

UNDERSTANDING THE FRENCH FASHION TECH ECOSYSTEM

2021

foundry
POWERED BY IFA PARIS



**BEYOND
FORM**

ABOUT

About This White Paper

This white paper was created by Foundry Powered by IFA Paris, a fashion tech lab based inside International Fashion Academy. All our partners and members are working at the intersection of fashion & technology with a goal to create new opportunities for the fashion industry. Whether this be within the themes of sustainability, retail or industry 4.0, this white paper highlights the initiatives happening globally and locally. Subsequently we are creating a dialogue for the various stakeholders endeavouring to make a meaningful impact within fashion tech.

Note to Reader

This white paper was written with full independence. The organisations and initiatives featured inside this white paper have been done so at the full discretion of the authors. Foundry Powered by IFA Paris has not received any financial compensation or required to fulfill any partnership obligations with this publication.

About Foundry Powered by IFA Paris

Our goal is to pioneer fashion tech in Paris and beyond. Foundry Powered by IFA Paris is driving the shift to solve complex industry problems shaping the future of fashion. We aim to do this by providing specialist spaces, programs and access to a network of individuals in areas from fashion and tech through to entrepreneurship. Dedicated to bridging the gap between academia and industry, we're actively working with start-ups, students and organisations to push the boundaries of fashion tech.

Foundry's unique ecosystem ensures that it is able to empower those that wish to embrace digital transformation. The fashion tech lab is an initiative launched in partnership between IFA Paris, a fashion school with campuses in Paris, Shanghai & Istanbul, and Beyond Form, a fashion tech venture studio.

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About IFA Paris

IFA Paris is a fashion school that offers students around the world a vast range of unique and tailored courses at undergraduate and postgraduate level. We give students the choice to study in three of the most globally influential fashion hubs – Paris, Shanghai and now in Istanbul that sets us apart from other fashion schools.

Our value lies in our exposure to the world and the interaction that allows the 50 nationalities constituting its student and teacher body to share in the projects and daily life taking place within our schools.

www.ifaparis.com

About Beyond Form

Beyond Form is a venture studio building impact-driven fashion technologies. They're on a mission to modernize the fashion industry through tech innovations across the value chain, and in turn create a more sustainable and efficient fashion system

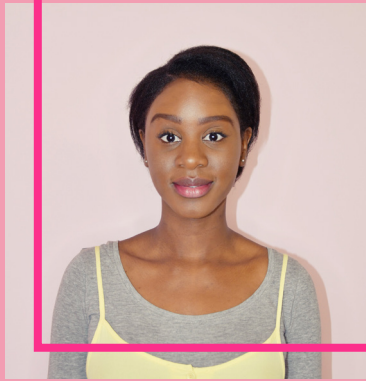
Beyond Form partnered with IFA Paris to launch the fashion tech innovation lab in 2019 and runs the Startup Program. Every 6 months founders from all over the world are welcomed to Paris to work with the Beyond Form team on building out their early-stage fashion tech businesses.

www.beyondform.io

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FOREWORD



Peter Jeun Ho Tsang
Director, Beyond Form &
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The tension between fashion and technology has been bubbling away for the past decade, with both industries trying to decode the other's language.

It has only been in recent years where the capabilities of technology has been taken seriously by fashion brands, who are still somewhat nervous in fully embracing innovations within their businesses. 2020 provided an even bigger wakeup call to the industry with supply chains severely disrupted, physical stores closed, and teams working 100% remotely due to COVID-19. This sudden change has not fared well for many fashion retailers, which has seen them going into bankruptcy. However, what the pandemic has done is shed a spotlight on fashion tech and the urgency for the industry to embrace technology at greater speeds and with agility.

The founders of fashion tech start-ups have suddenly become the white knights for many parts of the fashion industry. Take for example, the huge explosion of 3D digital fashion within the past 12 months, which was relatively ignored for the last 20 years but is now proving to be a viable method for creating, producing and showcasing fashion. The pandemic is also highlighting what is and isn't working within

the relatively small fashion tech ecosystem and why cultivating such systems are important for ensuring that talent is supported in their growth phases. This is currently taking form in a variety of ways including, fashion tech specific accelerator programs, competitions, conferences, venture capital and educational courses. However, there's more yet still to be done for industry-wide acknowledgement.

Recent figures show that 85% of corporates¹ say that innovation is an important element of their growth strategies, yet only about 10% if innovation projects are actually completed. For brands, it can be a daunting task navigating the world of fashion tech in order to successfully execute innovation pilots, especially when there is currently no go-to reference point. Therefore having an understanding of what is happening within the ecosystem is important for fashion brands as they turn to fashion tech solutions, entrepreneurs and initiatives to help them to modernise their organisations. It's no longer as scary as it once was.

FASHION TECH AT FOUNDRY POWERED BY IFA PARIS

Since the fashion tech lab launched at the end of 2019, we have seen the push on technological innovations through fablabs, makerspaces and hackerspaces as well as push for textile innovations in major cities around the world, however, fashion tech-focused spaces are still yet to be fully explored in France. The French fashion capital has been a laggard in launching fashion tech initiatives compared to the other fashion capitals which have been launching programs as early as the late 2000's. The reason for this is mainly that most of the operating fashion brands in Paris are still traditional in many ways.

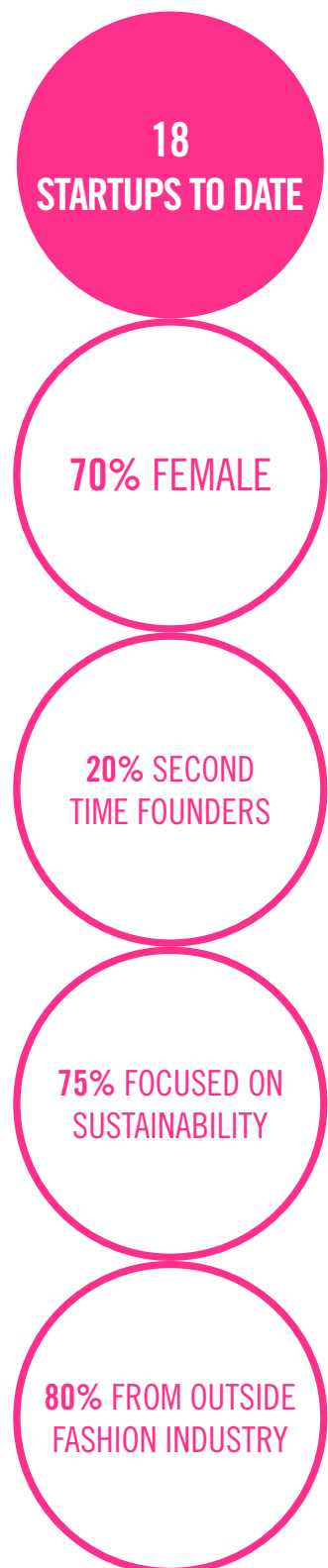
Nonetheless, this has slowly started to change and we have seen an increase in the number of fashion executives interested in the possibilities of integrating technologies into their businesses. In addition we have seen many entrepreneurial talents wanting to come to Paris to lead that change with the launch of our Startup Program in April 2020.

To date we have accompanied 18 early-stage fashion tech start-ups hailing from all corners of the globe including USA, Canada, Vietnam, Turkey, Lebanon, South Africa and all over Europe. Of the founders that we are working with, 70% are female, 20% are second-time founders, 80% are from outside of the fashion industry and two thirds are focusing on sustainability.

This is a clear indication that incredible talent is out there ready to work with the fashion brands to make a better industry.

We have also seen a keen interest from larger organisations which in 2021 sees the launch of lab projects with partners such as Li & Fung, Global Brands Group and Le New Black who are partnered with smaller Foundry partners such as Capassity and TG3D Studio. The larger brands are not only interested in the startups, but also the future generations of fashion professionals that will be graduating from our MBA Fashion Technology program that commences in 2021 (which is also seeing talent from all over the world fly into Paris). This demonstrates that there are opportunities being created at all levels of the fashion tech ecosystem, with a wide variety of perspectives and influences coming into play.

However, much of the fashion tech ecosystem is still fragmented and confusing for anyone wanting to approach the subject. This white paper sets out to illustrate exactly what is currently happening, where and why. Our goal is to string the dots together for the readers of this guide in order to be better informed when commencing any fashion tech initiative.



DEFINITION: FASHION TECHNOLOGY

Without a clear framework, fashion tech is often overlooked within the fashion industry - especially in France where fashion is renowned for its traditions and heritage. The definition and understanding of fashion tech is left ambiguous. From the garments we wear to the way we interact with brands or products, technology is becoming more infused with these experiences and is on the verge of becoming one of the leading sectors in the industry, due to the need for adaptation after the impacts from the COVID-19 pandemic.

For the purposes of this white paper, it can be defined as the application of cutting edge and innovative technologies as solutions to the fashion industry. In other words, the modernisation of the industry to improve conventional ways of design and production, to customer experiences and everything in between.

The industry is facing a “cultural revolution” as described by Ian Rogers, former Chief Digital Officer at French luxury conglomerate, LVMH². Rogers’ perspective is the starting point of this fashion tech focused white paper. By analysing the different initiatives that can be found around the globe, and more closely in France, the impact of this cultural revolution on the fashion industry can be revealed with key players being hackers, start-ups, learners and businesses. This is beyond the digital fashion shows that recently became popular as pointed out by The Fashion Award 2020 by the British Fashion Council.³

2. Arthur R., Lvmh's Ian Rogers On Viewing 'digital' As Oxygen, Focusing On 'internet' As Culture, <https://thecurrentdaily.com/2016/12/05/lvmhs-ian-rogers-viewing-digital-oxygen-focusing-internet-culture/>, 2020 | **3.** The Fashion Awards 2020, Celebrating the individuals and organisations who led change, <https://fashionawards.com/About/Watch-The-Fashion-Awards-2020,2020>

SPOTLIGHT: STYLÉ



In Autumn 2020, Stylé started working with French luxury fashion label Chloé to showcase their Chloé x Fusalp ski collection. Stylé digitised the collection and made it interactive so that shoppers could see their favourite look on a customised avatar reacting to their movements. Creating this experience was a way for every customer to communicate her own take on the collection, making it more accessible, immediately.

Although the digitisation of fashion started 10 years ago, transitioning to 3D is still very complex for most brands. Until now, digital fashion has mainly been about producing static images or short animations, without creating new opportunities for the final user. The team at Stylé

strongly believes that the digitisation of fashion is an opportunity to create the best tool for self-expression.

"In the digital age, we have all heard about augmented reality filters, avatars and video games in 3D - and there's more to come - but the reality of it and its applications can be very technical. Brands need to rely on strong expertise to go through this transformation"

-Alexis Arragon & Guillaume Gouraud, Founders, Stylé

Using their experience from the gaming industry, Stylé wanted to empower the final user by allowing them to play and interact with physical garments that have been recreated virtually. They do this by letting users try out different outfits on animated avatars, or directly on themselves in Augmented Reality by uploading a video or a photo. Using artificial intelligence and deep learning to recreate drape and movement of cloth, the team has been able to successfully create a real-time 3D digital fashion experience. Stylé's end goal is to recreate the pleasure of fashion virtually: discovering, matching and designing items or entire outfits, which the end user's skills can then be showcased on social media. As well as allowing the user the pleasure of shopping. Stylé is committed to make virtual clothes a reality for the fashion industry on the longer term.

Stylé is a startup incubated inside Foundry Powered by IFA Paris.



FASHION TECH REVOLUTION VIEWED BY IBM STUDIOS PARIS



by Arnaud Pelletier,
Director, IBM Studios Paris

For a very long time, the luxury world remained centred on a triptych that seemed to be unchanging: exceptional product quality, brand value and the location of the boutiques. Of all the sectors, it is probably the one that has resisted the wave of “new technologies” the longest. But today, however, innovation and digital technology are now so deeply rooted in consumer behaviour, including those in the fashion world, that the entire sector is embarking on technological innovation!

It's a good thing because France is a country of innovation. Our engineers have a long-standing reputation that goes beyond borders, and the start-ups that flourish in our country give immense prospects to all the inventions, ideas and concepts that sprout in the minds of the researchers, creators and other innovators the country is full of. Innovation ecosystems are multiplying and becoming more and more connected, enabling these start-ups to offer their products to large groups - at times at the cost of some disillusionment when it comes

to scaling up - but there are more and more actors helping to take hold and the network is evolving positively.

The quality of craftsmanship, know-how of the “little hands” and refined blending have always been key components of the luxury world. They are now combined with technological tools that will facilitate, simplify and sometimes even magnify the manufacturing process: we are thus witnessing a real transformation of the production cycle thanks to the IoT (Internet of Things) and digital tools that enrich the products, as well as alerting to flaws in the processes, anticipating machine breakdowns, preventing stock shortages or even evaluating the quality of each product, with a precision far superior to that of the human eye! Over the last few months, we have carried out a large number of projects in France in each of these areas, with exceptional results in terms of product quality, improved performance in the workshop or factory, and even employee satisfaction!

Recently, innovation and technology have been present in all areas of the fashion world, providing answers to extremely varied problems and needs:

- Via the blockchain which enables traceability and certification of the origin of raw materials, in order to meet the growing expectations of consumers who desire socio- and eco-responsible products.
- Via sensors and drones that now monitor the natural resources used to produce the clothes,

cosmetics and perfumes offered by the fashion brands, thus making it possible to guarantee their quality, protect them from the vagaries of the weather and ensure their storage conditions.

- Via digitised logistics platforms, open to a multitude of operators, which make it possible to optimise in-store supply or delivery to customers, the latter having become a standard, particularly due to the recent surge in online sales.
- Via artificial intelligence which, for example, permits the anticipation of trends through a real-time analysis of social networks throughout the world and thus makes it possible to tailor production in near-real time, confronted with peaks in demand or, on the contrary, a loss of interest in certain products, or even certain colours.
- Via micro-components and ultra-precise cameras that enable the detection of counterfeits that flood the market and cause some products to be “returned” to the shop without the vendors being able to identify them.
- By incorporating technologies into the products themselves, as seen with LCD screens embedded in handbags, colour-changing dresses or ever more powerful connected watches.

On the other hand, it is also in customer interactions that innovation and technology are changing the game: the in-store experience is metamorphosing and concepts are evolving (particularly due to the growth of

online shopping, especially in China). This is causing some shops to become showrooms vying for originality to attract customers, who will try out products that they will then buy on dedicated platforms.

"Those who will be the first to be able to offer their customers and employees the benefits of these tools will be the ones who will gain a major competitive advantage."

The shop, a place of human interaction, is now a hub of technology:

- Window displays are reinventing themselves to capture the attention and interact with the passer-by or visitor. They even go as far as analysing the position of his or her gaze and face to adapt accordingly.
- The virtual fitting enables you to try on clothes adapted to your morphology, while remaining clothed, or to test different colours of the same model without having to change your clothes.
- Products can also be "augmented" via RFID chips or tags, permitting the customer to benefit from a bulk of additional information, with a single gesture on his mobile phone.
- Cameras, known as surveillance

cameras, coupled with artificial intelligence, can be used to operate a multitude of services, such as identifying empty shelves, spotting customers waiting for advice or unusual behaviour, and thus, preventing markdowns or vandalism.

- Salespeople and advisors benefit from technologies that will improve their training, provide them with advanced information on products, and even on the customers who contact them if they have been identified, so that they can provide increasingly personalised recommendations.
- The expectation of personalisation in terms of advice and recommendations is immense, and can be enriched by the analysis of information collected on the customer - from previous purchases or activity on social networks, all of course, in accordance with the regulations and the wishes of these same customers. Personalisation also means being able to create unique products, in-store, using engraving, weaving or 3D printing tools that will add a personal touch to each product to match the trend to stand out by displaying a product "that no one else has".

The COVID-19 pandemic definitely shifted the way the fashion industry looked at technology. Technology became more than ever a strong accelerator for fashion companies to preserve and grow their businesses during these difficult times. Indeed, it offers great opportunities in different areas of the fashion

industry:

- Online Shopping / E-commerce: it's all about recreating a personal experience with the client in an interactive and remote way.
- Co-creation with digital tools: brands had to continue creating products. Despite having shown a few limits sometimes in their ability to drive collective intelligence and co-creation remotely, they helped the fashion industry survive.
- Personalising and augmenting the experience: technology allowed some brands to engage with their clients remotely by digitising the immersive experience of the physical place (the boutique for instance) via virtual fittings.
- Revision of the business logics: The effort to optimise the supply chain as well as to monitor the flows and rethink the stock strategy have been stronger than ever.

To summarise, the fashion and luxury market continues to change and is taking the turn of digital and technology, probably later than other sectors.

Those who will be the first to be able to offer their customers and employees the benefits of these tools will be the ones who will gain a major competitive advantage in a market whose values are evolving more and more rapidly.

MACRO OVERVIEW // EUROPE



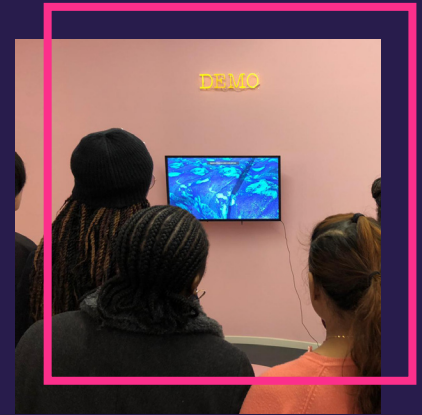
THE MAKERS

The makers, who in this case are the individuals behind the creation of fashion technologies, are established in various parts of the ecosystem. From web developers to 3D modelling experts, these creators can be found in coworking spaces such as makerspaces where their ideas can be fabricated with the help of available facilities. Such spaces have become popular around the world including France where 565 makerspaces are identified in 2020.⁴ These collaborative work environments were designed for “...making, learning, exploring and sharing [with the help of] high tech”⁵ and are categorised into either fab labs - following the guidelines of the Massachusetts Institute of Technology (MIT) - hacker spaces or makerspaces. They all share a common mission to gather communities of makers and convert ideas into reality.

When specifically looking into fablabs, they constitute a proactive network of spaces, where knowledge, hardware and software skills are shared. Both soft and hard skills are exercised in these environments and shared for any project initiated by any individual willing to observe the

maker’s philosophy. The impulse of these spaces can emerge from the initiative of a few individuals, districts, villages, cities, universities etc. where exchange of skills are highly valued for the purpose of the projects. These spaces attract volunteers from various backgrounds working together to birth new solutions, prototypes, iterations and interactions between labs.

Fashion tech is no stranger to this profound evolution in makerspaces with some of them having evolved to become powerful structures, such as Fab Lab Barcelona, where several departments were organically built like Fabricademy specifically related to fabric and textile innovation.⁶ These communities of makers constitute a solid alternative to traditional channels of information and knowledge and are now expanding further than fab labs, hackerspaces & makerspaces and into programs, incubators, funding opportunities and more. The following section will focus on initiatives that are revolutionising the different ways that fashion and technology synergise while expanding the ecosystem in general in Europe.



Foundry Powered by IFA Paris, Tech Demo Space

⁴. Makers Media For Labs, <http://www.makery.info/en/map-labs/>, 2020 | ⁵. What is a Makerspace? Is it a Hackerspace or a Makerspace?, <https://www.makerspaces.com/what-is-a-makerspace/>, 2020 | ⁶. Fabricademy Barcelona – Fab Lab Barcelona, <https://fablabbcn.org/education/academies/fabricademy-barcelona>, 2020

A DEEPER LOOK INTO THE EUROPEAN ACTIVITY

"Europe is one of the leading continents for this cultural revolution in the fashion industry. While there is an increase in fab labs and makerspaces, there are also growing numbers of fashion tech related programs which extend the ecosystem to learners of the discipline in Europe. Each program is unique to the other whether it is through an incubator, accelerator or school/institution. In this section, these programs - that are widely available digitally throughout Europe - will be discussed in further detail. "

COSME + DeFINE

The EU program COSME has been created for the Competitiveness of Enterprises and Small to Medium Enterprises (SMEs), running from 2014 to 2020, with a budget of €2.3 billion.⁷ COSME will support SMEs in the following areas:

- Facilitating access to finance
- Supporting internationalisation and access to markets
- Creating an environment favourable to competitiveness
- Encouraging an entrepreneurial culture

COSME is a program implementing the Small Business Act (SBA) which reflects the commission's political will to recognise the central role of SMEs in the EU economy.

SMEs are a driving economic force in Europe and make up 85% of the current job roles in Europe therefore, there is a need to federate them.⁸ Conscious that SMEs were created much before the internet revolution, the EU (and more specifically COSME) created tailor-made programs dealing with each field that is facing a need for transformation with the help of the above listed expertise. This includes digital technologies⁹ that could be implemented into fashion SMEs who are looking to transform operations concerning the production/selling of their

products or those who intend to work with other businesses for similar purposes. An example is DeFINE, a program co-funded by COSME intended to bring fashion tech innovators together through incubators and accelerators.

DeFINE is a network platform created for the duration of 2018 to 2021. The aim of DeFINE is to take the pulse of fashion tech into Europe, create a collaborative network of incubators and accelerators, start-ups and SMEs, and financiers¹⁰ This program was created to support the need for a framework for the network to consider when pushing their fashion tech ideas forward.

Programs such as these acknowledge the importance of networking by encouraging conversations between emerging fashion tech SMEs with other stakeholders. This naturally expands the fashion tech ecosystem further to those who support the innovations as well as the makers.

UK // London

The evolution that has been seen across Europe can also be found specifically in the UK alone. The fashion design industry is one of the largest creative industries in the country, generating £59.3 billion to the

7. COSME. Europe's programme for small and medium-sized enterprises. - Internal Market, Industry, Entrepreneurship and SMEs - European Commission, https://ec.europa.eu/growth/smes/cosme_en, 2020 | 8. Europa Internal Market, Industry, Entrepreneurship and SMEs, https://ec.europa.eu/growth/content/small-companies-create-85-new-jobs-0_en, 2012 | 9. Ibid, 2020 | 10. DeFINE Fashion-Tech Network Europe, About DeFINE, <https://www.define-network.eu/>, 2020

economy in 2019¹¹ This reveals the importance of building the ecosystem and incorporating technology for its future sustenance.

Institutions and programs such as those described in the previous section are created to tackle the challenge of digitally transforming the fashion industry overall. With a closer look into the UK approach, the division of the fashion tech ecosystem into specific areas is evident through the increase of fashion schools in addition to the incubator & accelerator programs. The opportunity created by the emergence of the fashion tech industry was enough for the government to allocate important funds towards it.

London is a good example of a city that is proactive when it comes to deploying fashion tech initiatives. The London College of Fashion was early an institution to realise the discipline with postgraduate courses and accelerator style programs offered to their students and external individuals in the late 2000's. These have subsequently been broken off into different branches inside the university including the FashTech program at Centre for Fashion Enterprise, Fashion Innovation Agency and Digital Anthropology Lab. Farfetch's accelerator, Dream Assembly, is another example of a London based organisation that is pushing the growth of fashion tech talent.

Accelerators & Start Up Programs

Throughout the rest of Europe and worldwide there are now approximately 15 specialist programs to support fashion tech start-ups. For example, Milan has two alone with Startup Bootcamp Milan and Fashion Tech Accelerator, which both serve as catalysts for start-ups that show promising early traction. Fashion For Good based in Amsterdam and The Mills Fabrica in Hong Kong are two initiatives focusing on sustainability. This laser focus on a specific subject coupled with their blended approach that includes a VC fund and a gateway to corporates creates a dynamic platform.

However, it is also necessary to note that many of these programs require applicants to have a validated business model, prototype and revenues generated in order to be accepted. Additionally, many focus on the end of the fashion value chain, e.g. retail experiences and e-commerce, such as New York Fashion Tech Lab. Therefore, there is still opportunity for other initiatives to fill the gaps within the startup lifecycle or other underserved areas of the value chain such as design and product development.

SPOTLIGHT: BRITISH FASHION COUNCIL & HOLITION

London Fashion Week & Data Visualisation

This project is a clear example of how intricate and already-advanced the fashion innovative scene is so far. The British Fashion Council (BFC) has implemented multidisciplinary collaborations between the multiple companies including award-winning creative innovation studio, Holition who host an Internship Program annually dedicated to foster talents from diverse backgrounds. The fundamentals of this program is to interpret data from the industry into visually-pleasing illustrations.

A collective of a data scientist, jewellery designer, mathematician, economist and computer scientists are the masterminds behind this initiative under the supervision of the Creative Technologist at Holition. This data visualisation project was initially created by a team of students using data to validate BFC's core values¹² and has progressed to analysing fashion-related social media and press statistics at London Fashion Week by converting the data into digital trees with branches that

extend according to the popularity of its category. An example of this project can be seen when considering sustainability as one of the highly discussed topics of today which would make its branch on the digital tree as one of the longest.¹³

Not only did the Holition Internship Program become a perfect marketing tool for the BFC, thanks to the ability of the data visualisation to update in real time and showcasing on all social media & press platforms during London Fashion Week 2018, but it also allows the ecosystem to extend to interns in this field. Here they are introduced to the idea of the synergy between fashion, visuals, technology and data - which is usually more explored in this way with leading fashion companies at a later stage in the ecosystem with start-ups and SMEs.

13. Holition Blossoming Fashion Conversation, <https://vimeo.com/294104627>, 2018



MICRO OVERVIEW // FRANCE // PARIS



The French region still has a long way to go when approaching more specialised fashion tech programs and initiatives however, there are currently multiple activities around technology with the help of fab labs, hacker and makerspaces mentioned in the macro section. While initiatives such as Fashion Tech Days by Nord Corea¹⁴ exists, the gap remains unfilled when concerning large-scale public or private programs dealing with fashion tech directly in France and this is part of the reason the Foundry fashion tech lab exists here.

"There is room for such innovation in the luxury market"

Sara Dsouki,
Founder, Speetra

One of the start-ups from the Foundry Startup Program, Speetra Design Studio, travelled from Lebanon in the hope to be in an environment that embraces the advancement of fashion. While acknowledging that Paris is renowned for its traditional practices in fashion, Sara Dsouki Founder of Speetra, hopes to provide "a new creative tool that surpasses the boundaries of design and physical work"¹⁵ through their 3D printing and digital design platform. Sara believes that there is room for such innovation in the luxury market. This is one example of many international



pioneers coming to France who are contributing to the fashion tech ecosystem with their technological expertise. Many start-ups with a similar ambition to optimise the fashion industry in France are able to tap into the initiatives that support them including the Public Investment Bank (BPI) created by the French government. This consists of a strong network of banking partners, investors, regions and institutions, allowing BPI France to support innovative projects at their early stages. The key support systems created from this network

are the French Tech Grant which, upon approval of their candidature, provides the opportunity for start-ups to obtain up to €30,000 grant and the other is a specific investment fund for the Fashion, Luxury and Beauty categories. While there are requirements attached to these opportunities - such as needing to make €500K a year - the ability for the startup to scale is made available along with other opportunities explored in this section.

MICRO OVERVIEW // FRANCE // PARIS

LA French Tech

The French Tech mission is a governmental strategy making the link between the public sector and the start-up ecosystem. It supports initiatives from bioscience to online marketplaces. It is based at the Ministry of Economy and finance in Paris and the approach is more of an open platform connecting entities from around the globe. Communities benefit from the French Tech label giving them visibility and access to regional and international funds depending on their points of focus. They are also able to access specific public services and in business terms, this can be described as outsourced market research.

This initiative is activated through a visa scheme for start-ups, funding, campaigns, special programs and support for 50+ French tech communities worldwide with innovations that are French-related. This network is aimed at facilitating the expansion of French SMEs and start-ups that are tech-focused. When considering those who are fashion tech-related, Fashion Data is one of few under this initiative. It is a startup based in France that works with fashion brands to address issues related to sales forecasting and inventory management in a quick and optimised manner using their product, Jarvis.¹⁶ La French Tech hubs across other countries are still yet to support fashion-specific SMEs and start-ups.

The hubs are created based on two goals - the first one is to promote French companies and innovation within their regions. The second purpose is to attract foreign investors, companies and community builders on a wide scale globally.¹⁷

There are four major axes within the French Tech strategy. The first axis is about talents, nurture the existing talents coming from France - such as deep-tech, engineers, developers - then attract and select local talents within the regions of the hubs. Both rely on how well-branded the image of the French ecosystem is and to continue expanding the talent recruitment.

The second axis is growth. The strategy is set up to help the start-ups internationalise at an early stage. For this part, investment is mandatory, largely linked to BPI France (public investment entity in France previously mentioned).

The third axis is related to the role of the government. Three ministries work together to reach the morphosis. The Ministry of the Economy is leading for the business part, that of Foreign Affairs is on the international, and the Ministry of Research and Education are all involved in this expansion. It is a matter of creating an efficient synergy between these three entities.

Lastly, the fourth axis is related to the community. Self-created, these French Tech communities face a

lack of diversity and inclusiveness. The aim will be here to make them more transparent and accessible to locals from different backgrounds which becomes vital when merging these for further innovation. Kat Borlongan, who leads the French Tech Mission, envisions La French Tech in 5 years as the reference tech ecosystem of Europe and that the ecosystem will have produced more unicorns without sacrificing the values of the country.¹⁸

Defi Mode

Since 1984, DEFI Mode (meaning 'challenge fashion' in French), has been supporting small businesses with a unique form of solidarity with big players within the fashion industry. The annual budget is €9.5 million and streams from the taxes paid on clothing by 3500 companies.¹⁹

DEFI has four specific missions. These are to accompany young fashion designers; work towards international recognition of the French fashion ecosystem; to transmit the French expertise of the fashion industry to ensure it is valued; and lastly, to support innovations. These goals are achieved by monitoring trends in innovation, and promoting the integration of innovation into the product & supply chains. Partnerships are at the forefront of pushing this initiative, examples being the work done with fashion tech start-ups at Station F - which is the world's largest startup

campus located in Paris²⁰ - and the Fashion Tech Days in the North of France that offers hackathons and programs.

"We believe there is a link between business and fashion tech."

Sebastien Vincente,
Head of Fashion Department,
Business France

Business France is another key player within DEFI's partner network as their collaboration has provided opportunities for French start-ups to participate in the world's largest annual festival of innovation, South by South West (SxSW) in Austin, Texas.²¹ Data & Data is one of the startups who showed interest in this opportunity while looking to expand their artificial intelligence platform which safeguards brands from counterfeit products. The 'copycat culture' and grey market is a global issue in the fashion industry where brands often notice counterfeits of their products sold at cheaper prices, thus creating unprecedented competition. Data & Data's AI technology challenges this unfortunate, yet frequent, issue in the industry. The opportunity to showcase such versatile fashion technology to an audience other

than its home location, France, is key in building its user base across other regions, similarly to La French Tech.

To further this invigorating of the French fashion scene and reinforcing its influence, DEFI and the French Ministry of Culture created ANDAM (National Association for the Development of the Fashion Arts) in 1989. The aim is to be the bridge between institutions and private actors of the fashion ecosystem to induce strategies and transversal actions. One of these is its competition, which now also includes the ANDAM Innovation Prize worth €30,000. The members of the committee are connected to the initiatives mentioned in this paper until now and its official recognition from the French fashion sphere as well as access to the best network.

Private Entities // France // Paris

As seen in the UK section, the UK is known to be liberal as its fashion tech initiatives are strongly supported by its government whereas in France, the ecosystem tends to be driven by private initiatives in the fashion and luxury sectors. France has some of the most competitive and influential groups and companies in this category - some of whom are making big impacts on the fashion tech scene.

MICRO OVERVIEW // FRANCE // PARIS

Viva Technology

In France, the French equivalent of Las Vegas' CES is Viva Technology - an annual technology and innovation event consisting of start-ups as exhibitors and expert guest speakers. This initiative was brought to life in 2016 by Publicis Group and the newspaper Les Echos. The media and advertising industries were in need for the French tech activities to be seen and interact with therefore, Viva Technology's response to this need is to connect start-ups and large corporations. In 2019, the event attracted some 2,450 journalists with approximately 75 nationalities,²² allowing start-ups to gain publicity in addition to access to funds created by Publicis and partners. Large corporations also benefit from this event as they access the most innovative solutions in France. From this, we can understand that Viva Technology is planned to execute three phases: showcasing, networking and funding.

It is important to note that the fashion conglomerate, LVMH, is deeply involved in Viva Technology. Since joining forces, LVMH contributes their innovation award and gathers a selection of start-ups and innovators as candidates. Heuritech was the first winner for this award in 2017 and have since increased their fundraising to €4 million and branched out to New York and Singapore.²³ This company's predictive analysis technology

allows brands to improve forecasting demands and trends through artificial intelligence which eradicates the conventional manual processes involved.

As a fashion power house, it is interesting to see that LVMH leverages the French tech scene while giving it credibility due to its well-established reputation of being one of the largest conglomerates in the industry. The significance of this partnership with VIVA Technology is evident as it defines a clear vision of how digital transformation is deeply impacting the decisions and presence of stakeholders in the fashion industry.

Station F

In 2013, Xavier Niel, French billionaire businessman leading in the telecommunications and technology industry, created a school named 42. This was a free tech and computer programming school without teachers, books, or tuition for 1000 people annually. 42 was the first element of a much larger plan as 2017 saw Niel's vision to build the biggest startup campus in the world, Station F with more than 30 programs, 40 VC funds, 35 public administrations and 600 events a year. The place was marketed as being the place to be in Paris which appears to have succeeded as it holds this reputation today in the startup world.

When speaking with residents of the 366,000 square metre space, it is

evident that the full experience goes beyond the program itself. While guidance is provided by experts and support is available from equipment such as 3D printers, laser cutters and other technologies, the overall atmosphere remains valuable. It is revealed here that the push for innovation is closely related to the reputation of its surroundings. By attracting start-ups and entities, such as LVMH and Adidas, with the above attributes looks promising to sustain an active ecosystem.



FASHION TECH-SPECIFIC PROGRAMS // FRANCE // PARIS

Several programs deal with fashion tech from a macro perspective. Beauty, fashion and retail groups saw here a good opportunity to outsource some of their R&D. Each group selected a different format which will be explored closely in this section.

LVMH // La Maison des Start-ups

LVMH are not only supporting other entities as they also host their own initiatives. Besides launching their recent mobile store service responding to the social distancing measures²⁴, they also host the La Maison des start-ups LVMH accelerator driving fashion tech businesses between the selected start-ups with the many brands they own including Louis Vuitton, Givenchy, Kenzo and more.²⁵ Housed at Station F, the aim is for LVMH to innovate their offerings by utilising the products and solutions developed by the start-ups on the accelerator. It is one side of their innovative strategies brought to life when Ian Rogers became the group's Chief Digital Officer.

Start-ups selected for this accelerator tend to be retail-based as they reimagine the ways in which consumers purchase or experience

fashion products. One of the goals are to provide “the possibility of considering closer collaboration”²⁶ between start-ups and brands under LVMH to “reinvent them so they remain relevant to [their] current and future customers.”²⁷ Hosting this accelerator annually allows the integration of fashion tech innovations with these brands consistently - precisely every year - provoking fashion brands to consider their pre-existing models at least once a year while inspiring smaller brands to follow-suit.

There is still room for further push on the synergy between business, fashion and technology which this program could prove useful for participants in preparation for collaborations with corporates.

Impulse by VeePee

It is clear that Station F as a platform facilitating outsourced innovation has kept its scope of participants large. Apart from groups directly related to fashion, there are also programs such as from Thales, Microsoft, Ubisoft, HEC, BNP Paribas. VeePee is one of these and is a 9-month accelerator at Station F focusing on fashion, tech and retail. The goal is to generate growth for its start-ups by testing their solution on VeePee and being linked to their partner brands. Each solution has the opportunity to be tested by the 73 million members of the community and 7,000 partner

brands²⁸. Finally, before completion of the program, start-ups present their innovations to a board of jury. Here the system is purely outsourced R&D and pre-tested before possible investments or acquisition are processed.

From the above, it is clear that there is a demand for specialist solutions tackling ecommerce, especially when considering the ways in which retail is changing. More innovation is required to keep shoppers interested in interacting with brands online due to the new normal of working and staying at home. One of the IMPULSE previous participants, FITLE, have worked on a digital sizing & virtual fitting room technology which many innovators are now considering more since the universal COVID-19 lockdowns. Many physical fitting rooms in stores across the globe are inaccessible even post deconfinement therefore, making it even more difficult for shoppers to make the most of their shopping experiences.

The ability for shoppers to try on clothing digitally before purchasing becomes an interesting invention to explore which FITLE offers with their technology. It has been said to reduce “the cart abandonment rate by more than 60%”²⁸ which is usually one of the top priorities for brands online who adopt technologies such as these. During an interview with Lara Mazzoni, CEO and Co-Founder of UK

24. Journal Du Luxe, Louis Vuitton: a mobile store in a caravan. <https://journalduluxe.fr/louis-vuitton-mobile-store-us/>, 2020 | **25.** Mode & Maroquinerie - Prêt-À-Porter, Haute Couture, Accessoires - LVMH, <https://www.lvmh.fr/les-maisons/mode-marroquinerie/>, 2020 | **26.** Bregeras G., LVMH Inaugure La Maison Des Startups Au Sein De Station F, <https://business.lesechos.fr/entrepreneurs/communaute/0301539750446-lvmh-inaugure-un-programme-au-sein-de-station-f-320157.php>, 2018 | **27.** Beloni T. The Mission, <https://lamaisondesstartups.lvmh.com/the-mission/>, 2020 | **28.** Vente-Privée IMPULSE, <https://impulse.vente-privée.com/startups>, 2019

fit fashion technology startup Bodi. Me, she points out that “there is a ritual of the buying, selling and try on [which is] now gone as it cannot legally or safely happen”²⁹ due to the current social distancing measures that have impacted the customer and business relationships therefore, showing a need to substitute this through fashion technologies such as online fittings described in this section.

While this area of virtual try-ons continues to be explored by fashion companies including Gucci³⁰ and Farfetch³¹, if results show its effectiveness in sales & customer acquisition, it is likely to become a popular asset to the industry with further innovations ahead.

ADN // Institut Français De La Mode // Creative Valley

L’Institut Français de la Mode (IFM) and Creative Valley run together ADN X IFM at Station F. It is an incubator for around 30 start-ups related to design or digital solutions. Creative Valley, French facilitator, has been opening Creative Centers since 2012, some of them just under the banner of Creative Valley and others for clients or partners. IFM and Creative Valley already worked together for projects involving The Entrepreneurs program of IFM, collaboration with 42 and

Epitech. Here the start-ups benefit from the network of IFM and Creative Valley. The gap is bridged between the academic activities from IFM and entrepreneurial environment. This is another example of how the industry is nurturing the future leaders of the fashion tech scene in the hope to expand it later.

Platform A // Adidas // Plug & Play

Adidas went for another strategy by asking Plug & Play, one of the biggest players in the startup world, to open its accelerator in Paris. Plug & Play is an all-inclusive solution, creating tailor-made programs around the globe. Selected start-ups offer new products and business models for the sports industry. Adidas invested €1 million into this program and is a part of their strategy called “Creating the New” based on 3 pillars - Speed, Cities and Open source.

In Paris others made a similar choice to Adidas. In their Brand & Retail sections, we can find The Lafayette // Plug & Play running for several years now. It is an accelerator dedicated to retail and e-commerce. This program is for start-ups to reach in 3 months the growth they would have reached in 12. Here, the pillar for speed is clearly achieved as startups are encouraged to push their ideas quicker for earlier implementation to the industry.

29. Interview with Lara Mazzoni, Paris, France 2020 | **30.** Camara S., Snapchat app launches “Try-on” option with Gucci, <https://fashionunited.fr/actualite/retail/1-application-snapchat-lance-l-option-try-on-avec-gucci/2020070224225#:~:text=Il%20est%20d%C3%A9sormais%20possible%20d,campagne%20mode%20en%20r%C3%A9alit%C3%A9%20augment%C3%A9e.&text=Cette%20technologie%20a%20%C3%A9t%C3%A9%20pr%C3%A9sent%C3%A9e,eu%20lieu%20en%20juin%20dernier,2020> | **31.** Jasman A., Try on Off-White sneakers virtually with the Farfetch app, <https://www.esquiremag.com/farfetch-virtual-try-on-off-white-sneakers-wannaby-ar-technology/>, 2020

CONCLUSION

As highlighted throughout the paper, many initiatives involved across Europe so far are only just scratching the surface of the full potential that fashion technology and its stakeholders have to offer. Most programs and other initiatives (even those not mentioned in this paper) are still focused on specifics - whether that is dealing with fashion or technology separately. There is room for start-ups, SMEs, companies and students with a growing interest in synergising the two together amongst other important considerations in the industry such as sustainability which La Caserne will tackle when it opens in 2021.³² It is through further consideration of these other important factors that this field can further innovate.

When concerning the brands who may benefit from the use of new technologies, a level of open-mindedness is required from them to collaborate with fashion tech start-ups and makers who have the ability to transform their business models for the better. In light of this, when in conversation with Muchaneta Kapfunde, Founding

Editor-in-Chief at FashNerd³³, she points out that:

“Although technology has the potential to disrupt the industry, it is worth noting that these solutions are only tools, therefore to harness their full potential, fashion companies need to first understand how these tech 'tools' can help them improve their business.”

In addition to this, it may be difficult for many to fully understand the need to innovate and explore opportunities mentioned throughout this paper. It is through

more in-depth collaborations between tech companies/startups and corporates/established fashion brands that much deeper, as well as more meaningful partnerships, can be made. Such activity can push the conversations beyond the academic and research stage which is currently the stage that is being most explored. Governments and public organisations have means to be more involved in this field as it continues to emerge and transform the industry. Their involvement can be one of the ways this field can be taken more seriously and attract further meaningful conversations.

Only when the above is understood by these stakeholders, as well as established fashion companies, can the industry as a whole become a leading force for innovation above other industries.

GLOSSARY OF TERMS

Accelerator: A company or plan that helps new companies or organisations to grow quickly and become successful

Artificial intelligence: The study of how to produce computers that have some of the qualities of the human mind, such as the ability to understand language, recognize pictures, solve problems, and learn

Brick and Mortar: Existing as a physical building, especially a shop, rather than doing business only on the internet

Disruptive: Causing trouble and therefore stopping something from continuing as usual

Fashion: A style that is popular at a particular time, especially in clothes, hair, make-up, etc.

Fab lab: A place to play, to create, to mentor and to invent: a place for learning and innovation. Fab Labs provide access to the environment, the skills, the materials and the advanced technology to allow anyone anywhere to make (almost) anything.

Incubator: An organisation that helps people to start new companies, especially ones involved with advanced technology

Industry: The companies and activities involved in the process of producing goods for sale, especially in a factory or special area

Innovator: Someone who introduces changes and new ideas

Innovation: (The use of) a new idea or method

Makerspace/Hackerspace: A place where people can come together to create or invent things, either using traditional crafts or technology

R&D: Abbreviation for 'research and development' - the part of a business that tries to find ways to improve existing products, and to develop new ones

Technology: (The study and knowledge of) the practical, especially industrial, use of scientific discoveries

Textile: A cloth/fabric made by hand or machine

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