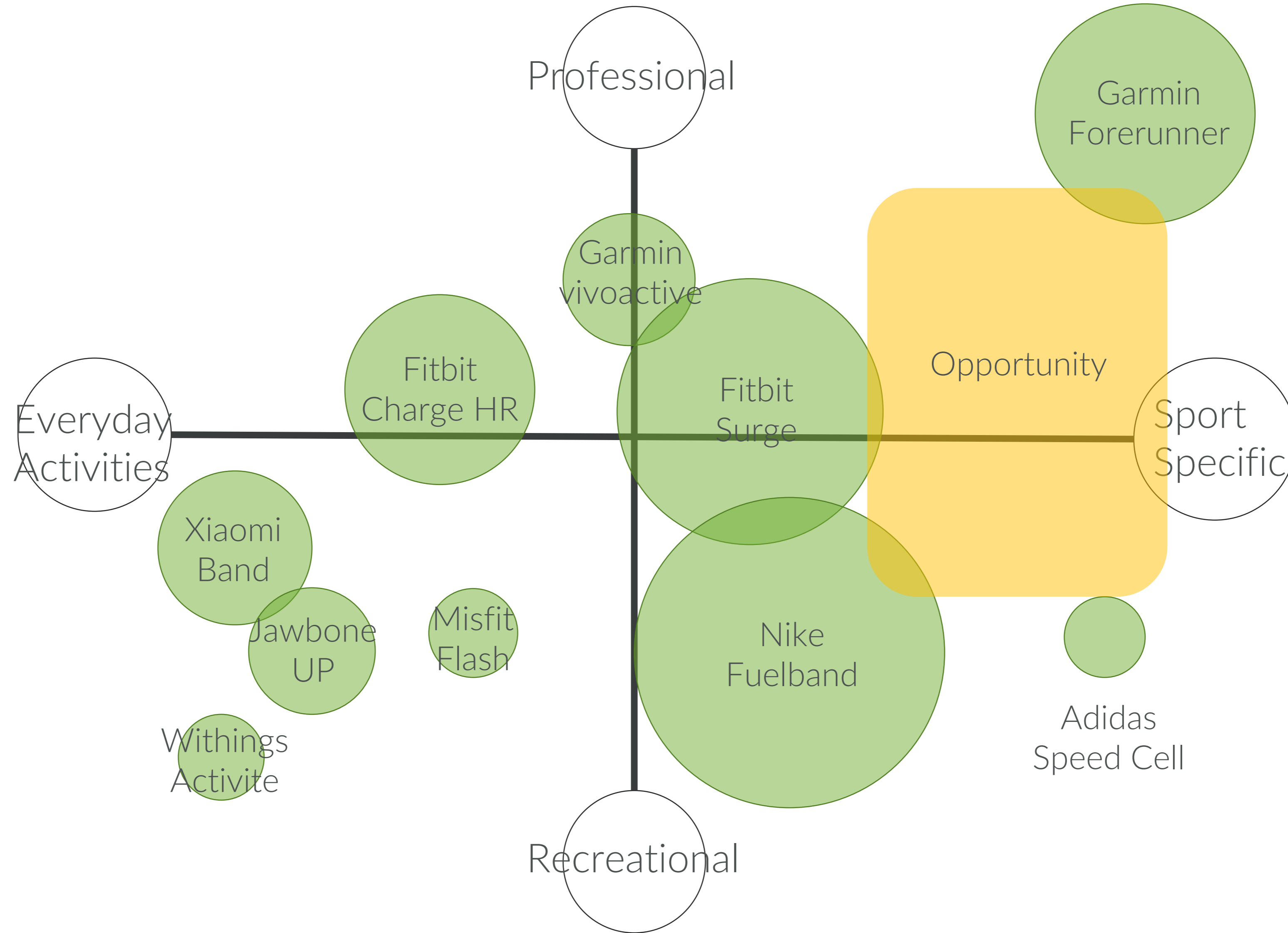
These systems capture a lot of data that needs to be analyzed by teams of engineers and organized into meaningful information that then gets passed on to the trainers, coaches, and managers of the team. These systems are built to capture a high level of detail and accuracy in order to break down every detail. This is a very analytical process and for their purposes not suited to be a consumer driven system.

TRANSFORMATIVE

Problem: Current solutions in the activity tracking space do not give much thought to the unique types metrics that would be insightful or impactful to a soccer player. Today, trying to use most other products for soccer do not provide the appropriate experience to move beyond information level.



ACTIVITY TRACKER LANDSCAPE



SECTIONS



Understanding

Researching and learning about the related industries and markets that pertain to my topic



Discovery

User research and analysis to discover what important factors and needs soccer athletes have and find valuable in a solution



Design

Work to develop solutions that my target audience finds compelling



Future

Briefly touching on possibilities that exists within this market that lies beyond the immediate scope of my project

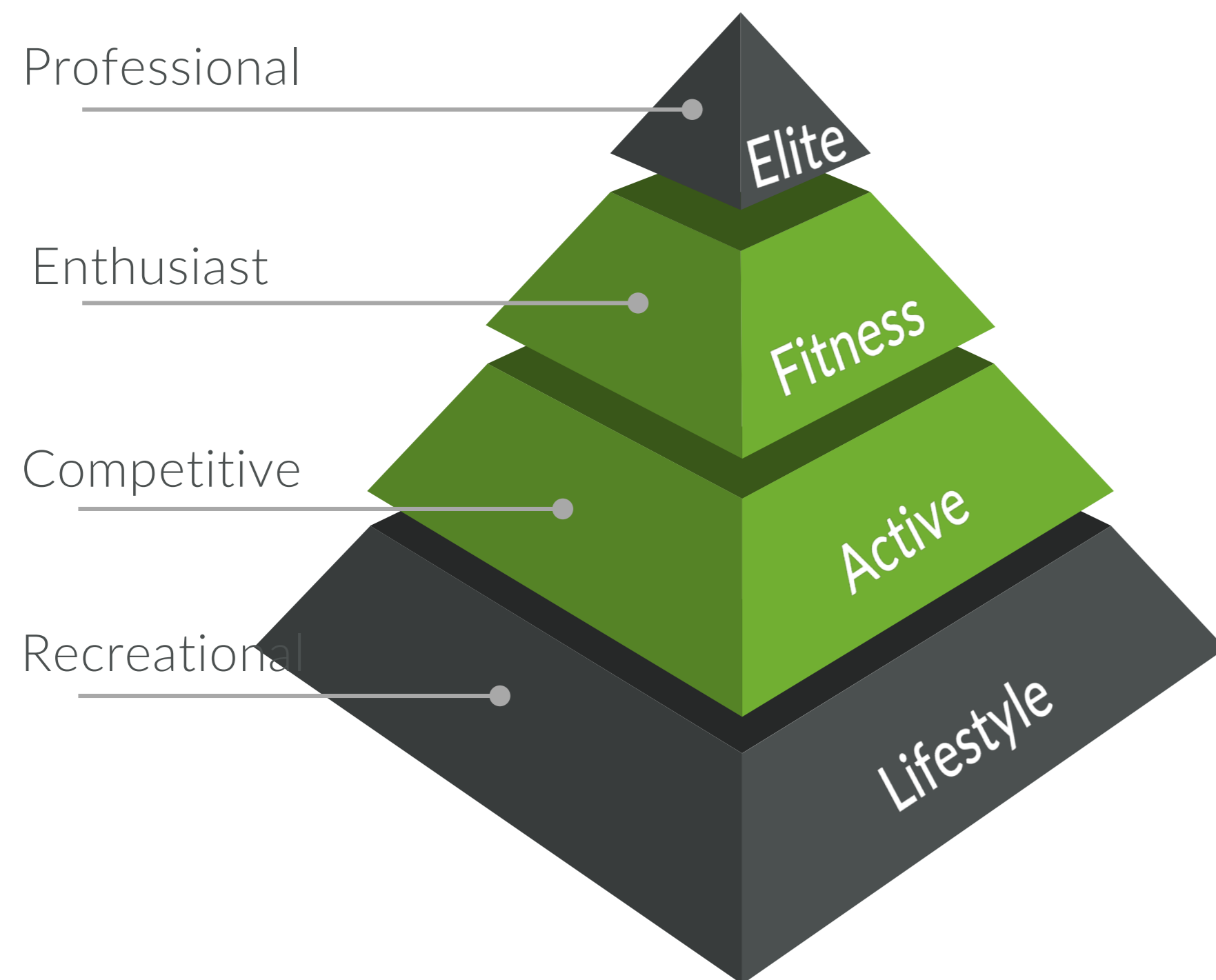


Conclusions

Thought on where this market can go and what parts of my work on this topic has the most potential to continue developing on

TARGET USER

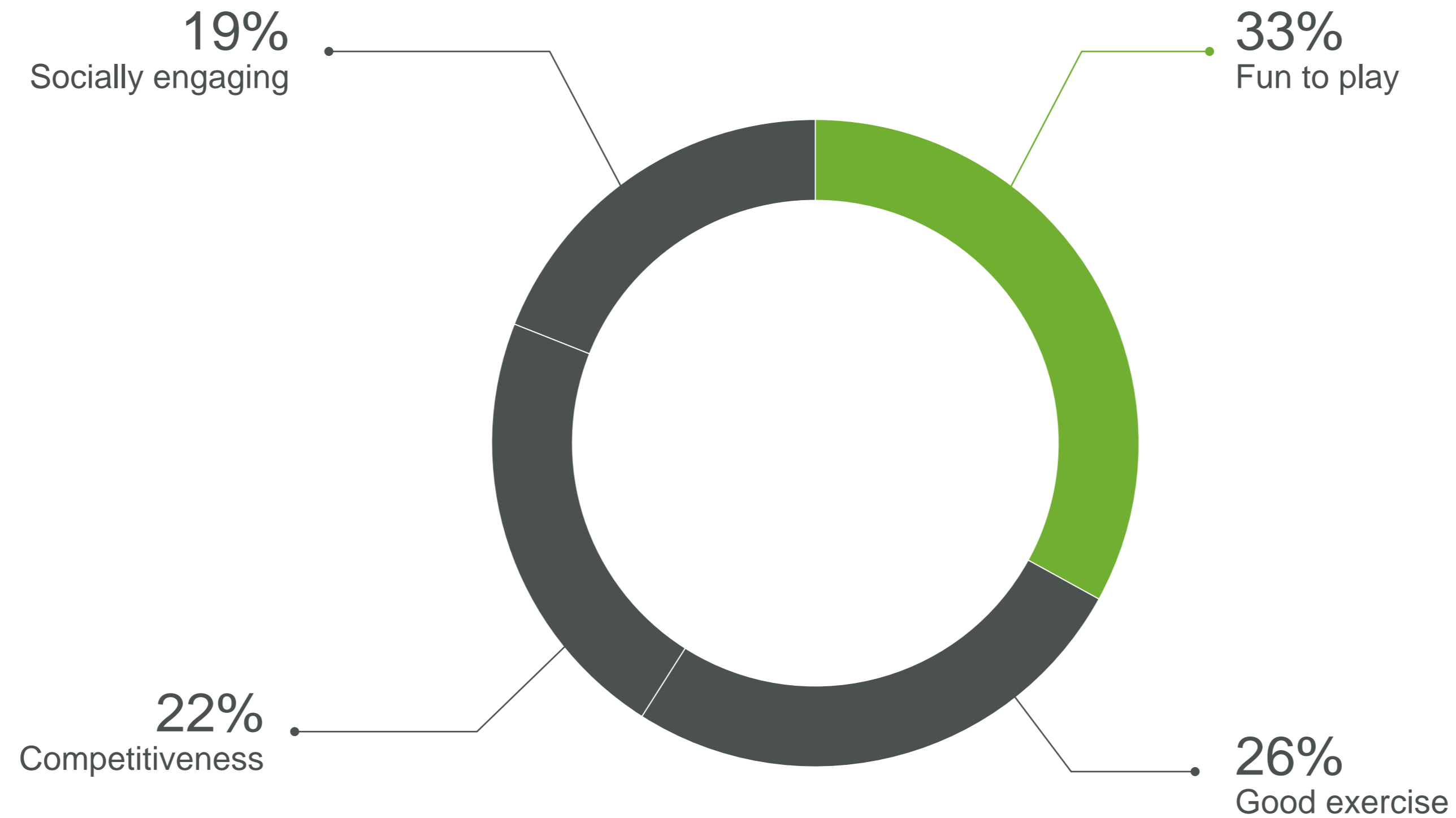
- Active and fitness lifestyle. They are a fan of the sport and play consistently.
- Soccer enthusiast who plays competitive but not professionally. They may play on organized clubs and in different leagues locally.
- These users play soccer for their exercise and they want quantifiable credit for all the hard work they put in.



THE BEAUTIFUL GAME



WHY DO YOU PLAY?



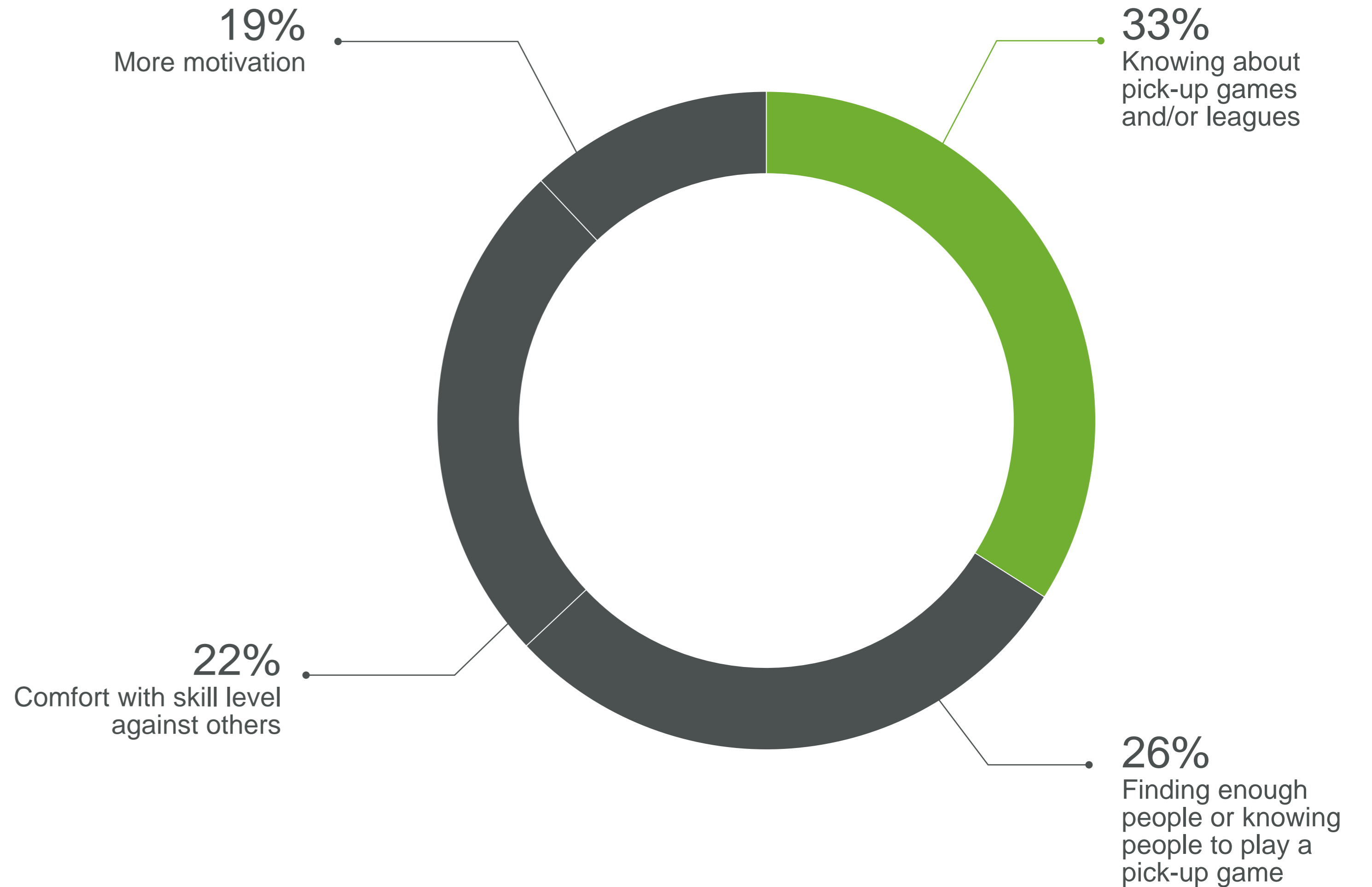
Of the participants asked 'why do you play soccer?' The top four answers and their frequency is depicted on the chart here. It was interesting to see that the social aspects of soccer were so high on people's list while the fun entertainment and exercise benefits as the top two reasons were somewhat expected.

BARRIERS TO PLAYING MORE

After learning and discussing why they play soccer, they were surveyed on what barriers stood in their way from playing more than they do now. The top four answers are depicted here.

The top two problems mentioned by respondents are related and deal with not knowing where or when a game is taking place or finding the players necessary to organize a pickup game or practice.

It was also interesting hearing people talk about issues with trying to play with those they may not know for the unknown of their skill level compared to theirs. People tend to want to play against competition that is similar if they are looking for an enjoyable and fun game of soccer. If the competition is either too high or low that can detract from the enjoyment. Others mentioned they are always looking for better players so they can improved themselves which speaks to competitiveness being one of the top reasons people play the sport to begin with.



METRICS AND THEIR VALUE

Individual metrics

- **Heatmap**
- **Fitness 'talent' profile**
- Intensity (active) time
- **Tagging special moves**
- **Total distance**
- Total time
- Avg HR
- **# of sprints**
- **# of passes**
- **Max speed**
- Goals
- Assists
- # of shots
- **Possession time**
- Shot power
- Shot accuracy

Team metrics

- **Teammate chemistry**
- **Passes to/from**
- Positioning relative to others
- Possession time
- **Pass accuracy**
- Shot accuracy
- # of shots
- # of runs



Social Engagement

The social aspect was the top rated reason these metrics would be of value to the user. Social connection with teammates, opponents, soccer community was of big interest.



Performance Improvement

The second rated value to the metrics was to help the person see where their strengths and weaknesses were to know what to work on.



Motivation

Also of importance to this user was the motivational aspect to reviewing their workout and having Quantified information to inspire them to play again and do better.

USING TYPICAL ACTIVITY TRACKER

Responses from individuals who try and use a current activity tracker so they can log their activity in soccer and what their thoughts on it were...

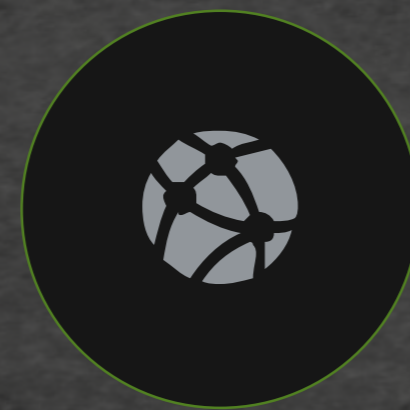
...**annoying on wrist**, too dangerous, I feel like I'm going to hit someone in the face with my watch, **refs always ask me to take it off and then I don't get anything tracked**, works fine but I really only get HR and distance out of it, too big, **afraid to scratch** or ding my watch face, **metrics are not all that relevant**, track log isn't helpful or useful, not enough information, it's OK, not very purpose built for this use case, do not want to break my device!...

SECTIONS



Understanding

Researching and learning about the related industries and markets that pertain to my topic



Discovery

User research and analysis to discover what important factors and needs soccer athletes have and find valuable in a solution



Design

Work to develop solutions that my target audience finds compelling



Future

Briefly touching on possibilities that exists within this market that lies beyond the immediate scope of my project



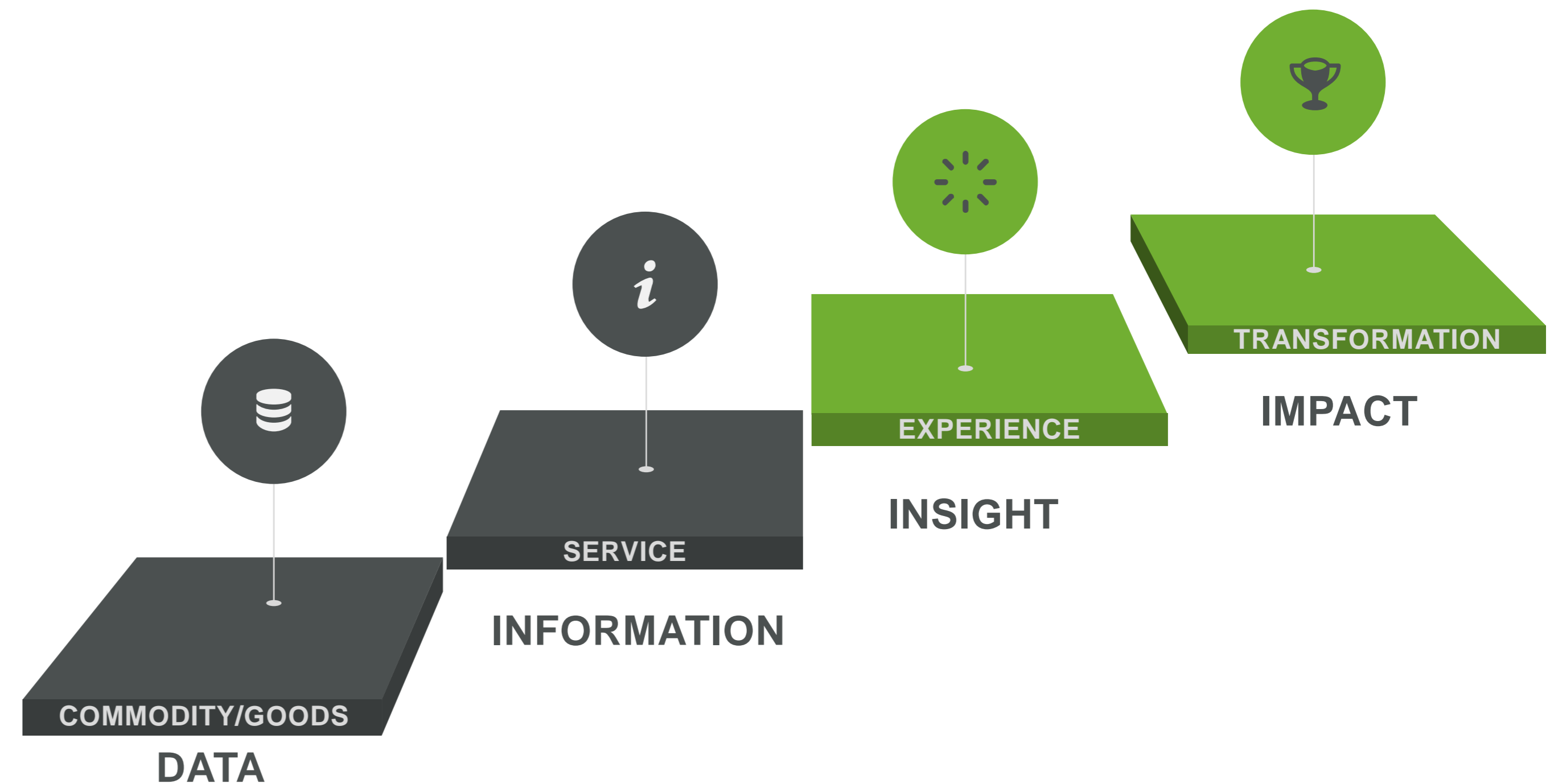
Conclusions

Thought on where this market can go and what parts of my work on this topic has the most potential to continue developing on

PRODUCT PARAMETERS

Product needs to be impactful to the player

- Hardware solution that addresses the unique movements in soccer.
- Hardware solution that addresses the safety aspects of yourself and others while on the soccer pitch.
- Hardware solution that addresses the appropriate locations on the user in order to track relevant metrics.
- UI app features that speak to the reasons people play soccer.
 - Fun, good exercise, competitiveness, socially engaging
- UI app features that help to address the barriers that exist to get the user to play with more frequency.
- UI app features that inspire and motivate the user to play more.
- UI app features that engage the user with teammates, opponents, and their soccer community.



LINK SOCCER SYSTEM



SYSTEM PARTS

Pylon transmitter

The pylon transmitter's purpose is to set the perimeter of the field using RF and GPS technology. The pylons speak with the personal and ball pods to track the relative positioning and location within the defined area.

Personal pod

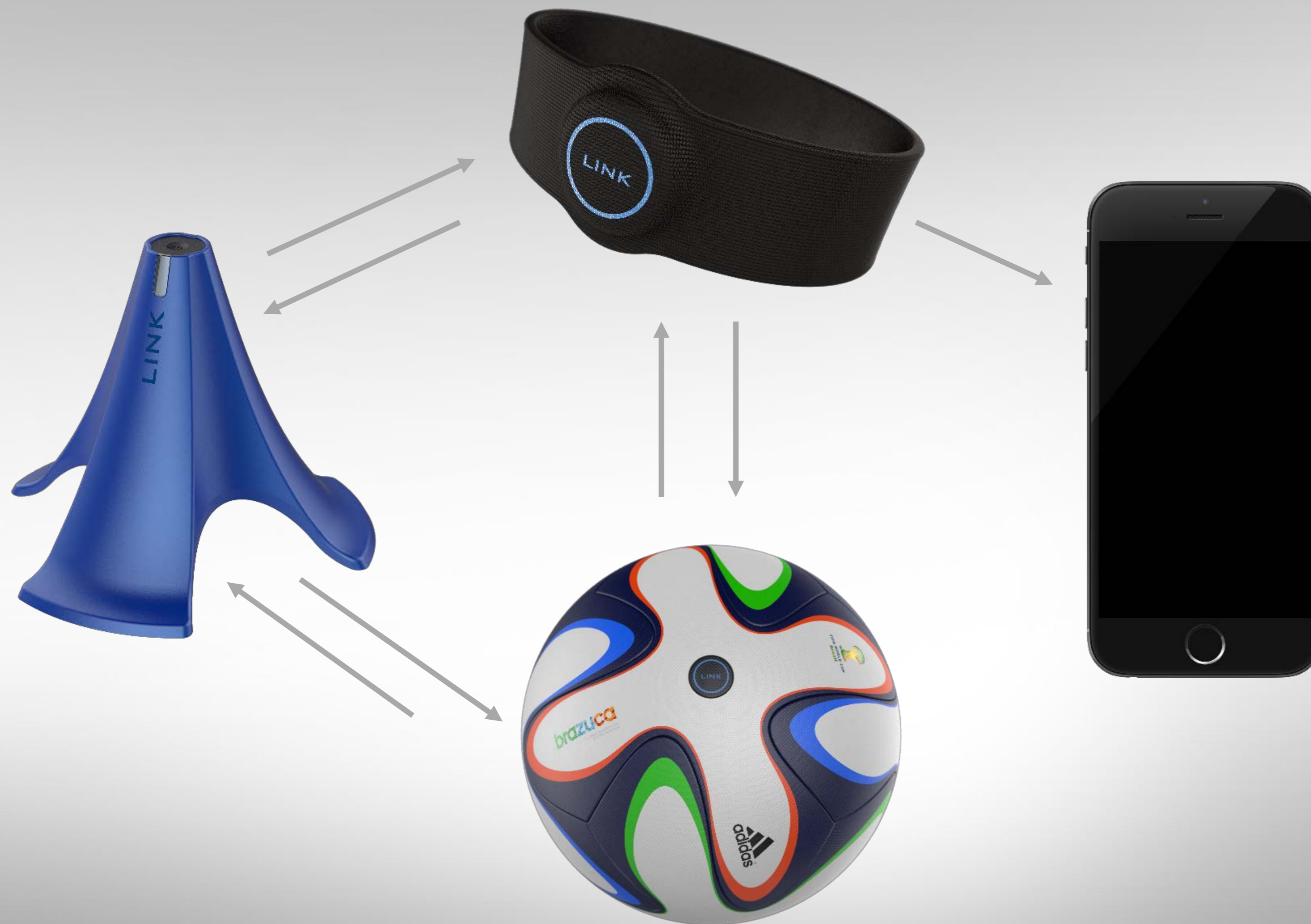
The personal pod is worn on the player around the midfoot via a durable strap. The pod contains electrical components and is removable from the strap. The personal pod tracks the position of the individual relative to the pylons and the ball.

Ball pod

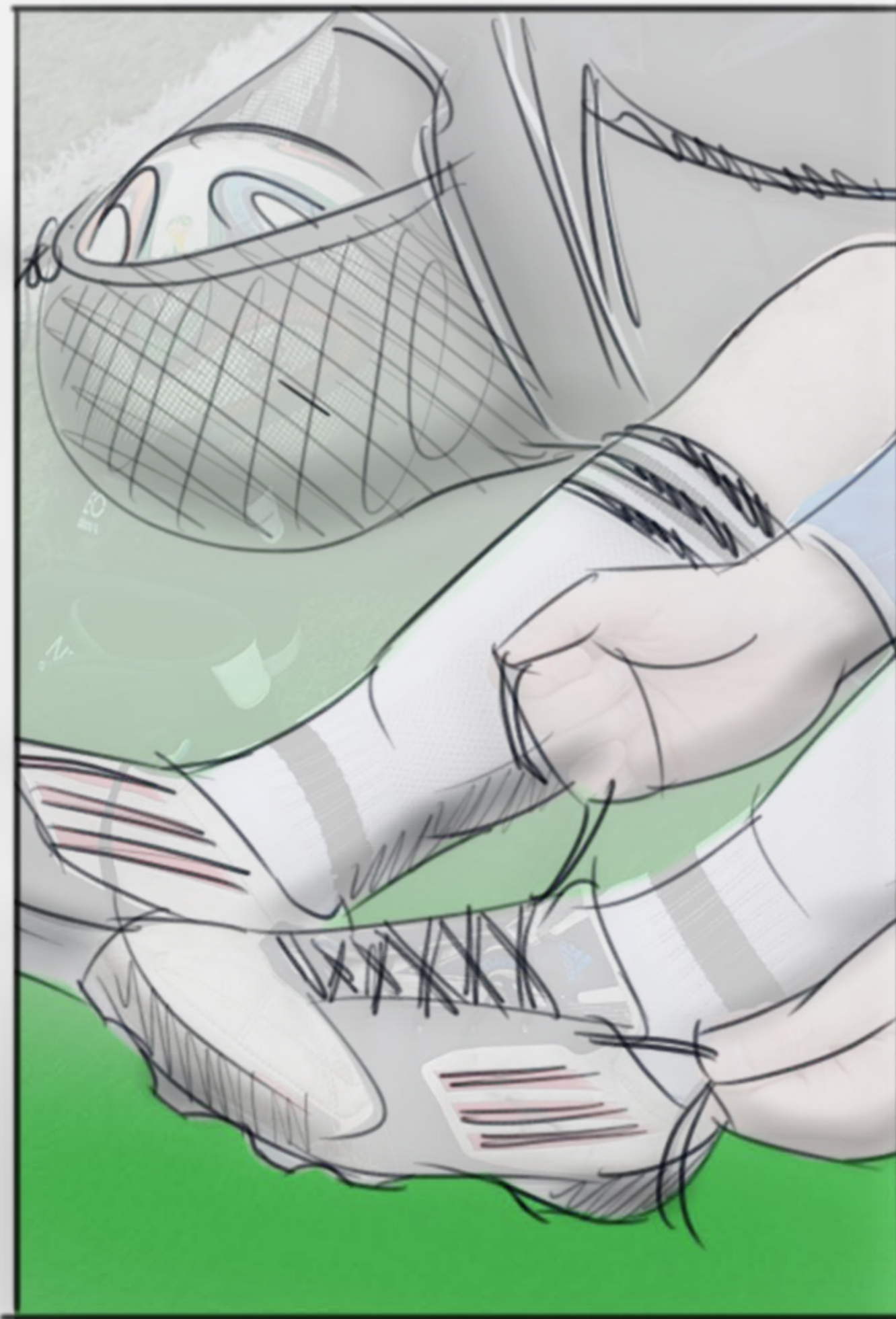
The ball pod's function is similar to that of the personal pod only it's job is to track the ball relative to the pylons and players within the active field area.

App

The personal pod will control syncing all the data to the mobile phone and to the app to review your activity.



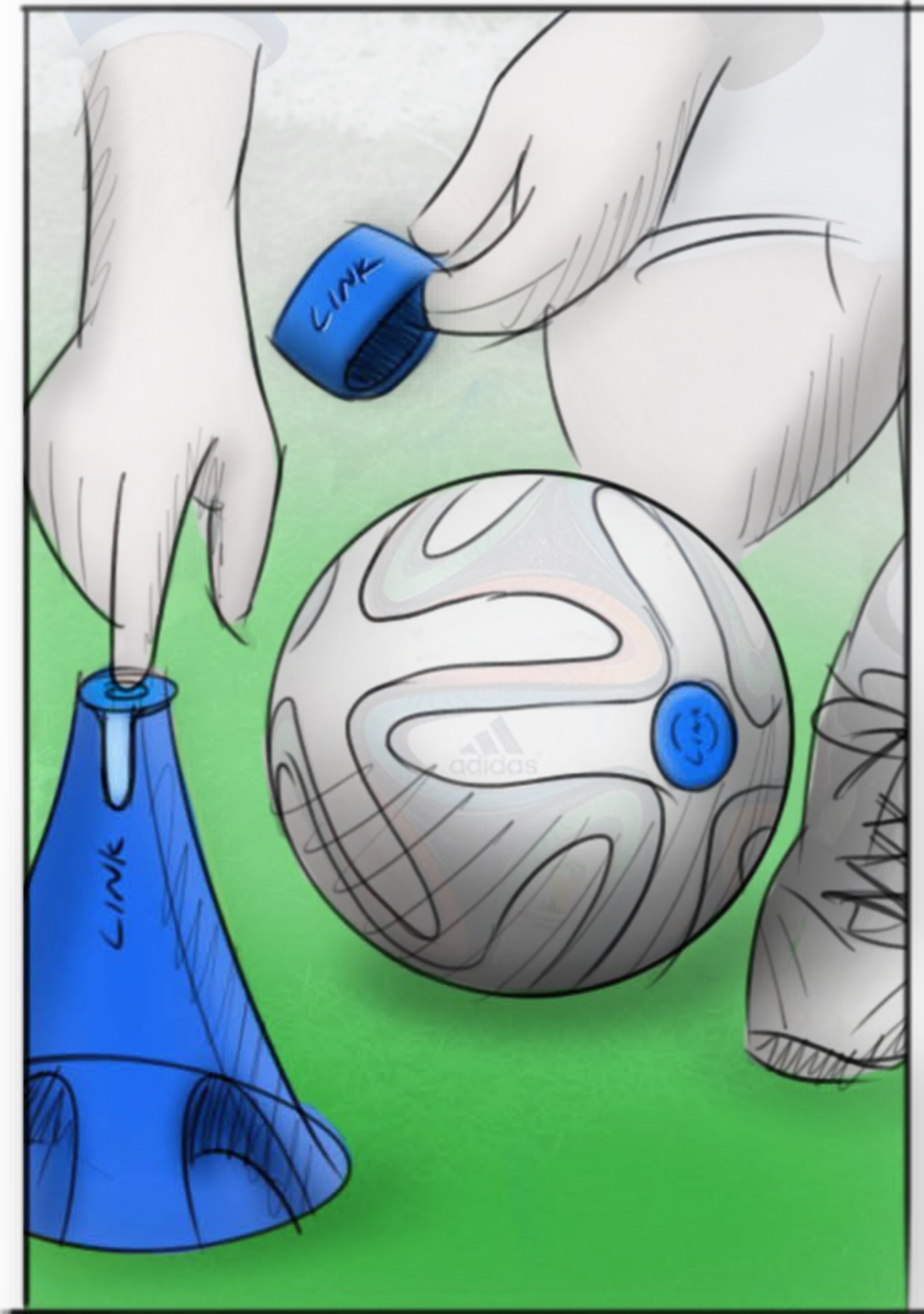
STORYBOARD



Arrive at field and gear up



Place pylon transmitters in each corner of your playing area



Pair the personal pod and ball pod with the pylon transmitter

STORYBOARD



Place personal pod around the mid section of your cleat with the pod positioned on the bottom

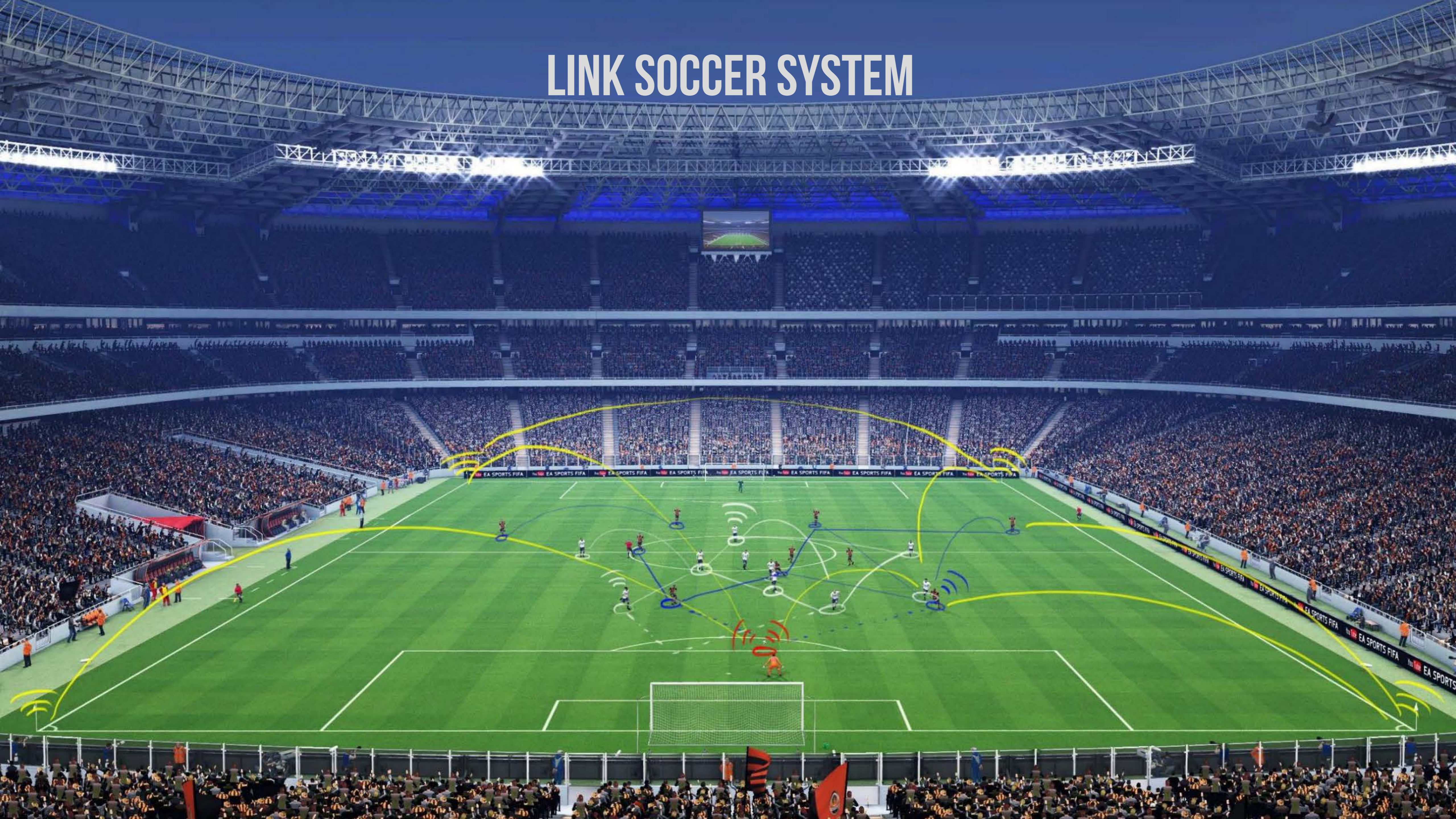


System is paired and ready for action



Brag and share with your teammates after the game via the mobile app

LINK SOCCER SYSTEM



PYLON TRANSMITTER

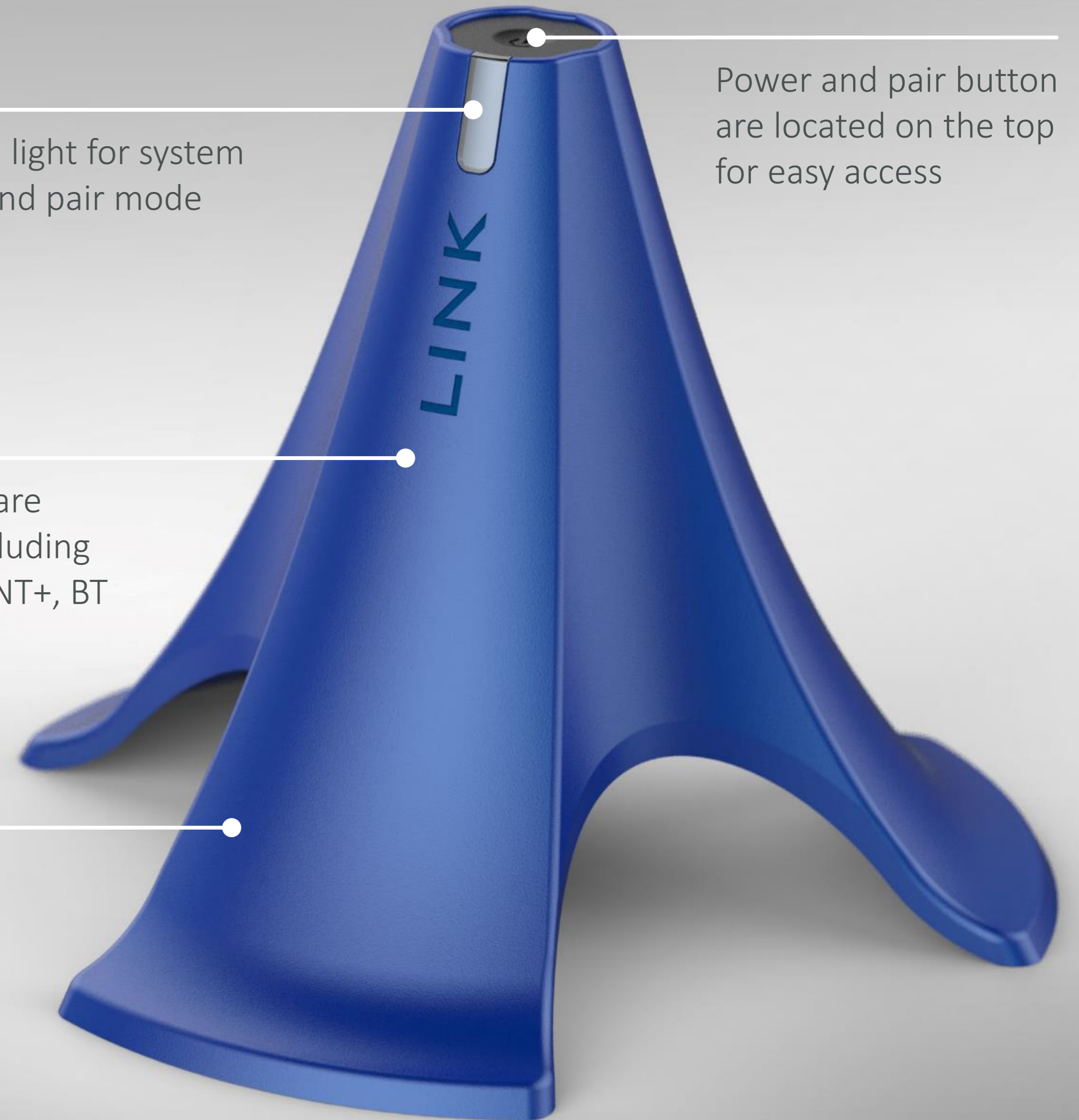
The pylon transmitter is placed on the 4 corners of your playing area essentially creating a virtual perimeter of your field. This allows the pylon to locate and track individual personal pods within that boundary area.

Indicator beacon light for system status – power and pair mode

Power and pair button are located on the top for easy access

Component stackup are housed internally including battery, GPS, RfID, ANT+, BT

Pylon base is constructed of durable high quality glass-filled nylon plastic



PERSONAL POD

Pod fits into sleeve pocket

Opening for pod on the inside of the band



Durable ballistic nylon outer sleeve for strength



BALL POD

Ball pod sits flush with the outer ball surface when mounted

Ball pod is overmolded to match the material of the ball

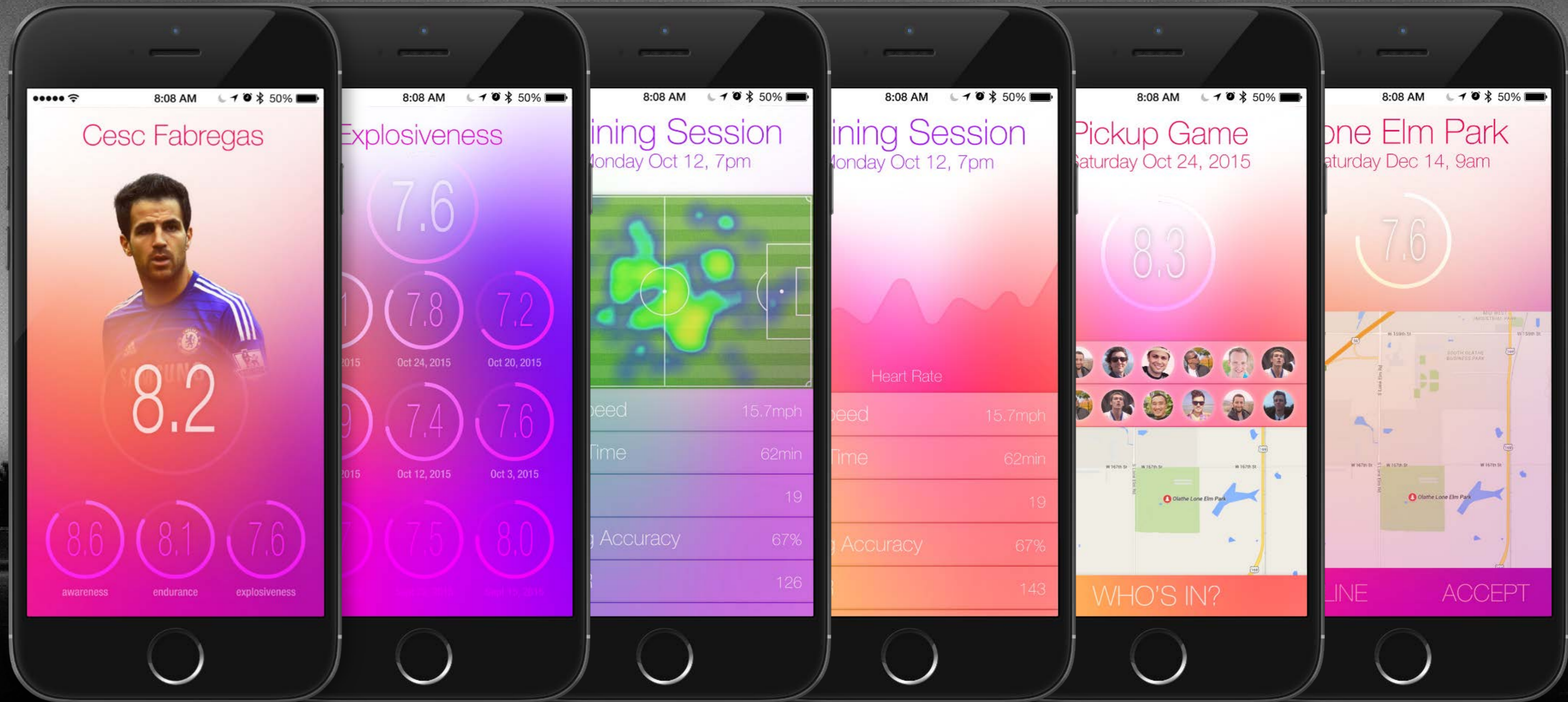
Cavity in the outer panel layers of the ball construction house the ball pod



LINK SOCCER SYSTEM



LINK MOBILE APP

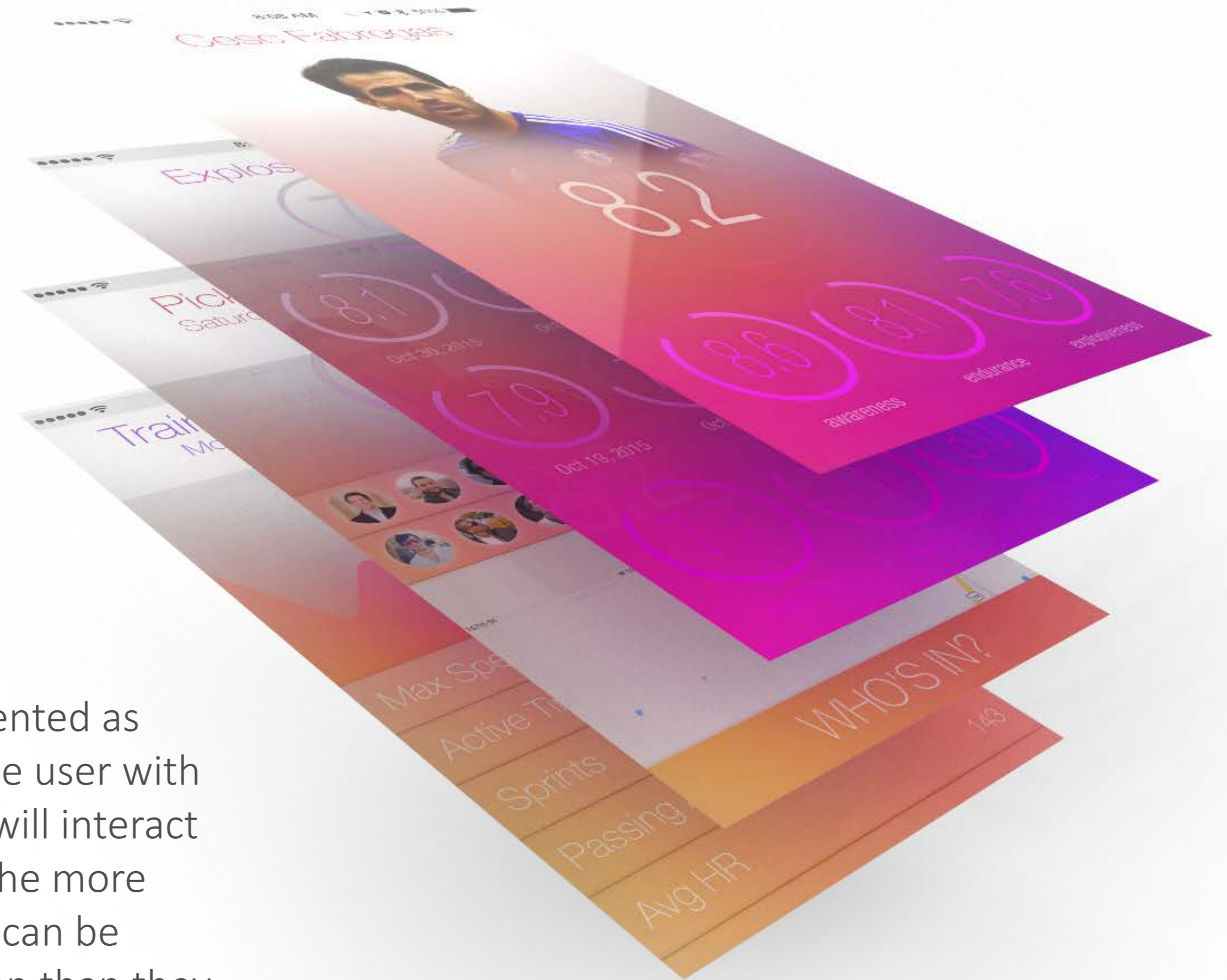


UI METHODOLOGY

High level view of synthesized data that is easily understood at a quick glance

Detailed analytical view of specific data of that particular activity

The approach to the UI was to think of the information needing to be presented as layers in which you would reveal the data gradually as to not overwhelm the user with everything all at once. The upper most layers, the layers in which the user will interact with the most are high level easily understandable synthesized 'scores' of the more detailed analytical data that lies in the sub layers underneath. These layers can be accessed when desired but does not burden the user with more information than they want to see at any given time.



UI METHODOLOGY

How to simplify the data presented without dumbing down product features?

Categories

Categories are created by synthesizing groups of related data metrics in order to produce one 'score' rating for each category. This will allow the user to get an overview of their performance for a range of related metrics without needing to be overwhelmed with all the data at once.



UI METHODOLOGY

Categories

- Total Talent
- Explosiveness
- Endurance
- Awareness

Individual metrics

- Heatmap
- Fitness 'talent' profile
- Intensity (active) time
- Tagging special moves
- Total distance
- Total time
- Avg HR
- Number of sprints
- Number of passes
- Max speed
- Goals
- Assists
- Number of shots
- Possession time
- Shot power
- Shot accuracy

Team metrics

- Teammate chemistry
- Passes to/from
- Positioning relative to others
- Possession time
- Pass accuracy
- Shot accuracy
- Number of shots
- Number of runs

UI METHODOLOGY

Categories

Total Talent

Explosiveness

Endurance

Awareness

Individual metrics

- **Heatmap**
- Fitness 'talent' profile
- **Intensity (active) time**
- Tagging special moves
- Total distance
- Total time
- **Avg HR**
- **Number of sprints**
- Number of passes
- **Max speed**
- **Goals**
- Assists
- **Number of shots**
- Possession time
- **Shot power**
- Shot accuracy

Team metrics

- Teammate chemistry
- Passes to/from
- Positioning relative to others
- Possession time
- Pass accuracy
- Shot accuracy
- **Number of shots**
- Number of runs

UI METHODOLOGY

Categories

Total Talent
Explosiveness
Endurance
Awareness

Individual metrics

- **Heatmap**
- Fitness 'talent' profile
- **Intensity (active) time**
- Tagging special moves
- **Total distance**
- **Total time**
- Avg HR
- **Number of sprints**
- **Number of passes**
- Max speed
- Goals
- Assists
- **Number of shots**
- **Possession time**
- Shot power
- Shot accuracy

Team metrics

- Teammate chemistry
- **Passes to/from**
- **Positioning relative to others**
- **Possession time**
- Pass accuracy
- Shot accuracy
- **Number of shots**
- **Number of runs**

UI METHODOLOGY

Categories

Total Talent
Explosiveness
Endurance
Awareness

Individual metrics

- **Heatmap**
- Fitness 'talent' profile
- Intensity (active) time
- Tagging special moves
- Total distance
- Total time
- Avg HR
- Number of sprints
- Number of passes
- Max speed
- Goals
- **Assists**
- Number of shots
- **Possession time**
- Shot power
- **Shot accuracy**

Team metrics

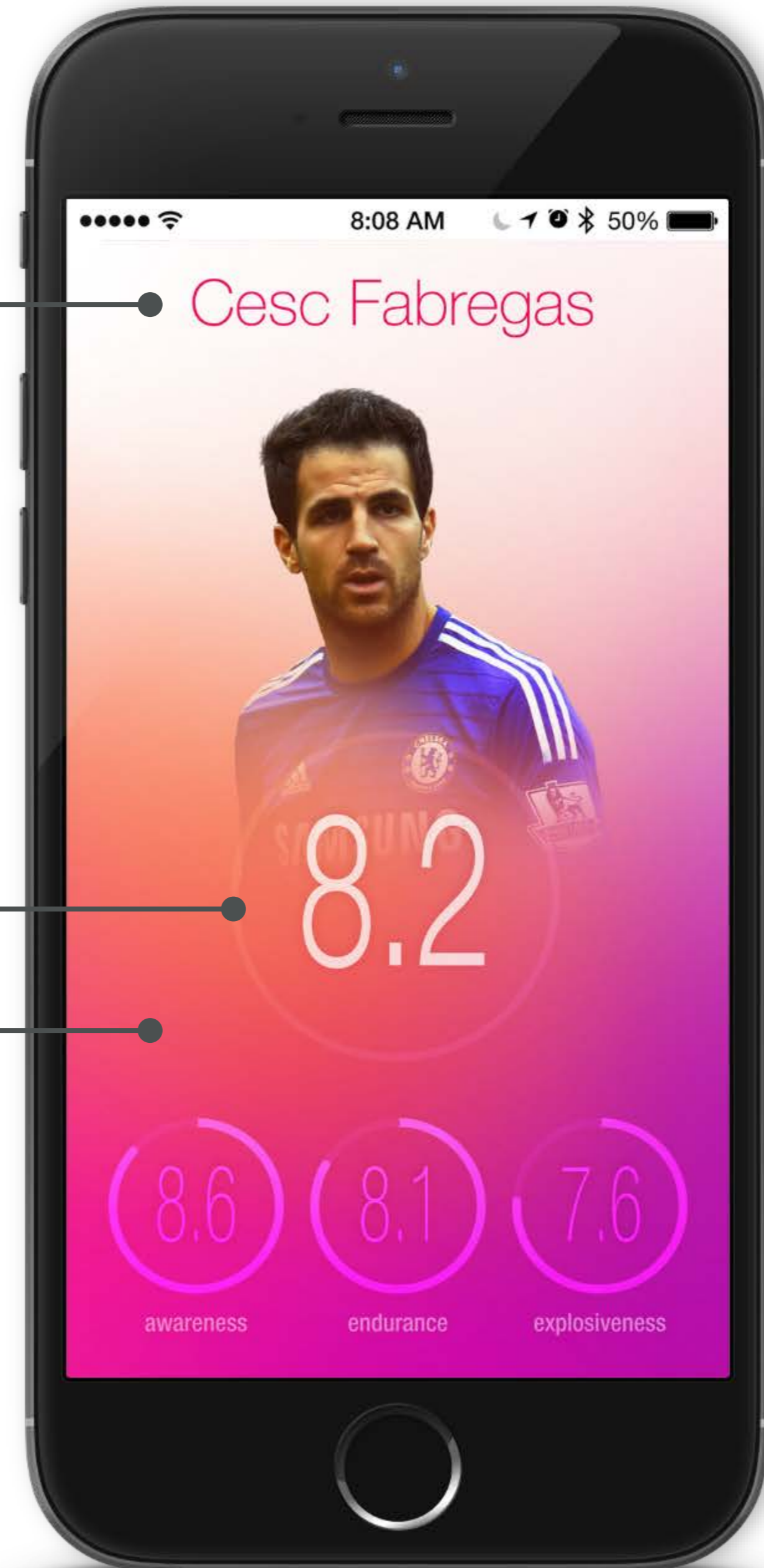
- **Teammate chemistry**
- **Passes to/from**
- **Positioning relative to others**
- Possession time
- **Pass accuracy**
- **Shot accuracy**
- Number of shots
- Number of runs

PROFILE PAGE

Profile page. You would see this page most of the time when you open the app or search for other

This is a players overall 'talent' score created from analyzing all the metrics and synthesizing a total score

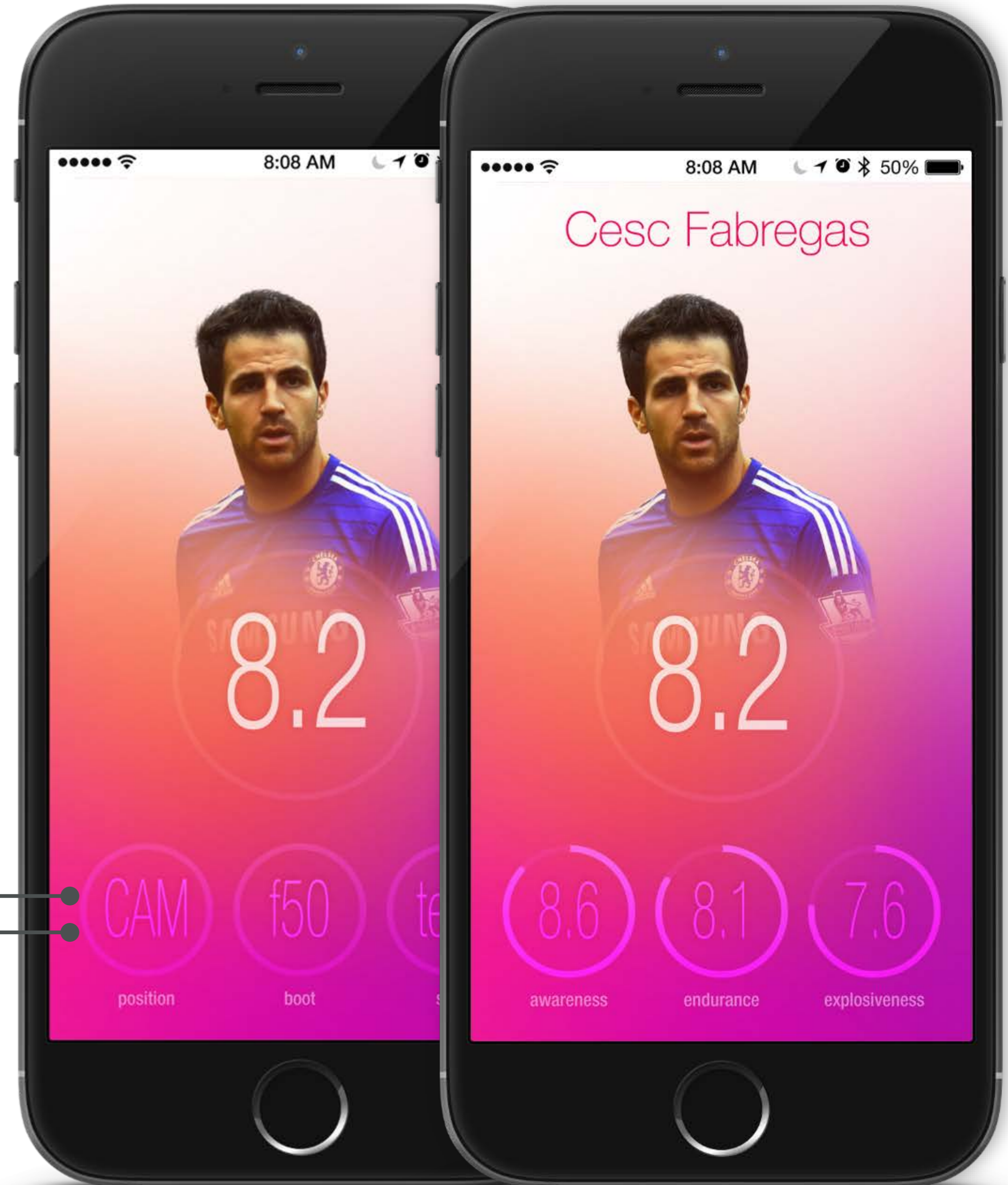
Background color reflects your 'talent' synthesized score. This is a dynamic background that shifts and changes as your score fluctuates.



PROFILE PAGE

The bottom section are your 'categories' that are total scores compiled using only specific metrics related to that category.

You can swipe left or right along the bottom section to cycle through the different categories and profile elements.



CATEGORY PAGE

Category page.

This is a players overall 'explosiveness' score compiled using only specific metrics related to this category.

You get a quick glance at your total explosive score for each recent activity. From here you can dive into a specific activity to see all the metrics for that time.

The background color changes as your overall scores fluctuates and represents your score on each page depending on the category you are viewing.



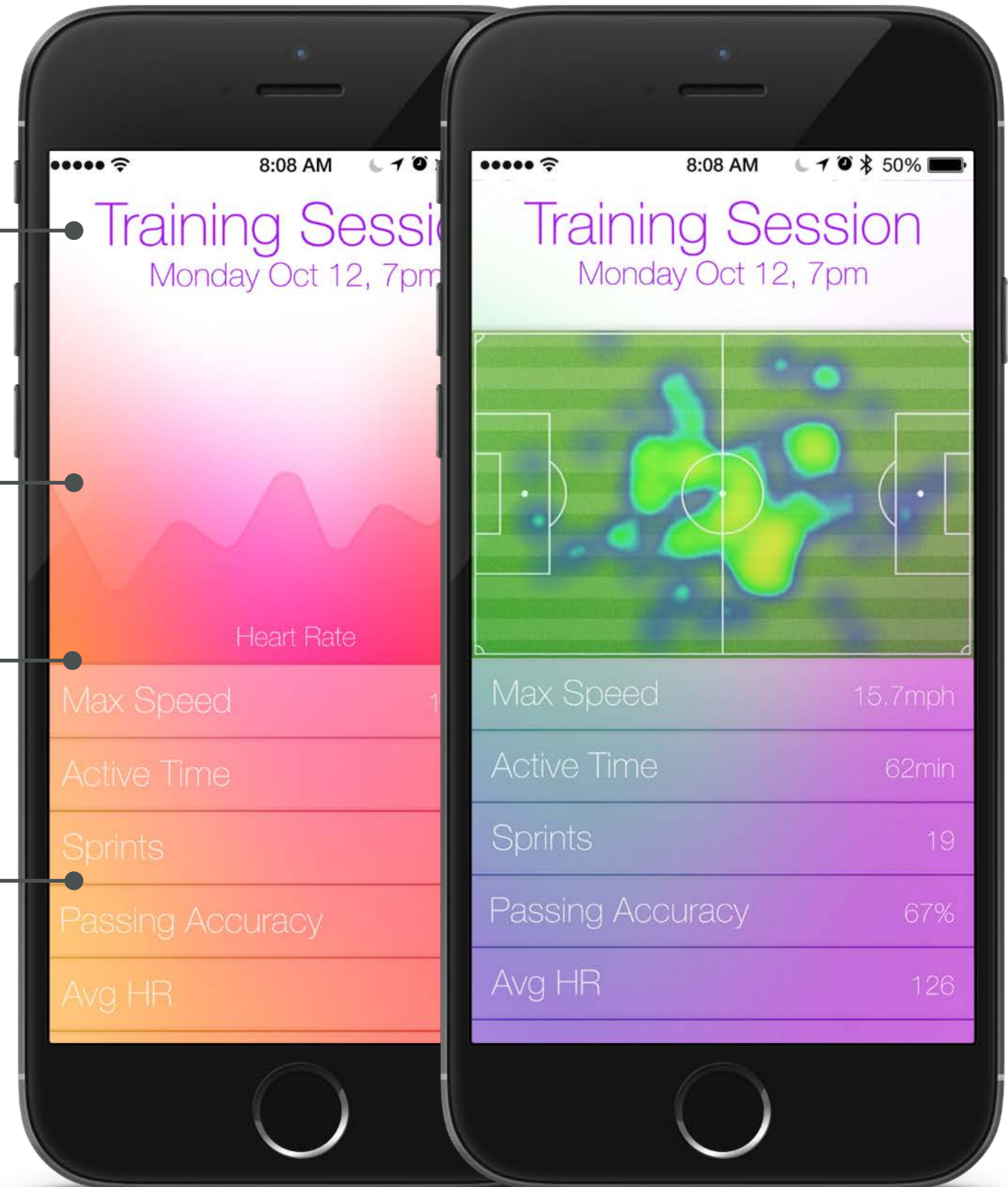
ACTIVITY PAGE

Activity page.

Detailed data for each metric captured.

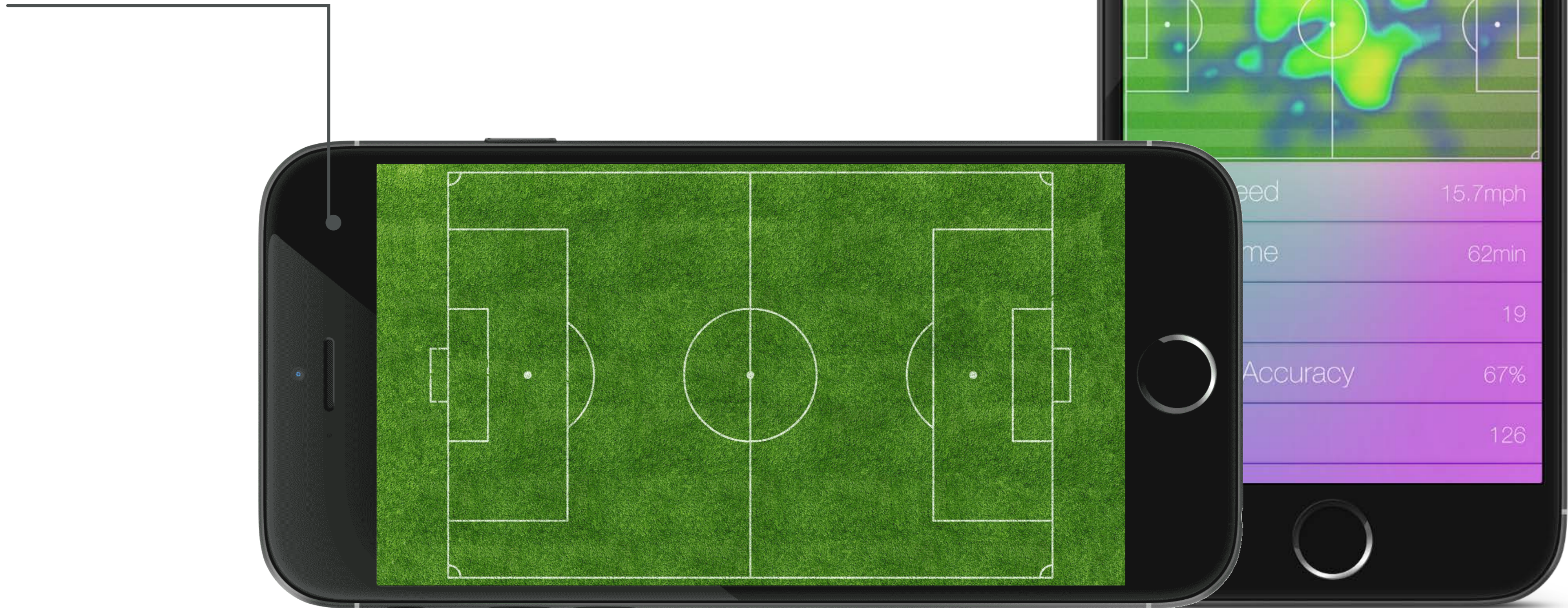
You can scroll and select any metric you desire to see the data in detail.

Once again, the background ombre adapts to the metric you are viewing at that particular time.



ACTIVITY PAGE

Some metrics may reveal useful information as an animation that a static graph could not provide. This heatmap could reveal valuable information such as when during the game you spent time in certain areas of the pitch.



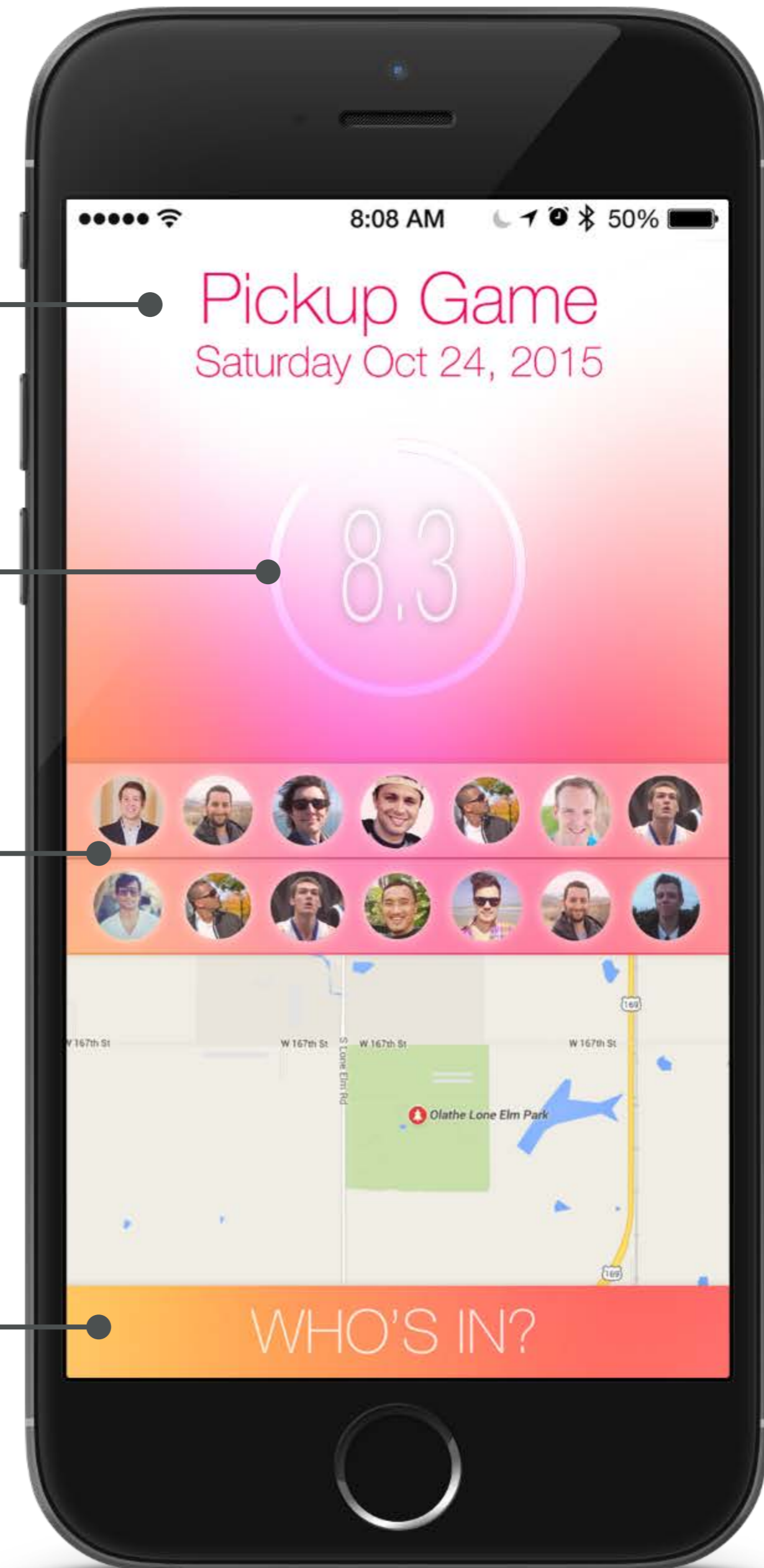
EVENT PAGE

Event creation page.

Average talent score of the players invited to the pickup game.

Players invited. You can select from your contacts list, or ask the app to find players in a select talent and proximity range.

Invite players.



NOTIFICATION PAGE

Notification page.

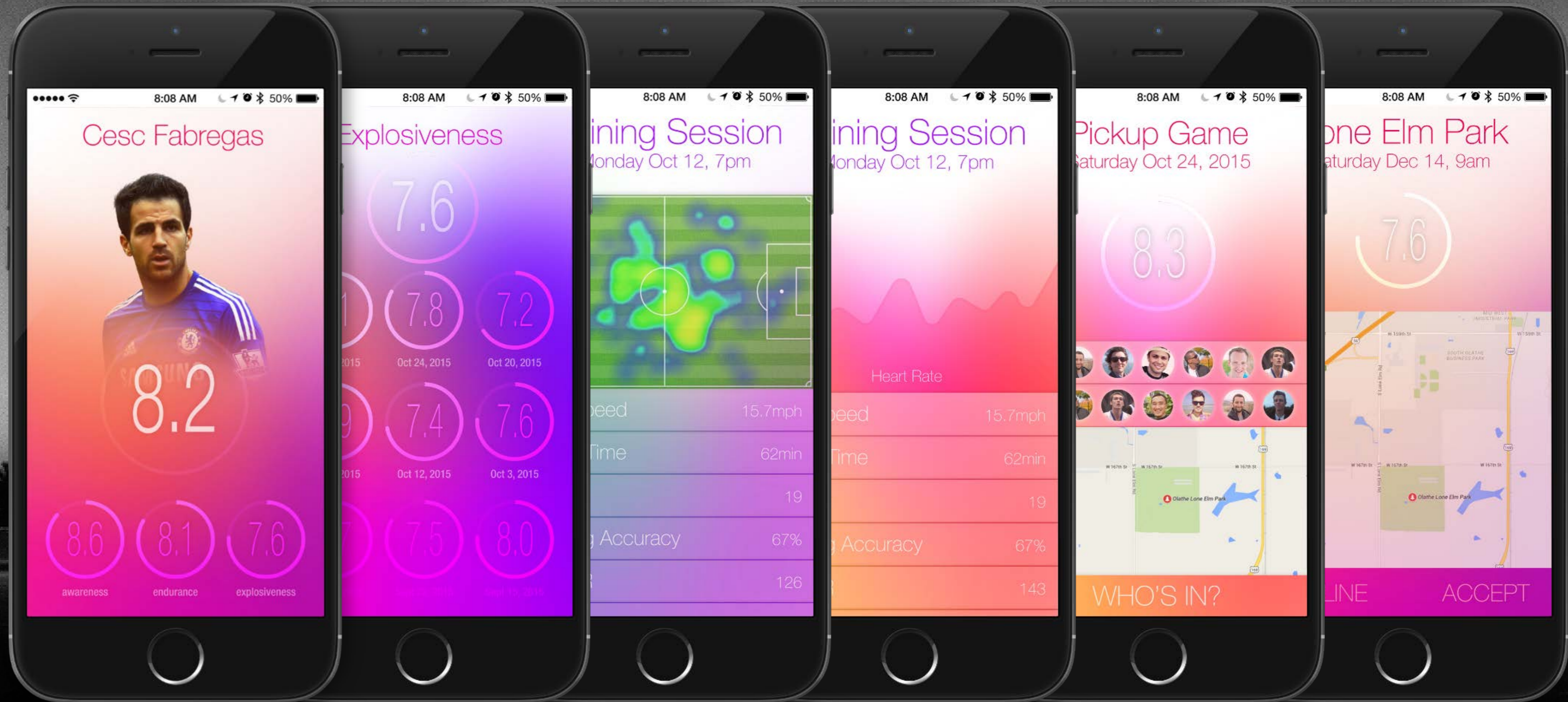
Total average talent score of those who have accepted the invite to the game.

Location information to the game.

Accept or decline.



LINK MOBILE APP

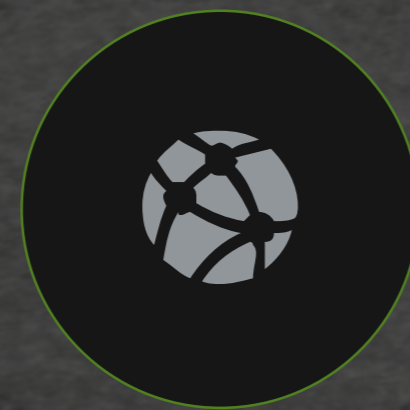


SECTIONS



Understanding

Researching and learning about the related industries and markets that pertain to my topic



Discovery

User research and analysis to discover what important factors and needs soccer athletes have and find valuable in a solution



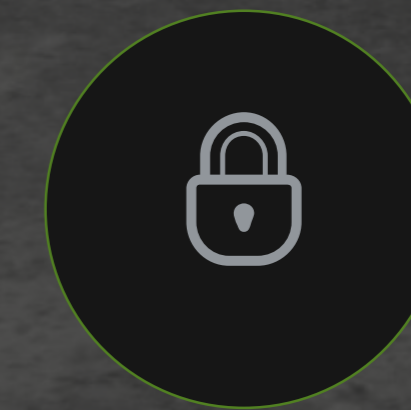
Design

Work to develop solutions that my target audience finds compelling



Future

Briefly touching on possibilities that exists within this market that lies beyond the immediate scope of my project



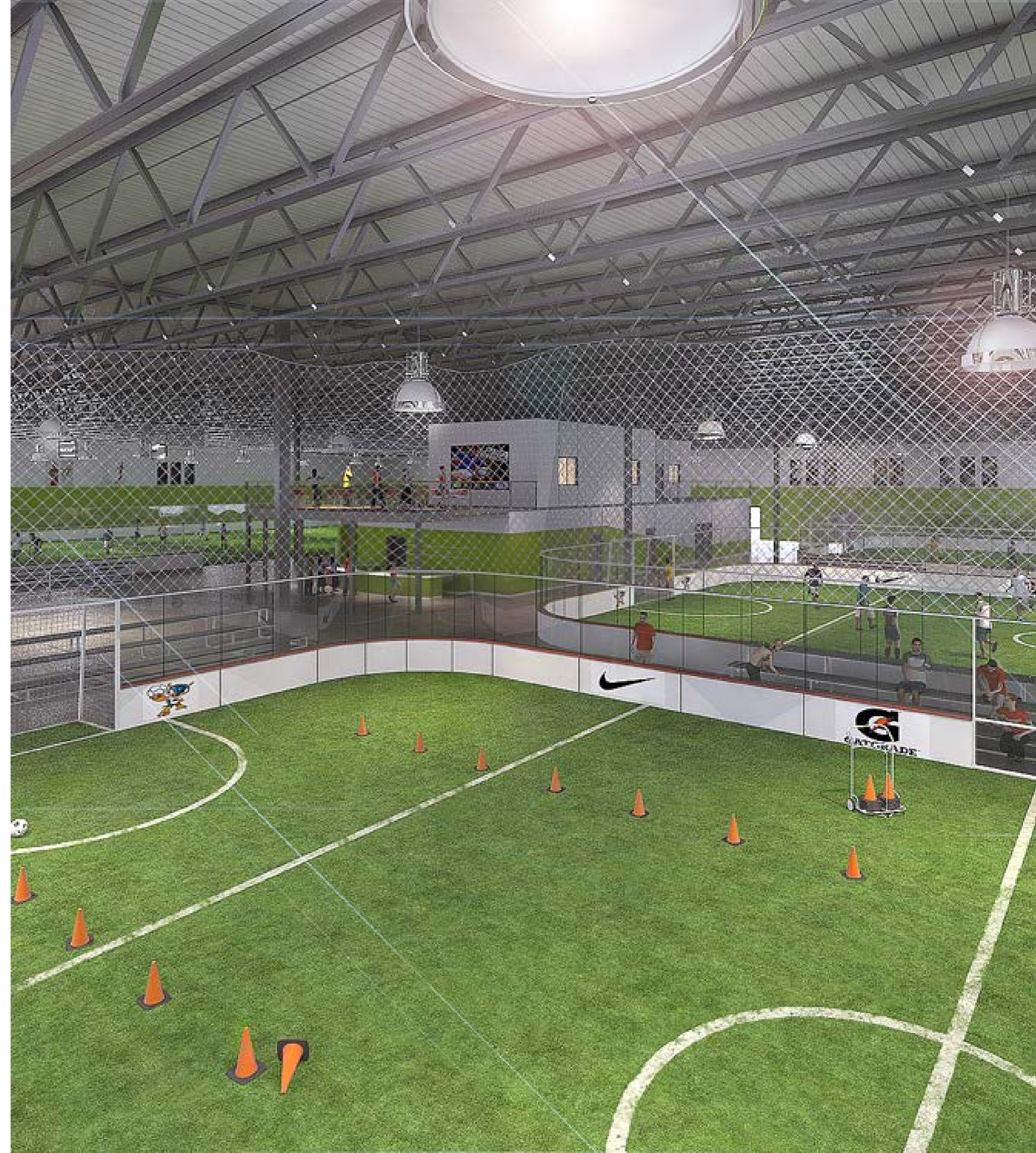
Conclusions

Thought on where this market can go and what parts of my work on this topic has the most potential to continue developing on

SPORT LEAGUES

This could have potential as a solution for an upsell feature for leagues running indoor or outdoor soccer leagues. Leagues are always trying to make sure their participation levels maintain certain levels to remain profitable. Most facilities run special training camps and other events to make money.

This could be a good way to provide a premium feature and offer pods to players for each game and maintain social competition challenges on their website. It would be a feature that could drive interest and entice people to continue playing season after season.



ACTION CAMERAS

There could be really fun potential with the action camera market with a system like Link. Syncing up events throughout a soccer game with video footage would add another level of engagement, entertainment, and impact to the user.



OTHER SPORTS



Rugby



Lacrosse



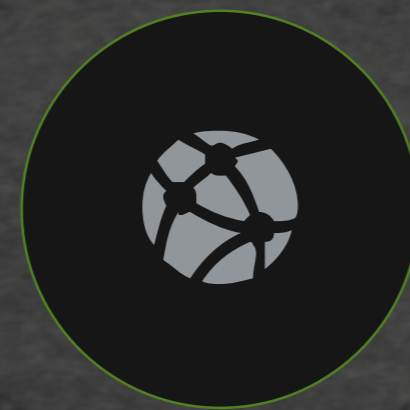
American football

SECTIONS



Understanding

Researching and learning about the related industries and markets that pertain to my topic



Discovery

User research and analysis to discover what important factors and needs soccer athletes have and find valuable in a solution



Design

Work to develop solutions that my target audience finds compelling



Future

Briefly touching on possibilities that exists within this market that lies beyond the immediate scope of my project



Conclusions

Thought on where this market can go and what parts of my work on this topic has the most potential to continue developing on

CONCLUSIONS



The wearables technology market will continue to expand and venture into new spaces that it is currently not in today. Contact sports, team sports, action sports, and others difficult environments provide challenges for technology and companies to overcome but that only provides great opportunities to those who give it a shot and succeed in finding great solutions.



THANK YOU