Module 1. Managing an Innovation Process

Unit 1.1

1.1.1 Innovation Process in a Nutshell

Case 1: RealTrack Systems (RTS)

When talking about managing innovation and FC Barcelona, one has to mention one of the success stories that basically formed the Barça Innovation Hub (BIHub) to what it is today; the collaboration between RealTrack company, from Almeria, Spain, and the early version of the Barça Innovation Hub. When, in 2015, journals started taking an interest in the importance of data analytics and sports, not much prior knowledge had been available in order to gain the desired insights and potential transformation of the industry. This occurred when the BIHub stepped in and began pioneering what is nowadays an established category of sports science. When trying to analyze sports, data specialists agreed that collecting data and, furthermore, using it in an analysis platform were integral for sustained insights and performance gains.

As recently as around four years ago, FC Barcelona, its professional indoor sports teams in particular, were using as many as four different systems to track their athletes. The club's outdoor team, La Liga, was using a different system altogether from STATSports, a GPS enabled wearable. All the different teams using different, mostly non-compatible systems posed a major challenge when trying to combine and group data and therefore gain valuable data insights.

Figure 1: Smart Station

Source: Smart Station [Online Image]. Retrieved November 2020 from http://www.realtracksystems.com/wimu-pro/ Screenshot by author.

What is more, economies of scale and improved buying power for the club could not be achieved. BIHub decided a unified solution would be needed and started benchmarking EPTS (electronic performance tracking system) from different manufacturers. After an initial testing period, BIHub realized that whilst all systems had their strengths and shortcomings, none of the systems available on the market suited the specific requirements of all five sports (football, basketball, handball, futsal and rink hockey) present in the club. BIHub understood that a solution specifically designed for the club could only be achieved by convincing one manufacturer to collaborate on co-developing a tailored solution, as in-house development was not deemed feasible.

The reasons for this were manifold, but the most important was that FC Barcelona just did not have the necessary skillsets people needed in order to develop such a solution from scratch. What is more, Barça Innovation Hub has to work with a limited budget, and trainers and the club agreed that developing an EPTS device did not align with their core competencies and capabilities. It was because of these reasons that it was decided to look for partners.

This offer was attractive not only to FC Barcelona but also to EPTS companies, as the reference data for EPTS devices was extremely difficult to obtain. FC Barcelona having a unique set of elite athletes in different sporting categories as well as staff willing to

collaborate on data tracking solutions of tomorrow were very attractive for startups in this industry. After an initial testing phase with various interested startups, BIHub relatively soon settled on a partnership with RTS, as their early version of the WIMU Pro device was the most promising and suited FC Barcelona's requirements best.

In the first year, BIHub and RTS focused on improving the product. Weekly, 25 field coaches met for in-house workshops to discuss relevant metrics and subsequently derived KPIs (Key Performance Indicator), used to improve data sets and finally the product itself. After the first year, the joint-development was focused on developing and iteratively improving the software needed to analyze the data.

Figure 2: SPro software

Source: SPro software [Online Image]. Retrieved November 2020 from http://www.realtracksystems.com/wimu-pro/ Screenshot by author.

Unlike previously common for many startups in the industry, RealTrack was willing to share RAW data with BIHub and their data scientists from the beginning of their partnership. This transparent approach to data sharing proved to be integral for the very positive and productive partnership. The current version of EPTS used by all major FC Barcelona sports teams was first trialed with the basketball reserve team in the 2015/2016 season. By 2018, the senior football team fully adopted the technology co-developed by

BIHub and FC Barcelona, and it has been seeing great results and constant improvement in their performance. The partnership proved to be one of the biggest success stories of co-development in the sports industry.

Case 2: Major League Baseball Advanced Media (MLB BAM)

When BAM (Baseball Advanced Media) was created, in the year 2000, all Major League Baseball teams' websites looked completely different and did not have a standardized feel or look. Bud Selig, baseball's then commissioner, remembers that their goals were quite modest at first.

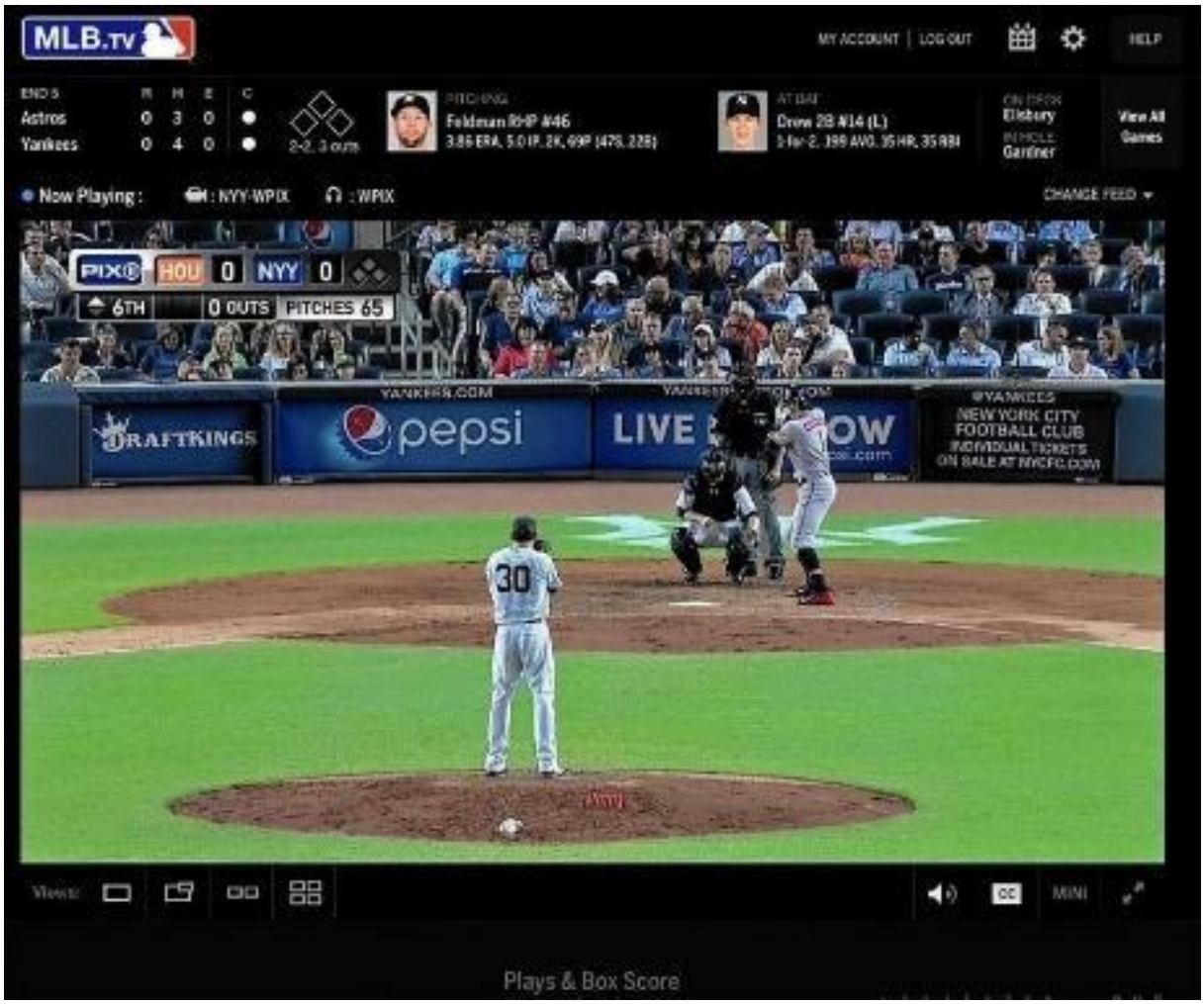
Figure 3: Multiple screens broadcasting baseball matches

Source: Every screen imaginable. [Online Image]. The future of Major League Baseball is not just about baseball. Retrieved November 2020 from https://qz.com/209092/the-future-of-major-league-baseball-is-not-just-about-baseball/ Screenshot by author.

The unit's tasks would mostly involve creating unified websites for each team and solving the major pain point: not having a similar look and feel for all clubs' digital interface. BAM decided to pool money from all 30 MLB (Major League Baseball) in order to avoid bigger teams with higher budgets outpacing smaller teams with the development of the unified look and feel. It was not an easy process getting 30 teams with different history and team values on one page, but, in the end, it was clear how important a unified web presence would prove to be.

Apart from having a unified web presence, the League argued that these changes would lead to a higher perceived quality for fans. They also promised that the invested equity would be paid back out over time. The League was able to get them on board, and all teams agreed to contribute $1 million yearly for the first four years, which resulted in a total initial budget of $120 million. The initial team tasked with this major project was quite quickly put together; no real experts, but at the height of the dot-com boom, everybody was extremely hyped about creating something new on the World Wide Web.

Figure 4: Plays & Box Score



Source: Plays and Box Score. [Online Image]. At MLB Advanced Media there is a push to stay ahead in the streaming arena. Retrieved November 2020 from https://www.latimes.com/entertainment/envelope/cotown/la-et-ct-advanced-media-20150930-story.html Screenshot by author.

Right from the start, BAM decided to spend a large part of their annual budget to hire an expensive consulting firm with the task of creating the MLB.com website and unify the design and user experience. Subsequently, expectations for the initial project of BAM were extremely high, and a failure with one of the first projects of the new unit could

prove fatal. Unfortunately, the website barely worked, and results proved to be underwhelming overall.

After much consideration, BAM decided to scratch the whole project and went through the painful and expensive process of restarting the project from the beginning. Unable to find the necessary know-how outside of the organization, BAM decided to develop the project completely internal and build their own tech. After some iterations, the League was able to provide teams with a first more or less unified experience and similar looking websites by 2001. Besides, the first important milestone of 1 million unique users visiting the different MLB websites over the course of the year marked BAM's first major success.

When, at the end of 2001, Ichiro Suzuki, a Japanese baseball star, came over to the United States to play for the Seattle Mariners with dozens of reports covering his every move, the MLB decided to experiment with streaming live audio from all his games to enable his fanatic followers to keep up with their hero. Over the year, BAM spent over $7 million in order to build and advertise the product.

Bob Bowman, BAM's CEO, remembers the project had probably never reached the mark of 1000 subscribers and subsequently resulted in another failed costly experiment. The exact reasons for the failure of the project remain largely unknown, but some believe that streaming audio was just too far ahead of its time and that the audience was not ready for the technology.

Although Japan has historically been advanced with regard to technology adoption, it is not clear whether Ichiro Suzuki was the perfect choice for this project at that time. Finally, reasons for the failure could have also been insufficient partnerships to market the project. However, seeds for the format of direct distribution had been planted and would later on be important for BAM. By 2002, all these expensive early experiments had left BAM strapped for cash after only two years of operations and without any major successes. It was then when BAM realized that they were able to leverage their –two years before consolidated– digital rights, which had given them control over ticketing. Control over these rights enabled them to essentially force TicketMaster into a partnership worth millions of dollars. The company transferred BAM $10 million in advance for the rights to sell baseball tickets on their website and subsequently enabled BAM to push forward with its biggest bet so far: video, which would eventually help BAM to pivot to success.

In 2002, three years before the launch of YouTube, BAM was able to stream their first MLB game between the New York Yankees and Texas Rangers to 30.000 fans at 280 kilobits/s. Far off from today's 4K UHD streaming standards, this first stream was closer to a flip book than to a continuous video. Still, fans picked up the offer, and BAM pushed on to experiment with video streaming. Selling their first full season MLB pass at $79.95 in 2003,

over 100.000 fans signed up for the service, and, after years of iterations, BAM proved that their aspirations had not been for nothing. After only $77 million of funding taken, BAM was able to start paying team owners back a dividend.

In 2005, ML BAM announced to acquire Tickets.com for a reported $66 million in order to set ticketing standards for their fans and further leverage their digital media power house know-how and expertise. A few years later, BAM started getting into the gaming industry, something many of their fans wanted. The first two iterations were not too successful, but, with their third game, "RBI Baseball", they were able to attract a huge audience and became quite successful in the sector of gaming.

Over the next decade, MLB BAM continued iterating on their platform and established services for streaming video, advanced statistics and analytics, and much more. These advancements also were translated into the creation of a full-fledged OTT (over-the-top) platform, which would further on prove valuable for future revenue streams of the organization.

In the subsequent years, BAM would sell their expertise in streaming services to the likes of WWE and HBO. "We looked at what it would take to build in-house, and compared that to what BAM could deliver," said George Barrios, WWE's strategy and financial office. "In the end it made a lot more sense to let them bring their technology expertise to bear, and focus on what we do best, which is creating great content and connecting with wrestling fans" (Pepper, n. d., para. 30)

Figure 5: Baseball equipment

Source: MLB Advanced Media: The future of America's pastime. Retrieved November 2020 from https://digital.hbs.edu/platform-rctom/submission/mlb-advanced-media-the-future-of-americas-pastime/ Screenshot by author.

It was similar with HBO, which sought BAM's expertise in streaming, when launching their globally successful fantasy series, *Game of Thrones*. HBO knew that their servers and OOT infrastructure would not be capable of supporting the immense network load of millions of fans seeking to watch their favorite series release. BAM was able to deliver a

solution and leverage their immense know-how much faster and cheaper than any competitor at that time.

Having massively invested into digital more than a decade ago already, when others did not even think about it, it was in 2015 when BAM decided to outsource their streaming business into BAMTech. Enduring many expensive failures and road blocks on their way to the technology and streaming powerhouse they had become, BAMTech struck one of the largest deals in sports media history in 2016 and 2017. After buying a minority stake of 33% of BAMTech for $1 billion in 2016, Disney announced to acquire another 42% at a valuation of $3.75 billion just a year after.

Starting from a simple MLB pain point over the course of 15 years, MLB BAM had developed into one of the most successful examples of sports and tech innovation. Experts agree that without MLB BAM's tireless innovation efforts, the sports and media streaming industry would not be where they are today.

1.1.2 Findings. Innovation Process in a Nutshell

Innovation represents a novel solution for a problem that proves to be useful for customers or end users. For most innovation efforts, the first step is to identify a need and a problem that will be solved by sought solution. Subsequently finding technologies that solve a problem in a way so that it creates more value for various stakeholders than the existing solutions, already accessible within the organization, or available on the market, is a desired outcome of innovation.

In the case of FC Barcelona RealTrack System, for example, physical trainers needed a better way to assess the performance of their athletes so as to improve the decision-making process. The problem, also known as the pain point, was obvious to trainers at FC Barcelona, but the solution was not quite so. Furthermore, not having a tracking solution was not only a pain point for the trainers but also for the staff, who were lacking a data-driven approach for decision-making. They wanted a single platform to integrate data and were also asking for something that could be used across the cIub's teams.

These requirements proved to be quite complex, and quite quickly it was realized that creating this solution in-house would not be possible due to a lack of capabilities on the technical side within FC Barcelona. In the case of MLB BAM, the organization also tried to find a solution for an internal problem, being a non-unified web experience across their baseball teams. In their case, it must be noted, though, that MLB BAM had to go the route of creating the solution in-house, for there was no external company to be found capable of solving their pain point or having a fitting solution. Going that route was a difficult and complex process, requiring many iterations and failures, but it finally provided them with

a new revenue model, as they became the industry experts selling the solution they had created to other organizations.

This kind of innovation is also often referred to as 'organic innovation'. The user or the organization experiences a pain point of their own and subsequently tries to find a solution for it. Another type of innovation occurs when the organization grows from the organic approach of innovation to a more structured approach for the purpose of creating new products or services. This step of the innovation process is different, as not only does it go further by solving the problem of the user itself but it also considers creating or making use of a market opportunity and thereby creating new business models and revenue streams for the company.

Only in the last decade investors started to come into the sports industry seeing market opportunities and subsequently professionalizing and structuring the innovation process for sports teams. In our context of sports clubs, we see clubs going on to finding additional revenue models or other non-financial benefits that ultimately benefit their business model or triple bottom line.

The desired outcome seemingly is quite clear, yet so many organizations and businesses struggle with implementing these innovation processes into their day to the business. This is not surprising, as the process of innovation –unlike the daily operations of the club, a corporation or a startup, which require operational excellence and foremost operational efficiency– requires constant failure and iteration. The process of innovation is naturally poised with failure, and actors in the innovation process need to try out new solutions in order to solve needs and problems.

Interestingly enough, we see that there is an inherent conflict of interest when trying to innovate in the world of sports. Steve Gera explains that in sports one needs to have 10 successes, or won games, that is, for every failure or lost game. In the innovation process, the ratio seems to be the exact opposite. In order to find a single solution that ticks off all your criteria of creating value for the user and successful market opportunities, actors need to fail 10 times. Besides, very nicely illustrated in the MBL BAM case, BAM had to iterate and fail multiple times with their unified web-experience and streaming services, until the eventually experienced success. Failure is indisputably a part and a characteristic of the innovation process as it is known.

In sports and many other contexts, the problem that there are limited resources persists. With the process of failure being inherently expensive, as depicted with BAM's various costly experiments, financing of these failures poses a challenge for actors involved in the innovation process. For resource restrained entities, it is therefore crucial to find an innovation process that is able to leverage these limited amounts of resources and still get to the desired outcomes. As demonstrated in both cases, RTS and MLB BAM make quick and dirty iterations, often just with MVPs (minimum viable product) in order to gain

first customer feedback were necessary. From there, both examples could start iterating in order to find the desired solutions with limited budgets. For FC Barcelona, with one quick win with RTS, they were able to prove success and develop the experiment into a corporate development program with startups, which is now known as the Barcelona Innovation Hub. Similarly, for their online classes, which will be mentioned in case (XY), they went from a handful of online courses to a full-fledged online platform, now Barça Universitas, not without going through many iteration cycles beforehand.

In order to go from iteration for one innovation to many innovations, a more structured organizational approach is needed. As already briefly touched on, it is often difficult for the day to the businesses of companies to churn out innovation and even conflicts with their core business interests. Relying on efficiency is naturally conflicting with the process of experimentation and failure. Therefore, it is important to allow for space in order to nurture innovation and give organizations the opportunity to innovate. Looking at the example of FC Barcelona, the innovation lab approach proved to be successful, as the club had institutional constraints not allowing them to invest in startups. It allowed them to leverage their knowledge while looking for startups able to provide their own finances. Other institutions, like Los Angeles Dodgers, that had financial resources lined up, opened up accelerators and were able to leverage those.

To sum up, a successful innovation process enables companies to find novel solutions for internal and/or external problems, and ideally enables them to market them in order to provide additional revenue streams to support their triple bottom line. Iterative testing cycles are also often needed to enable an innovation process with limited financial resources. Finally, when organizations enable a more structured approach to innovation, separate from their day-to-day business, innovation has much better chances to nurture and prosper.

Unit 1.2

1.2.1 Managing Innovation Projects

Case 3: United States Marines Corps

According to Steve Gera,

> An important thing to keep in mind about sports is that sport is inherently about action. A lot of times people in sports can get paralyzed by innovation because they do not know where to start, so the important thing to do is just to start. Start somewhere, start doing something, which a lot of times means that the best innovation pilots are the ones that are the most applied, where companies are willing to incrementally take small risks subsequently translating into larger projects. (Gera, n. d.)

One great example of such an applied innovation project is the United States Marines Corps, who, in collaboration with Los Angeles Rams and USC Trojan Football League, completely revamped their approach to training.

The genesis of this knowledge and tech transfer from sports to military actually germinated in the fact that a lieutenant general commander of a battalion of marines, which involves around 1000 marines, wanted to understand how to coach and train marines better in the field training. It is important to understand here that in sports a field is normally around 100 yards long, while in the military the training ground can be up to 100 acres or more. Subsequently, the ground to cover and scale are much larger. Having had a background with video training and some prior knowledge, the commander wanted to find a way of coaching the marines better with the means of video analysis. Steve Gera's company, Gains Group, was consulted and tasked to find a product they could use.

Figure 6: US Marine

Source: US Marines. [Online Image]. Marines to reduce force by 12,000, decrease artillery units and get rid of tanks in 10 years. Retrieved November 2020 from https://www.stripes.com/news/us/marines-to-reduce-force-by-12-000-decrease-artillery-units-and-get-rid-of-tanks-in-10-years-1.623471 Screenshot by author.

In order to find a solution, it was important to enable the Marines with a better understanding of their own problem and sight a potential solution. In this case, this was done, first, by taking 15 marines out of their normal environment and embedding them with the USC Trojan Football team for two weeks in order to understand how American football coaches used video for coaching. During these two weeks, the marines started to understand how they could take the idea and use hardware and software products and further on integrate it into the way they normally train. The next step in the case of the Marines was to evaluate and select specific technical options. Furthermore, the Marines had to understand first how the football team was using solutions and methods that could potentially be applicable to them. In this case, they would compare how the coaches in football would analyze video data after a game compared to traditional on-field training by Marines. Following that, they would use the solution and evaluate themselves what would be the right process for marines vs. football players. Finally, they would select the right technical products and methods to use and start integrating them into their training routines.

In the case of the marines, they would first understand how coaching off a video was done in American football. Normally, teams would go out to the field, practicing for two hours straight; afterwards, everyone would shower and eventually the whole team would meet in the classroom within 1-2 hours post process. They would re-watch the whole training session together with their coach and dissect every single play in the game. Little mistakes would be pointed out, and coaches would give the athletes very detailed coaching instructions.

Figure 7: Two American football players on pitch

Source: Patriots. [Online Image]. Cam Newton leads Patriots to dramatic victory over Jets: 'It was not pretty, but it was a win'. Retrieved November 2020 from https://www.nfl.com/news/cam-newton-leads-patriots-to-dramatic-victory-over-jets-it-wasn-t-pretty-but-it- Screenshot by author.

The marines learned, though, that because of their more fluid and flexible environment, they did not have to wait until going back to the classroom in order to evaluate their training. Instead, they would do an entire exercise, which would in their case translate into a classical movement to contact training. Twelve marines would move from point A to point B in an assault formation and directly after the exercise get feedback on the field. This helped them to select the right products, ranging from video software & cameras to fly-over cameras and drones, and, surprisingly, because of their more fluid tactics, their training was actually more affiliated to classical soccer than the start and stop game of American football. Products used in classic soccer, like video tagging software, built for a more fluid game, were therefore more appropriate for their needs.

For the Marines, the innovation process and experiment were a great success and helped them to significantly improve their training methods.

Finally, we can summarize that the project was successful for two reasons:

1. The Marines experienced a cultural shift in the way they used this new idea.
2. They understood the product and context fit and could subsequently determine which products were actually the best for the required environment.

Case 4: Barça Innovation Hub E-Learning Online Platform

The Barça Innovation Hub e-learning platform has been a success story ever since it started offering online classes in the realms of education on different fields related to the sports industry in 2017. One of the few winners of 2020's COVID-19 pandemic, Barça Universitat could enroll nearly three times as many students in April 2020 when compared to that period in 2019. But how did this story begin and how did it become such an integral part of FC Barcelona?

Figure 8: Getting informed through the online platform

Source: Barça Innovation Hub E-Learning. [Online Image]. Retrieved November 2020 from https://www.fcbarcelona.com/en/news/799713/fcb-universitas-launches-its-platform-for-knowledge-dissemination-and-online-learning Screenshot by author.

In Barça Universitat, BIHub's education platform was born around the same time as BIHub with the goal to support future generations of professionals in the sports industry to acquire knowledge and talent. Albert Mundet, Director of the BIHub, describes how the BIHub knew that they had loads of knowledge and transferable skills within FC Barcelona club but struggled to share or even monetize it.

FC Barcelona's experts understood soon that an online platform used to share their knowledge would be needed. What was also clear, though, was that nobody within the club or BIHub had the necessary skills or knowledge needed to launch such an endeavor. A flexible partner that would help them leverage their knowhow into the digital space of the sports industry was required. With Capabilia, an Argentinian university spin-off, that partner was found.

BIHub's hypothesis was that FC Barcelona had a vast array of knowledge on how to manage the sports business. They knew that that knowledge combined with FC Barcelona's brand and reputation had value and hoped it could be shared with a global audience in the form of online courses and classes. Capabilities on how to develop a platform like that were not to be found in-house, which is why an external partner was needed. After successfully finding that partner, the first step was to establish six courses to start with. By establishing and testing these three Sports Science courses, two Sports Management courses and one Sports Technology course, they were able to accurately test demand for the different topics with these six courses to start out with.

In order to test whether demand was there and in order to gain first traction, BIHub decided to launch a pilot in the form of a landing page to gauge first interest. The feedback was overwhelming, and, after checking different kinds of courses, it was clear that Sports Science courses attracted the most interest. Subsequent soft launches of different courses and quick tests made them realize that in-depth content was needed in order to satisfy demanding online customers. The courses were further developed and adapted to the online format and two main topics were established: Sports Science and Sports Management.

It was also very interesting for the BIHub to see how different markets had different needs with regard to e-learning. Latin American users, for example, were picking up much more than US users. After some research, it was established that US users required different content; in the case of the e-learning platform, more courses on the topics of sports coaching were demanded. BIHub adapted, and further development for Sports Coaching and Sports Management & Marketing was done.

For FC Barcelona, that early collaboration with Capabilia meant a change in their business model, from using only internal resources to opening up to external partners as well. With time, more and more partners like universities and experts were invited to collaborate

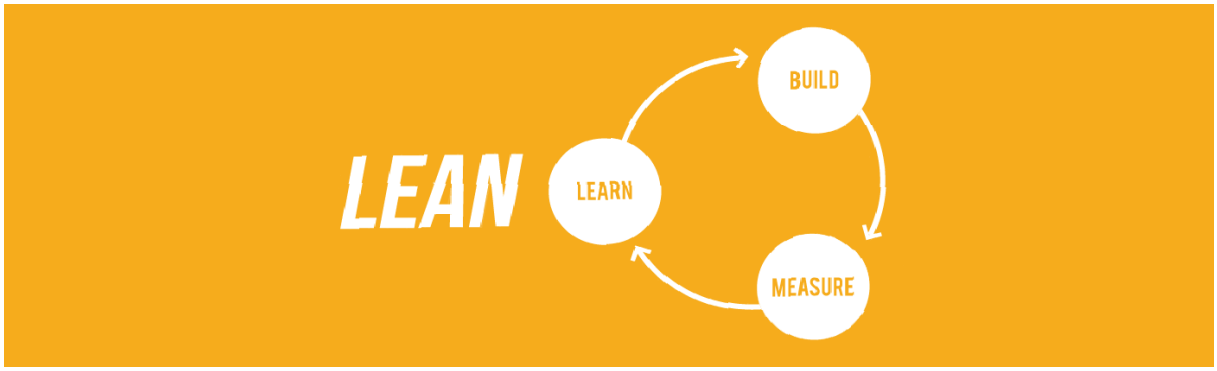
with specific content for the platform. FC Barcelona and the BIHub became a curator deciding what content was to be displayed and share on their platform.

With this move to online education, FC Barcelona has achieved one of BIHub's major goals, mainly to share knowledge and develop professionals as well as to establish new revenue streams for the club. In light of current trends and changes in consumer behavior in the education space, BIHub investment in an e-learning platform had been a great strategic move, and FC Barcelona is determined to continue with that strategy.

1.2.2 Findings. Managing Innovation Projects

One important part of how to manage innovation projects is the very question of how organizations and companies start to innovate. Especially in the sports context, which is so fast-paced, resource constrained and finding the right extremely specific starting point for internal innovation and further on managing these various innovation projects poses a challenge for many organizations. Companies, therefore, rightfully ask themselves how they can create time and space needed for innovation in the sports environment also outside the sports context.

Figure 9: Lean startup methodology



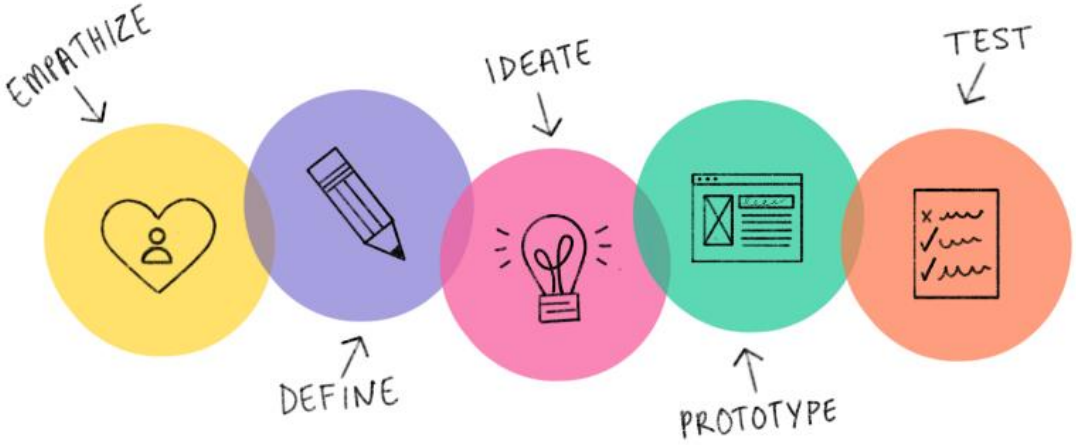
Source: What is the Lean Startup Methodology and What Can It Give to You? Retrieved November 2020 from https://medium.com/globalluxsoft/what-is-the-lean-startup-methodology-and-what-can-it-give-to-you-a82d8d7ededb Screenshot by author

Another question frequently coming up is whether there is an easy way on how to enter innovation in sports. Do companies actually need highly complex structures and systems like innovation labs or accelerators in place or can they just go ahead and start small?

This section explores how companies can start the innovation process and how they can navigate an innovation project in a way that it maximizes their results while keeping invested time and other constraints to a minimum.

The examples we have provided are following the methodology of design thinking and lean startup. Design thinking describes the process of finding a product problem solution fit, starting from a customer need and then continuing with the understanding of the problem and generation of ideas on how to resolve that problem. Further on, this first solution would be tested in order to ensure it has a solution that satisfies the users' needs. This is particularly important for the process solution stage. We can perfectly see how both the US Marines and BIHub with their online platform applied this framework. The 'lean startup' concept has been developed to ensure product market fits. By building landing pages or simply a minimum viable product, organizations can show the potential size of the audience and gauge user interest before committing to investing further resources.

Figure 10: Design thinking



Source: Design Thinking. [Online Image]. Retrieved November 2020 from https://networkingrd.net/2020/06/08/5-ideas-del-design-thinking-para-aplicar-a-un-proyecto-o-emprendimiento/ Screenshot by author.

We can observe that most projects start out from a particular need or user problem, be it an internal or external one. In the example of the US Marines, their commander struggled with training improvements and, therefore, sought help with video analysis. As a first step, he was looking for the right solutions which required several ingredients and sought technology from outside his industry; he was finally successful via looking into the American football training process of video analysis. In the case of the BIHub e-learning platform, FC Barcelona knew that they had loads of highly valuable knowledge but struggled to leverage and share these assets accordingly.

The core first step in this innovation process is to find the fit between the problem and the solution. When analyzing the case studies, we can derive that this process must also include finding a cultural fit as well as a re-adaption to the new context. The US Marines

had to understand first how the solution actually worked in the context and the environment of the American football sports, and could not then start the process of translating that solution into the United States Marines Corps context. This exercise involved getting a cultural process with coaching commanders started. Only then could they start the selection of the right products to use in their context.

Furthermore, we realize that right answers do not emerge through ex ante knowledge but much more through the process of testing and actually integrating those solutions, as seen with the video approach of the Marine Corps in Australia. This can be considered as a great example of the reason why the testing process is so integral and why fitting the solution with the corresponding problem is highly important. In the innovation process, there are many unknowns, and before trying, often it cannot be known for sure if a selected solution would actually work for the user's intended purpose and actually fit the problem. Not until the Marines learned and tested in the context of American football, did they understand that their requirements with regard to video analysis, due to the fluidity of their training regime, were much more aligned with classic soccer. Especially the application of technology like the use of flexible drones which were required to fit their space constraints and subsequent software upload of attained data showed that, while they could learn to adapt many things from American football, technology requirements were much more similar to global football. Through rigorous testing they were able to achieve their problem solution fit.

We see that none of these two projects started from big plans on how to proceed. Much rather, they became successful by starting small, further on developing and scaling the projects after testing and collecting first feedback. BIHub, for example, did not have creating a grand e-learning platform in mind; it was actually much more important to start and take action in order to get started with testing. In the case of FC Barcelona, starting out with small tests like a landing page to gauge users' interest and subsequently launching a few courses before committing further resources to a full scale platform were important steps of this process. Only after having some first learnings did BIHub decide to invest further resources and launch full in-depth courses that learners were requesting. This proliferation of courses could only be done after validating the demand and the right solution on a smaller scale.

With regard to the innovation process, this is a great example of what happens when finding the right problem solution fit. Only then should companies increase in scale and start the reproduction of that innovation, and from there on continue testing with different audiences. In the case of the BIHub e-learning platform, the project would realize that their sports science courses were extremely successful with their Latin American audience. With further testing, they soon realized though that the American audience had completely different demands and required more coaching and sports management

courses. In general, American students were more accustomed to physical courses and did not pick up as quickly as other demographics.

To summarize, in order to successfully kick-start the innovation process, organizations must identify first a user need and then the technology that could solve that need. Further on, problem solution testing can be done on field, where one can figure out how to actually solve the problem with the help of technology. The following step would be to make sure that the problem and solution are actually scalable and the audience is sufficient in order to eventually develop the solution.

FC Barcelona realized over time that they would have had a hard time scaling when they had kept the platform closed just to their professionals within FC. Instead, they decided to gradually open up to professionals from other institutions. This meant that, instead of keeping the role of the only production and content producer, they would transition into curating their platform's content, which subsequently allowed them to generate more scale. This constitutes a perfect example for business model innovation.

List of Acronyms and Abbreviations

AI	artificial intelligence
AR	augmented reality
BIHub	Barça Innovation Hub
FCB	Football Club Barcelona
FIFA	International Federation of Association Football
KPI	key performance indicators
MLB	Major League Baseball
ML BAM	Major League Baseball Advanced Media
MVP	minimum viable product
NBA	National Basketball Association
NFL	National Football League
NHL	National Hockey League
OTT	over-the-top
RTS	RealTrack Systems
WWE	World Wrestling Entertainment

References

Barca Innovation Hub, (2020, July**)** "Part II: The Story behind the collaboration between WIMU and Barca", Retrieved November 2020 https://barcainnovationhub.com/part-ii-the-story-behind-the-collaboration-between-wimu-and-barca/

Blank & Newell, (2017, September). "What Your Innovation Process Should Look Like", Harvard Business Review. Retrieved November 2020 https://hbr.org/2017/09/what-your-innovation-process-should-look-like

Maniak, R. (2015, January). "The 8 proven principles for managing innovation" Paris Innovation Review. Retrieved November 2020 http://parisinnovationreview.com/articles-en/the-8-proven-principles-for-managing-innovation

Pepper, B. (n. d.). The changeup. How baseball's tech team built the future of television. *The Verge.* https://www.theverge.com/2015/8/4/9090897/mlb-bam-live-streaming-internet-tv-nhl-hbo-now-espn

[Screenshot of Wimu Pro official website]. (n. d.). Retrieved November 2020 from http://www.realtracksystems.com/wimu-pro/

[Screenshot of Quartz official website]. (n. d.). Retrieved November 2020 from https://qz.com/209092/the-future-of-major-league-baseball-is-not-just-about-baseball/

[Screenshot of Los Angeles Times official website]. (n. d.). Retrieved November 2020 from https://www.latimes.com/entertainment/envelope/cotown/la-et-ct-advanced-media-20150930-story.html

[Screenshot of Digital Initiative official website]. (n. d.). Retrieved November 2020 from https://digital.hbs.edu/platform-rctom/submission/mlb-advanced-media-the-future-of-americas-pastime/

[Screenshot of Stars and Stripes official website]. (n. d.). Retrieved November 2020 from https://www.stripes.com/news/us/marines-to-reduce-force-by-12-000-decrease-artillery-units-and-get-rid-of-tanks-in-10-years-1.623471

[Screenshot of NFL official website]. (n. d.). Retrieved November 2020 from https://www.nfl.com/news/cam-newton-leads-patriots-to-dramatic-victory-over-jets-it-wasn-t-pretty-but-it-

[Screenshot of FC Barcelona official website]. (n. d.). Retrieved November 2020 from https://www.fcbarcelona.com/en/news/799713/fcb-universitas-launches-its-platform-for-knowledge-dissemination-and-online-learning

[Screenshot of Global Lux Soft official website]. (n. d.). Retrieved November 2020 from https://medium.com/globalluxsoft/what-is-the-lean-startup-methodology-and-what-can-it-give-to-you-a82d8d7ededb

[Screenshot of Networking official website]. (n. d.). Retrieved November 2020 from https://networkingrd.net/2020/06/08/5-ideas-del-design-thinking-para-aplicar-a-un-proyecto-o-emprendimiento/