D3.1 FASHION-TECH CONTEST AND PORTFOLIO OF PROTOTYPES OF NEW PRODUCTS/PROCESSES/ SERVICE DEVELOPED

FTalliance

Title of Deliverable:	Deliverable report
Date of Delivery to the EACEA:	

Workpackage responsible for the Deliverable:	HB, TUD
Editor(s):	Kaspar Jansen (TUD)
Contributor(s):	Kaspar Jansen (TUD), Vijai Kumar (HB)
Reviewer(s):	Josè Teunissen (UAL), Daria Casciani (POLIMI), Jon Arambarri (ESTIA) Gabrielle Miller (UAL)
Approved by:	All partners of the Consortium

Abstract:	This deliverable provides an overview of the Fashion-Tech residency programme where students of participating HEIs were embedded in Fashion-Tech companies to acquire practical skills through a mentorship scheme. During this experience, they developed novel Fashion-Tech digital designs product prototypes and tools for analysing the Fashion-Tech market. 31 students participated in the residency contest and the juries of the HEIs selected 19 of them to work on one of the 20 projects defined by the companies. All projects took place in the period from January to July 2022. The duration varied between 2 to 5.5 months. The progress and results were assessed using previously designed midterm and end-term evaluation forms. The portfolio of projects are included in this report.
Keyword List:	Fashion-Tech skills, Fashion-Tech Residency, Fashion-Tech Companies, HEIs, Students

Version	Date	Comments	Main Authors
1.0	19.08.2022	Draft version	Kaspar Jansen (TUD)
2.0	20.09.2022	Review	Josè Teunissen (UAL), Daria Casciani (POLIMI), Jon Arambarri (ESTIA) Gabrielle Miller (UAL)
3.0	26.09.2022	Added missing report from HB	Vijay Kumar (HB)

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both. FTall action has received funding from the European Union under grant agreement number 12662. The information in this document is provided "as is", and no guarantee or warranty is given that the information is fit for any particular purpose. The above referenced consortium members shall have no liability for damages of any kind including without limitation direct, special, indirect, or consequential damages that may result from the use of these materials subject to any liability which is mandatory due to applicable law.

TALE OF CONTENT

EXECUTIVE SUMMARY

In the residency programme, students of participating HEIs were embedded in Fashion-Tech companies to acquire practical skills through a mentorship scheme. During this experience, they developed novel Fashion-Tech digital designs product prototypes and tools for analysing the Fashion-Tech market.

31 students participated in the residency contest and the juries of the HEIs selected 19 of them to work on one of the 20 projects defined by the companies. All projects took place in the period from January to July 2022. The duration varied between 2 to 5.5 months.

The progress and results were assessed using previously designed midterm and end-term evaluation forms. The purpose of the midterm assessment was mainly to signal possible problems and, if necessary, make adjustments to the project planning.

In general the quality of the work delivered up to the midterm evaluation was considered good. The companies were quite satisfied with the work of the students and students considered the residencies as a very valuable learning experience.

A point of attention is that the administrative tasks for the internships took much more time than expected, resulting in a start delay of many projects. It is suggested next time to have at least 4 weeks between the announcement of the selected candidates and the start of the residency to be able to take care of this. In addition, it was recommended to have a project duration of at least 3 months.

After the project, the students were rated on a High/Medium/Low scale. Most of the students rated between medium to high and only in a single case the performance level of the student was lower than acceptable.

The type of work that the students did differ from project to project. In about 35% of the projects physical prototypes were made. Digital designing is an important trend for the future of Fashion-Tech and was used in many of the studies as a tool during the design phase. About 12% of the projects stayed in the digital world and did not (aim to) produce a physical prototype. In about half of the projects (53%) tools or methods were developed for designing or market analysis.

1. Outline of the report

Objective of Residency program

In the residency programme, students of participating HEIs were embedded in Fashion-Tech companies to acquire practical skills through a mentorship scheme. During this experience, they were able to develop novel Fashion-Tech product/service prototypes. In order to be selected students presented a portfolio that was evaluated by a separate jury committee for each HEI.

Overview of report

In this deliverable we will discuss the outcomes of the FTalliance residency part in which students of the different HEIs performed internships at the companies. The report discusses the projects offered by the companies, the contest which was used to select the students, the project outcomes and the mid-term and end-term assessments.

The Fashion-Tech residency program started with 20 projects being proposed by 8 companies. In each of the 5 HEIs a design contest was announced to select students to participate. From these applications the juries of each of the HEIs selected 19 students to participate. In the sections below we discuss 1) The proposed projects, 2) the selected students per HEI, 3) the outcomes of their midterm and end-term assessments as well as 4) a brief overview of the produced prototypes and results. In chapter 6 we list the Fashion-Tech design competitions and contest that we suggested in the reports.

2. Selection phase: Projects and Contest

For the selection process, the students were provided with information regarding how to apply, deadlines, the selection process, evaluation as well as about the jury. An overview of the selection process is shown in Figure 1. The residency projects as formulated by the companies are shown below. Note that next to the 7 companies linked to the consortium two external companies (Thrill Digital and ByBorre) proposed a project. More information about the residency project can be obtained from the FTalliance website https://fashiontechalliance.eu/en/the-project/residency.

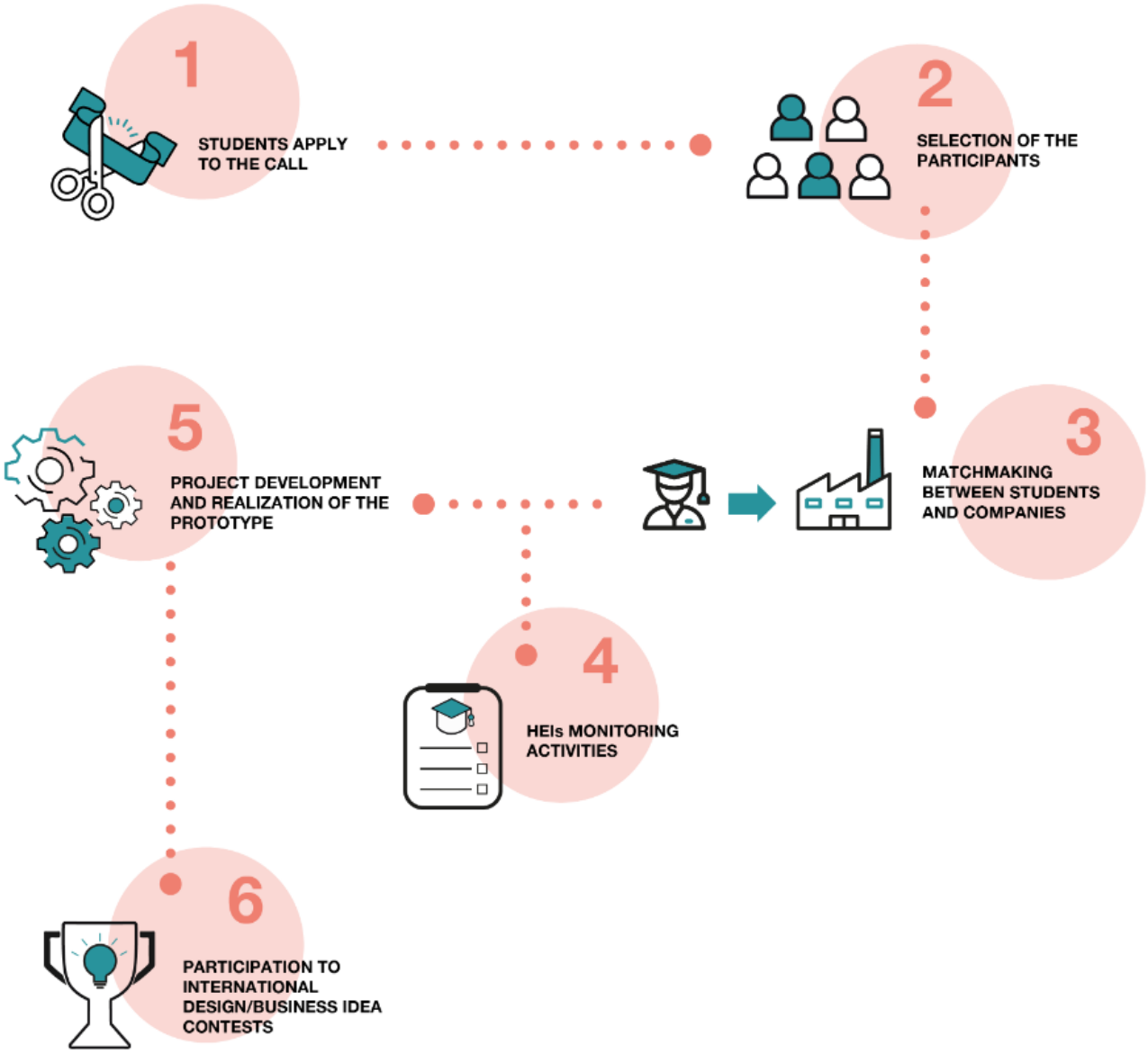


Figure 1: Process for selection of students for the Fashion-Tech residency

Proposed internship projects

In total 21 projects were proposed. The project titles and descriptions are listed below.

Company	**Centexbel (CTB)**
Project 1.1	Fully biobased clothing by screen printing
Description	Use of printing for a nice design of clothing (e.g., baby clothes) using only natural and biobased materials: the substrate can be cotton or PLA, prints can be made based on natural colorants into a PLA or PHA binder
Project 1.2	Recyclable clothing: no zippers, no buttons
Description	Recycling of clothing is being made difficult by the presence of all kinds of different materials. Especially zippers, buttons (hard materials) are the reason why a lot of clothing are not being recycled in a fully industrial way. The zipper and buttons need to be cut out manually. This could be solved by using e.g., 3D printed buttons or other kind of closures.

Company	Pangaia Grado Zero (PGZ)
Project 2.1	Thermal comfort: active cooling or heating vest or jacket
Description	On the base of the product (from our portfolio), it can be a cooling system (e.g., F1 vest) or an heating system (e.g., Absolute Frontiers product).
Project 2.2	Sensorized twin-set: cardiac measurement in workers
Description	Embedding in a twin-set comprising an underwear shirt and a vest (to be worn over), ECG sensors. The platform we are using in an on-going parallel project, that is BITalino, allows the connection of additional sensors: sensors and actuators: EEG, EDA, EMG, Accelerometers, Buzzers (audio monitoring), BTN, PRT, LUX (for light), DAC, LED, and a plethora of other sensors and actuators, also by third parties. I personally suggest to focus on max. two typologies of sensors, one would also be better, working on increasing integration (e.g., positioning of the electrodes and the ensuring contact of the electrodes with the skin, on the underwear shirt, could be the main issues to be studied).

Company	Pauline van Dongen Studio (PVD)
Project 3.1	Solar textiles
Description	We recently started a 2-year research project named “SUNTEX” aimed at developing a solar textile in collaboration with Tentech. We will be creating a new textile with flexible solar cells woven into it, which will give energy harvesting capabilities to all kinds of textile architecture applications like textile facades and (festival) tents and bring a new aesthetic and material qualities into the realm of solar energy.
Project 3.2	Shape changing textiles
Description	With textiles that can actively change shape, we want to investigate the relationship between people and clothing. What do these new forms of textile mean for the relationship between people and clothing? Does it become more intimate when textiles are a lively participant in this tactile dialogue?
Project 3.3	Textile, touch and well-being
Description	With our work we emphasize the value of the physical, sensory experience of clothing and its nurturing qualities. This direction explores how the tactility of textiles and the possibility for garments to create the sensation of touch through haptic technology can promote people’s wellbeing.

Company	Pespow
Project 4.1	3D modelling for special collections
Description	3D modelling project for special collections that we are developing regarding circular economy and sustainable projects.
Project 4.2	Smart database for digitalization of Pespow archive
Description	The design and implementation of a smart database for the digitalization of our archive (physical products and 2D pattern).
Project 4.3	Design and implement of internal sustainability system
Description	The design and implementation of our internal sustainability system starting from the requirements of our Clients.

Company	Stentle
Project 5.1	The future assistant
Description	Market research and validation, product design and prototype, development and testing of smart tools for the shopping assistant of the future
Project 5.2	Sentient environments

Description	Identification and mapping of retail specific data analytics patterns and design of an ideal "Data Collection Store" and its integration system with the digital world. The project should include different analytics methods (such as funnel analysis) to be applied with our clients
Project 5.3	Retail of the future KPI's
Description	Study on current in-store "phygital" tools, identification of main kpi's to measure digital retail tools performance, application, and measurement of the identified kpi's on a real Stentle's client project.

Company	**We Love You (WLY)**
Project 6.1	How to measure environmental impact of new business models within the fashion industry
Project 6.2	How to measure social impact of new business models within the fashion industry
Project 6.3	How to measure financial/governance impact of new business models within the fashion industry

Company	**Decathlon**
Project 7.1	Development of protocol for aging test of swimwear accessories
Project 7.2	Repair, recyclability and reuse of glasses and masks in the aquatic ecosystem
Project 7.3	Benchmark and research of collect system

Company	**Thrill Digital (company external to consortium)**
Project 8.1	New digital fashion experiences for the metaverse
Description	We are building a mini metaverse with gamification of the luxury shopping experience. You need to design new experiences for the metaverse. This could range from new digital fashion that gives players super powers in the game, to new 3D experiences like shopping with your personalised avatar, to virtual events like 3D clubhouse/ Twitter spaces experiences.

Company	**ByBorre**
Project 9.1	Optimising Impacts for Online Platform Create™

Student selection

In the table below we list the number of students that applied and the ones that were selected. The table may not be complete yet since not all information about the applications was available.

TABLE 1. Number of applied and selected students per HEI

HEI	Company	applications	selected
POLIMI	Centexbel (CTB)	1	1
	Pangaia Grado Zero (PGZ)	2	2
	Pauline van Dongen (PVD)	1	1
	Pespow	1	1
	Stentle	1	1
	Thrill Digital	2	0
HB	WLY, round1	6	3
	WLY, round2	2	2
ESTIA	Decathlon, round1	2	1
	Decathlon, round2	4	4

TUD	Pauline van Dongen (PVD)	0	0
UAL	ByBorre, PGZ	9	3
		31	19

The table shows that for POLIMI all students applying for a company project could be accepted except for the students for the Thrill Digital. The reason for this is that the administrative part in the company took too long and the student had to withdraw. projects. At TUD the students already had to plan their second semester before the residency could start with the residency program.

A more detailed view of the students, companies and periods that the internships took place can be found in Table 2 below. In total 19 students were selected: 5 from HB, 6 from POLIMI, 5 from ESTIA and 3 from UAL. As discussed before the students from TUD had already to select their courses in the second semester before the Residency project could be announced, so no TUD students participated in the Fashion-Tech residency.

All projects took place in the period from January to July 2022. The duration of the residency period at the company varied between 2 to 5.5 months but it should be noted that the actual time the students spent on the projects was longer. During the initial delay due to administrative issues and bureaucracy (often 1 month or more) students started already their research and at the end prototypes were sometimes finalized when the students were back at their universities. Further note that one of the projects at WLY was performed by two HB students together.

TABLE 2. Overview of selected students participating in the Residency project

HEI	Selected student	(Inter)National	Hosting company	Internship Period
HB	Robayat Ferdous Saikot	National	WLY (Stockholm, Sweden)	Jan 17 - May 30 2022
(Round 1)	Dulanjani Damayanthi Aruppala Gedara	National	WLY (Stockholm, Sweden)	Jan 17 - May 30 2022
Selected 3	Imali Udeshika De Silva Gustinnawadu	National	WLY (Stockholm, Sweden)	Jan 17 - May 30 2022
(Round 2)	Arafat Saleheen	National	WLY (Stockholm, Sweden)	March 28 - June 06 2022
Selected 2	Fabian Pirrwitz	National	WLY (Stockholm, Sweden)	March 28 - June 06 2022
POLIMI (6)	MeiJun Chen	International	Centexbel (Ghent, Belgium)	4 April - 1 July 2022
	Shan Lu	National	Pangaia Grado Zero (Florence, Italy)	4 April - 30 June 2022
	Annalise June Kamegawa	National	Pangaia Grado Zero (Florence, Italy)	4 April - 30 June 2022
	Shenhao Lyu	National	Pespow (Padua, Italy)	7 March - June 2022
	Chiara Anceschi	National	Stentle (Milan, Italy)	2 March - June 2022
	Cecilia Saffirio	International	PvD Studio (Arnhem, Netherlands)	28 March – 1 July 2022
ESTIA	Theo Jorcin	National	Decathlon (France)	31 Jan -1 April 2022
Selected 2	Clement Dulieu	National	Decathlon (France)	
ESTIA	Cléa Renard		Decathlon (France)	May – July 2022
(Round 2)	Andoni Guerin		Decathlon (France)	16 May – 22 July 2022
	Charlotte Lassalle	National	Decathlon (France)	
	Lorentxo Bordagaray		Decathlon (France)	
UAL	Eva Rayfiel		ByBorre	14 March - 13 June 2022
(Round 1)	Lauren Chivers		Pangaia Grado Zero (Florence, Italy)	.. june 9
Selected 3	Yiyang Tang		Pangaia Grado Zero (Florence, Italy)	

3. Assessments

The deliverables for each of the residency projects are a midterm assessment, a final assessment and a final report. Depending on the HEI sometimes also an additional video and poster were made.

3.1 Midterm assessment

Purpose of the midterm assessment is to have an early feedback moment in which the project is evaluated and, if necessary, changes to the time planning and the project brief can be made. The assessments were done in a meeting with the student, the company tutor and the tutor of the HEI. For this, a dedicated assessment form was developed which was partly filled in before and partly during the meeting. The form template is shown in Appendix 1. It contains reflections on the quality, planning and project context, both from the students and the tutors' point of view. Important for the project is the last section in which deviations from the original planning and project brief are mentioned.

Overview of midterms

In the tables below we summarize the main outcomes of the Midterm assessments. The midterm assessments were not available for all the projects at the time of writing, so here we will discuss only those which we could access. The focus in this overview is on the remarks about problems and deviations from the original plans.

HB PROJECTS

Student	Arafat Saleheen, HB
Project	Traceability as step towards textile circularity
Company	WLY
Midterm remarks	No major changes needed
Students	Imali Udeshika De Silva Gustinnawadu, Dulanjani Damayanthi Aruppala Gedara, HB
Project	Business model analysis of digital platforms in fashion renting
Company	WLY
Midterm remarks	Difficulty with contacting companies for interviews
Student	Robayat Ferdous Saikot, HB
Project	Development of KPIs for the Circular Fashion Brands.
Company	WLY
Midterm remarks	No major deviations
Student	Fabian Pirrwitz, HB
Project	Renting fashion products – a short lived marketing hype or long-term business opportunity?
Company	WLY
Midterm remarks	In general, the mid-term results are promising. Interviewing companies was difficult in the limited time, so a text-mining approach was taken

POLIMI PROJECTS

Student	Meijun Chen, POLIMI
Project	Nature dyeing on Biobased material
Company	Centexbel
Midterm remarks	The overall quality of the activities is very high and much appreciated. Planning runs smoothly. Materials ordered in China were delayed due to the pandemic

Student	Annalise June Kamegawa, POLIMI
Project	Hyperfunctional garments
Company	PGZ
Midterm remarks	The work is a bit in delay. Student proposes that there should be a 3-4 month notice in advance of the start date because of the administrative tasks, now it was on too quick notice. Quality of the work was overall good. No strong deviations from planning
Student	Shan Lu,POLIMI
Project	Sensorised Twin-set for Sportswear - Biodata Monitoring System
Company	PGZ
Midterm remarks	The work is a bit in delay. Quality of the work was overall good
Student	Shenhao Lyu, POLIMI
Project	3D Modeling of a special Collection Toward Circular Economy and Sustainability
Company	Pespow
Midterm remarks	Project runs well and is on planning. Question how to inform about project details without showing materials under NDA.
Student	Cecilia Saffirio, POLIMI
Project	Biomimicry Wearables
Company	PVD
Midterm remarks	On track and good progress
Student	Chiara Anceschi, POLIMI
Project	Eirene, omnichannel retail experience
Company	Stentle
Midterm remarks	Smooth planning, work goes well; Support from Polimi with administrative tasks well noted; Midterm meeting is used to refine project goals

ESTIA PROJECTS

Student	Charlotte Lassalle, ESTIA
Project	Development of protocol for aging test of swimwear accessories
Company	Decathlon
remarks (taken from final report)	8 weeks internship. Training to new test equipment and statistics was needed. Due to lack of time, 2 more steps for protocol could not be finished.
Student	LorentXo Bordagaray, ESTIA
Project	Repair, recyclability and reuse of glasses and masks in the aquatic ecosystem
Company	Decathlon
remarks (taken from final report)	8 weeks project. Not enough time to evaluate recyclability of materials and the disassembly of products.
Student	Theo Jorcin, ESTIA
Project	Benchmark and research of collect system
Company	Decathlon
remarks (taken from final report)	Progress is too slow; communication is insufficient; Suggestions for improvements were done
Student	Andoni Guerin, ESTIA
Project	Development and application of test methods for swimwear
Company	Decathlon

remarks (taken from final report)	Project of 8 weeks. Performance tests on new swimwear. Worked within engineering group. He performed well although he often had to adapt his planning due to external issues.
Student	Clea Renard, ESTIA
Project	Recyclability and reparability of Nabaiji and Subea products
Company	Decathlon
remarks (taken from final report)	Used a circularity calculation tool to find out the CO_2 reduction impact of several diving mask designs. Worked well in the Decathlon team.

UAL PROJECTS

Student	Eva Rayfield, UAL
Project	Optimising Impacts for Online Platform Create™
Company	ByBorre
Midterm remarks	Small delay at the start; daily commute took 3 hours due to lack of affordable accommodation; excellent progress so far; duration of project had to be shortened
Student	Lauren chivers, UAL
Project	Zero waste jacket
Company	Pangaia, PGZ
Midterm remarks	Initial delay due to Easter break and paperwork; only minor adjustments needed; quality of work is good,; reduced residency time required extra 10 days in July; interference with Uni program
Student	Yiyang Tang, UAL
Project	Design for disassembly: A modular and detachable accessory of Parka
Company	PGZ
Midterm remarks	Smooth progress; time constraints may limit prototyping; length of residency is reduced by legal and Visa aspects; Adjust to digital prototyping

Discussion of Midterm assessments

In general, the quality of the work delivered until the midterm evaluation was considered as good. The companies were quite satisfied with the work of the students and students considered the residencies a very valuable learning experience.

Students' knowledge gaps were mentioned a few times for the ESTIA projects at Decathlon. In those cases, the students had first to be trained to work with measurement equipment and procedures which may have cost some time delay. A possible explanation is that the work at Decathlon was much more engineering-oriented than that of most of the other projects.

When evaluating the remarks and adjustments which were proposed it became evident that time planning was often a problem. Many students could not start in time and had to wait until all administration within the company and within the HEIs was dealt with. For non-European students, the visa application also resulted in delays. In addition, due to timing delays, some students mentioned that it was difficult to find affordable accommodation close to the company.

Many of the above-mentioned problems were probably because of the short period of time between the contest evaluation (January/February) and the actual start of the residencies (February/March). The proposed adjustments were mainly to adjust the project brief such that the project could be shortened. In one case the student went back to the company for a second stay in order to finish the final prototypes. This was, however,

difficult to align with the new courses starting at the university. In a couple of cases (POLIMI FT Residencies at CT, PGZ, and PVD) the prototyping activities were finished and finalized after the FT residency period at the company, once back at the University.

Other remarks were about delays in ordered materials due to the pandemic and the difficulty to get in contact with fashion companies for the questionnaries and interviews needed for the project. One student mentioned that the NDA with the company might hinder him from sharing his results. However, this issue has been fixed for the final prototyping phase.

Lessons learned

The residency program is very valuable for both companies and students and the companies consider the quality of the students usually as good. The residency program has to fit into the academic calendar, so residencies should preferably take place between February and July (second semester of the academic year). As an alternative, of course, residencies can be organized in the first semester (September to February). Based on these periods the start and the evaluation of the residency contests should be planned. In the current residency program, the small time gap between the announcement of the selected students and the actual start of the residency was a real challenge for the companies, the HEIs, and the students. It is therefore suggested to have at least 4 weeks between the announcement of the selected students and the start of the residency. With this in mind, the proposed time schedule should look like this:

- November 15th: Announcement of residency contest to students
- December 15th: Submission deadline
- December 31st: Winner announcement

The time for the jury to select the projects is then 14 days but contains the Christmas holiday and may therefore be problematic. An option is to shorten the submission time by one week (e.g. until December 7th) and announce the selected students before December 24th. Note that for TUD students the announcement and selection procedure should be about 4 weeks earlier since they have to hand in their study program for semester 2 by the end of November.

The duration of some of the projects was only 6 to 8 weeks, which was considered to be too short, for the companies, the HEIs, and the students. Such short times may hinder students from showing their full capabilities and companies from transferring their knowledge. In order to better comply with the goals of the Erasmus Plus program, it can be an option for a future project to specify a minimum residency duration of e.g. 10 or 12 weeks while keeping the maximum duration at 24 weeks (6 months).

3.2 Final assessment

Evaluation forms

The final assessment was evaluated by the supervisors from the Companies and the HEIs with the help of the two forms shown in Appendix 2. Since the grading involves just the assessment of one of the levels High/Medium/Low, the assessment procedure does not take much time. Form 1 mainly focuses on the evaluation of the work of the residency project considering the initially proposed project challenges and student's submitted proposals. Form 2 mainly focuses on the evaluation of the project report submitted by the student.

Calculation of scores

The final assessments of the student projects contain the H/M/L scores according to the forms shown in the previous paragraph. In order to be able to extract information from these score lists and make some comparisons it was decided to convert the scores per student to a data string containing the H, M and L values. The score string for Form1 of a student thus may look like "HMHMML". It thus contains 2H, 3M and one L score. Next, we attributed values of 3, 2 and 1 to the H, M and L scores, respectively, and calculate the average score. In this example the average score is (2*3+3*2+1*1)/6 = 2.17. The general equation is:

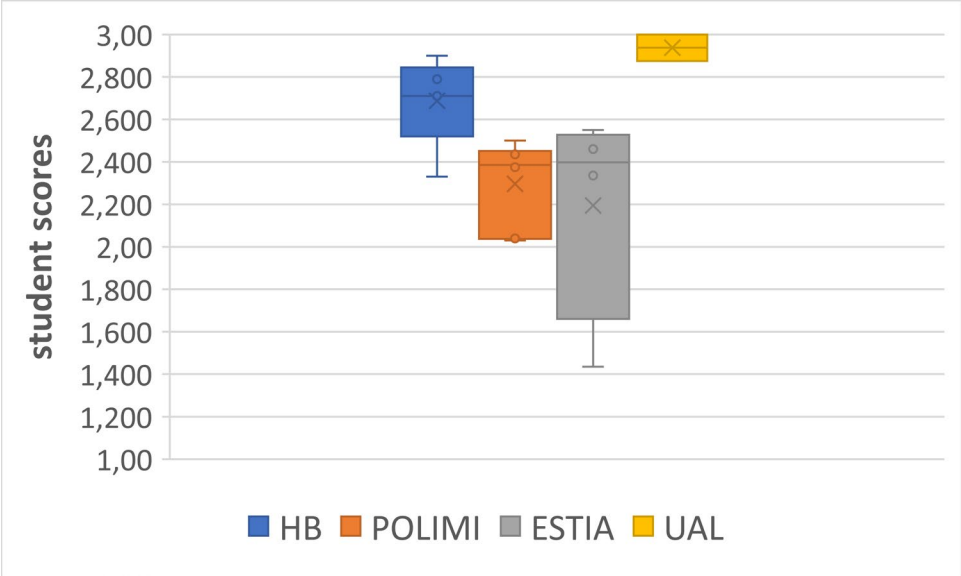
$$score = \frac{3N_H + 2N_M + 1N_L}{N_H + N_M + N_L}$$

in which N_H, N_M and N_L denote the number of respectively H, M and L scores in the score string. Score which were not filled in the strings were not taken into account. Combined scores like "HM" (high to medium score) were assigned the average value (2.5 in this case).

A MATLAB program was written to evaluate the scores of Form1 and Form 2 for all students. In general it turns out that the difference between the scores of Form1 and Form2 for a student is relatively small (typically between 0.1 to 0.2 points), so from now on we only consider the averages of the two forms per student.

Since we try to avoid the traceability of results to individual students we have chosen to represent the scores per HEI. The results are shown in Figure 2.

Figure 2: Final assessment scores for students per HEI



Discussion

For UAL only two student scores were available whereas one of the four ESTIA students had a score of 1.7, which was significantly lower than the scores of all other students. The two students of UAL were rated highest (close to the maximum score), whereas the other ratings centre around 2.7 (HB), 2.3 (POLIMI) and 2.4 (ESTIA). Without the low-scoring student, the ESTIA score is close to that of POLIMI. We can conclude that most students were rated medium to high and thus were assessed to perform well and that the UAL students were assessed with an excellent performance.

4. Prototypes and outcomes of individual projects

Overview of project results

The project results can be grouped in benchmark studies, test methods, interview research, management or design tools, digital designs and physical prototypes. An overview of the results is given below.

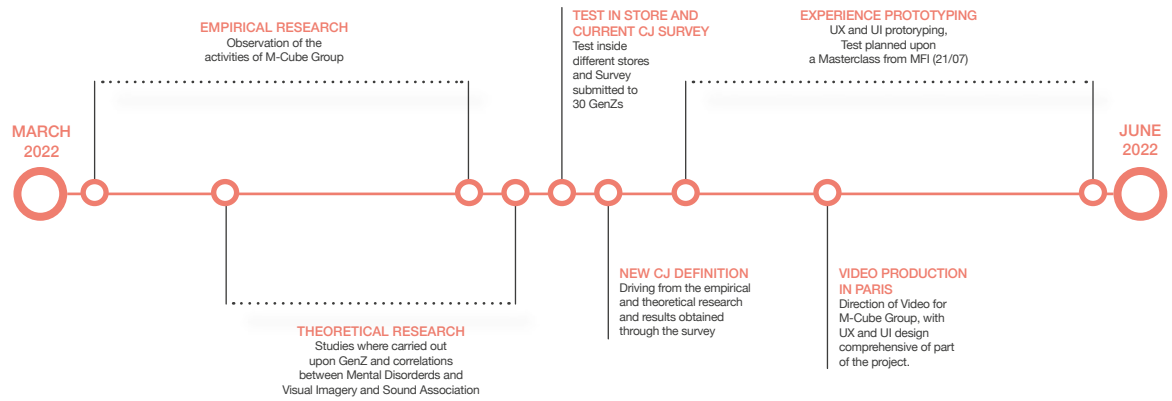
Eiréne

Omnichannel Customer Journey for Mass Market brands targeting Gen-Z users

AUTHOR: Chiara Anceschi
COMPANY: Stentle (M-Cube Digital), Milan, Italy
HEI: Politecnico di Milano
DURATION: 3/4 months

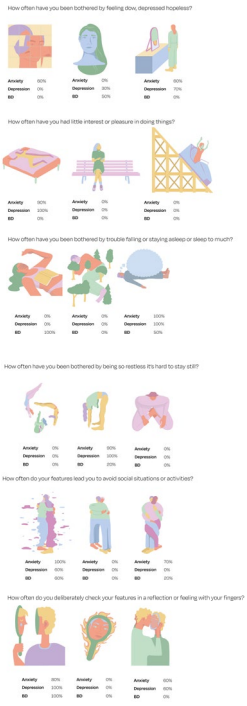
UX AND UI PROTOTYPE

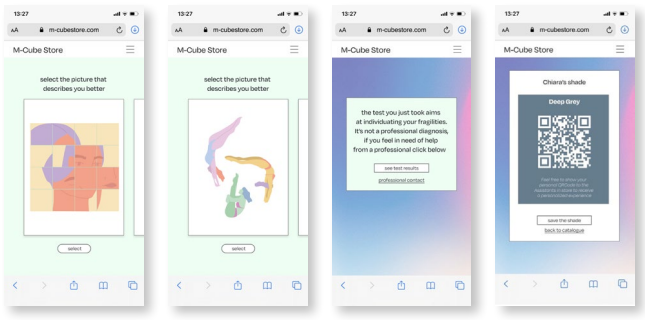
FT RESIDENCY TIMELINE

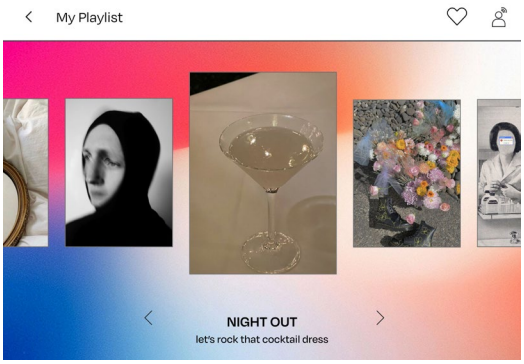


FT RESIDENCY PROJECT

Eirene is an omnichannel Customer Journey designed for GenZ targets diagnosed with depression and/or anxiety and/or body dysmorphia aimed at guaranteeing a safe and respectful in-Store experience. The aim of the project is to maximize the comfort of the customers while increasing the conversion rate and the total sales of the store. The Empirical Research was firstly aimed at observing Stentle/M-Cube activities and interactions with clients, diving into the contemporary panorama of the phygital offers on the market. In the meantime, a theoretical research was carried out on psychiatry studies regarding correlations between visual imagery and mental Illnesses, or associations between images posted on social medias and users' diagnoses. Once research foundations were built, a survey was formulated and delivered to 30 users. To communicate the project idea, a video regarding omnichannel experiences was designed and realised for Stentle - M-Cube sales department. The residency results in the prototyping of the Eiréne experience, tested live by 20 test users in M-Cube Demo Area.







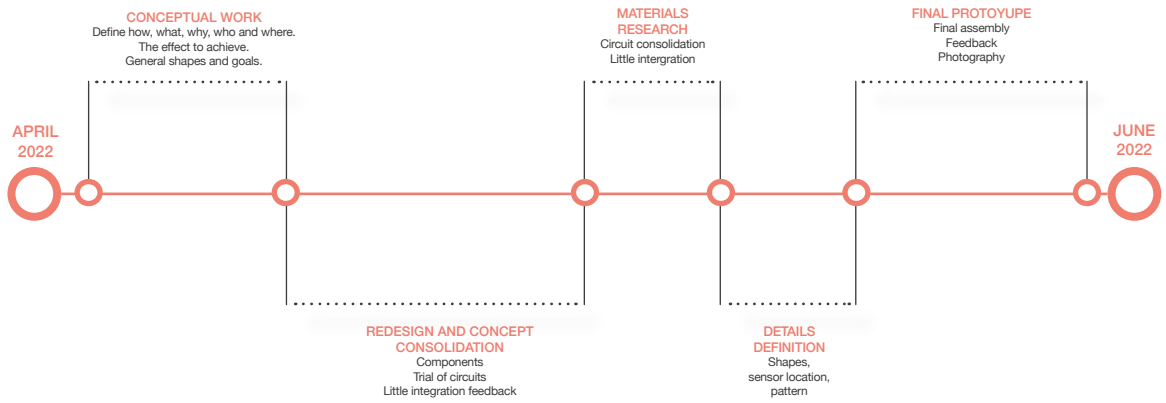
Biomimicry Wearable

Smart textile wristband

PHYSICAL PROTOTYPE

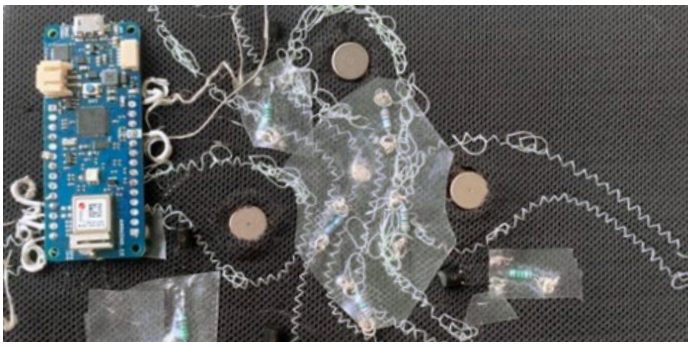
AUTHOR: Cecilia Saffirio
COMPANY: Pauline Van Dongen, Arnhem, The Netherlands
HEI: Politecnico di Milano, Milan, Italy
DURATION: 3/4 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

Biomimicry Wearable is a set of wearable accessories that aim to make people more aware of the outside world, by encouraging them to detach themselves from their work take a restful break for their mental wellbeing. Based on the biophilia hypothesis, the project focus on the natural stimuli embodiment through sensors and actuators that the user could wear indoors to reconnect with nature. In particular, real-time wind data like speed and direction are captured from a meteorological website to produce both tactile and visual sensory stimuli such as the contact of the air with the skin and the movement of the blown blades of grass. At the start of the residency, a careful analysis of the environment, materials, activities, and previous projects carried out by the studio was undertaken. After this familiarization, concept development was implemented through desk research and learning-by-doing. The output is a functioning prototype of a wristband that lets the wearer feel the wind intensity and direction through vibrations, enacted by piezoelectric motors on the skin. A second experimental prototype is a laptop sleeve with a surface resembling wind-blown grass thanks to muscle-like actuators.

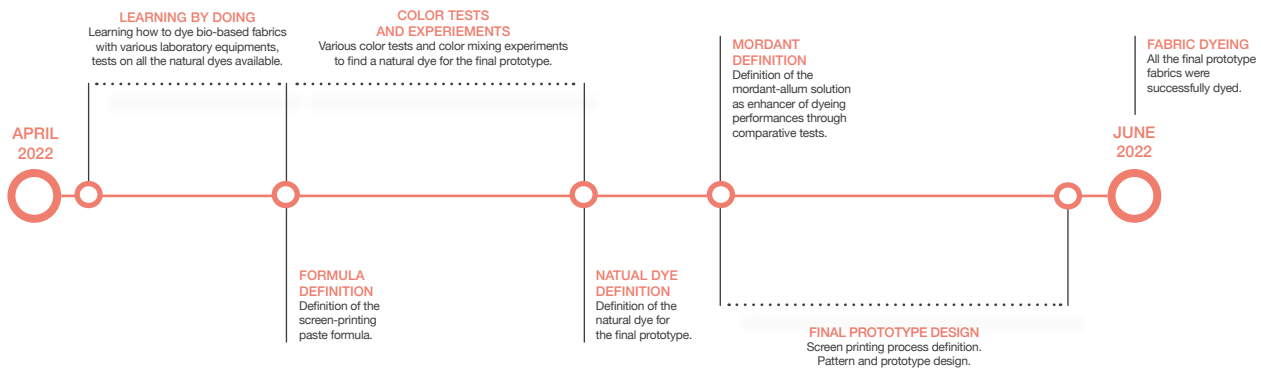


Natural Dyeing on Bio-based Material

PHYSICAL PROTOTYPE

AUTHOR: Meijun Chen
COMPANY: Centexbel, Kortrijk, Belgium
HEI: Politecnico di Milano, Milan, Italy
DURATION: 3 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

This project focuses on an experimental research to test, analyse and compare different kinds of natural pigments through dyeing and screen printing techniques on bio-based fabrics. Empirical natural-based recipes were made with indigo, curcumin, anthocyanin, cochineal, phycocyanin, comfrey, and hematoxylin dextrin. Dyeing methods included infrared, ordinary, gradient, dip dyeing, and screen printing. The performances were evaluated through observation and tests to understand color rendering, saturation, and colour fastness. Through the comparison of results, the anthocyanin dye was selected to be applied to the final prototype designed to become an example of a sustainable dress showcasing the possibilities of natural dyes on biobased materials, exploiting the dyed textiles in the lab in terms of dimensions and also considering the end of the life of the garment, applying a zero-waste pattern, and dissolvable threads in order to allow total disassembly and recyclability / biodegradability of the clothing when disposed.

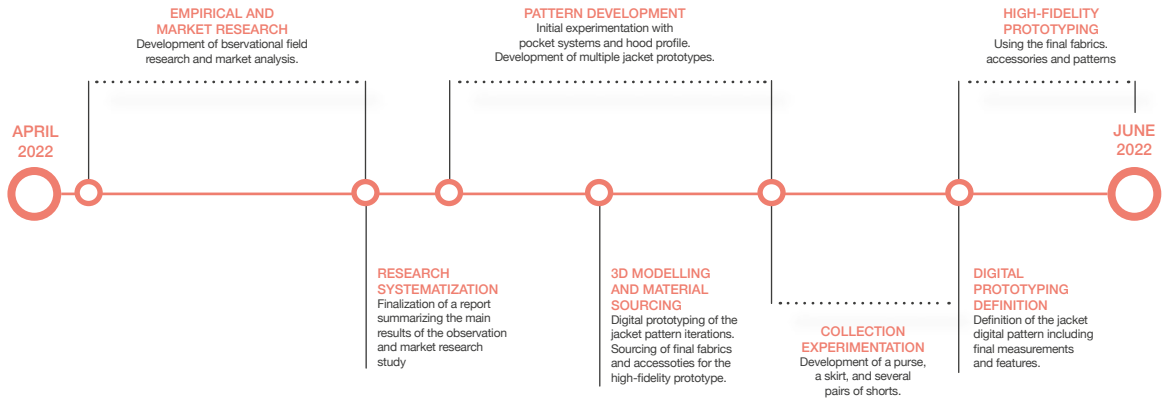
Hyperfunction

Functional clothing for modern urbanites

PHYSICAL PROTOTYPE

AUTHOR: June Annalise Kamegawa
COMPANY: Pangaia Grado Zero s.r.l., Italy
HEI: Politecnico di Milano, Milan, Italy
DURATION: 3 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

The project is a waterproof hooded jacket with a nylon lining and a system of multifunctional pockets. The jacket aims to subtly incorporate functionality in an elegant way, moving away from the hyper-militarized language of “techwear”, and instead focusing on a uniquely elegant garment in which every feature has sprung from a clearly defined need. Over the course of the residency, observation-based research was conducted on the urban population of Milan. Combined with market and literature-based research, the need for an elegant, yet function-based garment for modern urbanites emerged. Thus, at the Pangaia Grado Zero research and development offices, the jacket was developed using performance textiles, internal and external pocket systems, and a form suited for a body in motion. A combination of digital tools (Clo3D, Adobe Suite) and traditional garment production techniques and machines (pattern drafting, machine sewing) was implemented to execute this piece. The hyperfunction language developed in this project is then expanded, in preliminary explorations, to other garments.

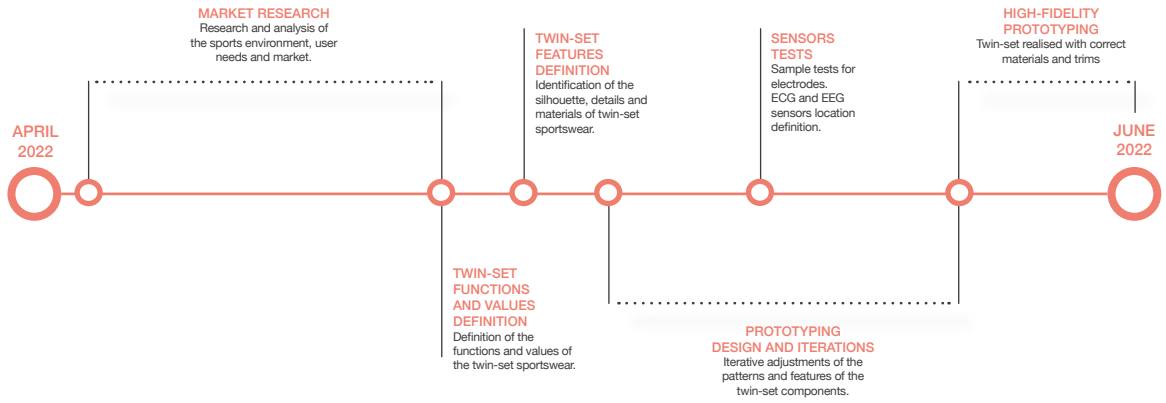
Sensorised Twin-set for Sportswear

Bio-data monitoring system

PHYSICAL PROTOTYPE

AUTHOR: Shan Lu
COMPANY: Pangaia Grado Zero s.r.l., Italy
HEI: Politecnico di Milano, Milan, Italy
DURATION: 3 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

The project is a Sensorised Twin-set for Sportswear including a bio-monitoring system for sportswear performances. The purpose of the project was to design a smart wearable sportswear for leisure-time outdoor athletes, such as cycling, long-distance running and other endurance sports and interval training, by monitoring and feeding back information on ECG and EEG during exercise. Collected data could help users to improve their fitness and optimise their sports performance. The project focuses on considering and implementing the needs for comfort, washability and durability of smart wearable sportswear, as well as the usability and stability of a biomonitoring system, and making them easy to disassemble, repair, replace and recycle parts and components with different programmed obsolescence timing, by applying sustainable design principles.

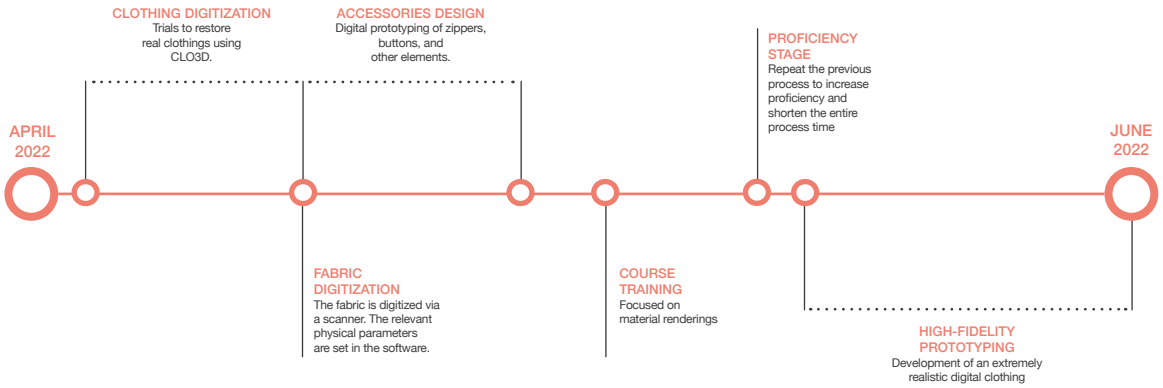
Digitally Empowered Fashion Design

How to let digital technologies support the fashion design process

VIRTUAL PROTOTYPE

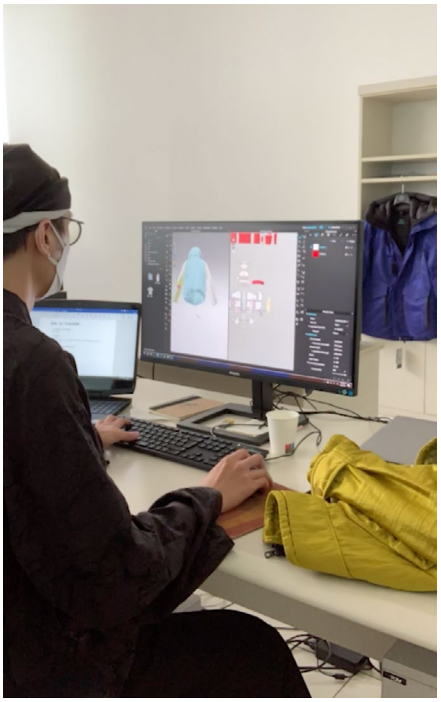
AUTHOR: Shenhao Lyu
COMPANY: Pespow, Italy
HEI: Politecnico di Milano, Milan, Italy
DURATION: 3 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

In this project, digital technology has been tested to digital prototype and simulate outerwear with an hyper-realistic scope not only in terms of style but also in relation to the physical properties of clothing fabrics such as folding and draping, chromatic and tactile properties rendered through visual images. During the residency, the process of pattern simplification for software compatibility, tridimensional modeling of garments and accessories, virtualization of materials, and properties definition on the digital software has been tested on many outerwear examples using CLO3D software.
A refined process for fashion designers empowered by digital technologies has been implemented. The result of this research is relevant for fashion practitioners who want to achieve the best results by using digital technologies to prototype and simulate garments in a hyper-realistic way exploiting both time and processing resources of the hardware.



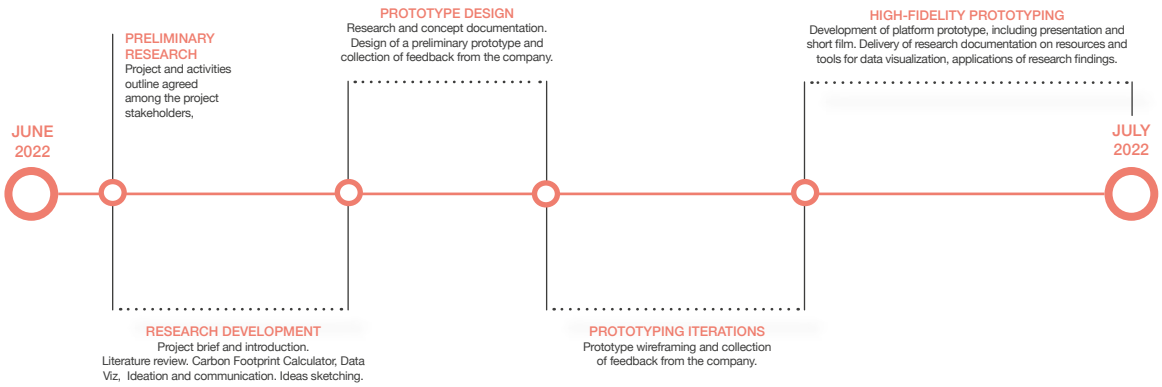
Optimising Impacts

BYBORRE's online plaform Create™

UX AND UI PROTOTYPE

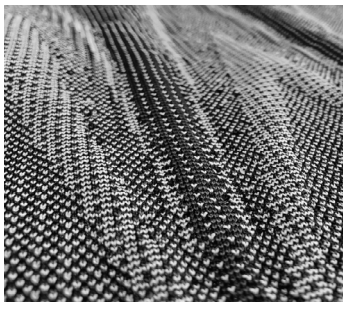
AUTHOR: Eva Feld
COMPANY: Byborre, United Kingdom
HEI: University of the Arts London, London College of Fashion, London, United Kingdom
DURATION: 2 months

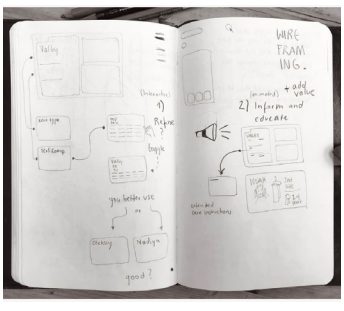
FT RESIDENCY TIMELINE

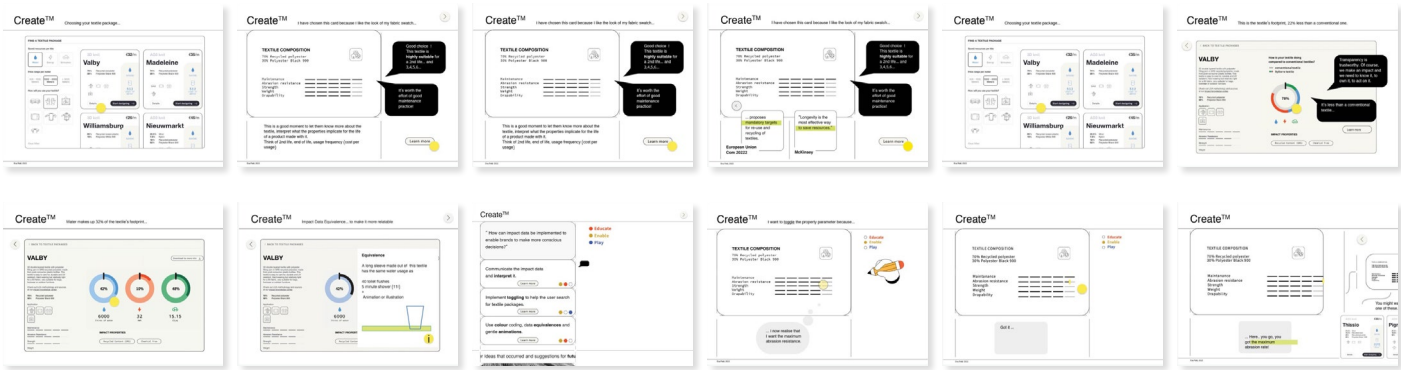


FT RESIDENCY PROJECT

Create™, from the textile manufacturer BYBORRE, is a textile design platform aimed to educate the user in an engaging, informative, and playful way to encourage better, less impactful choices. The research purpose was to investigate how and where impact data results could be implemented on Create™ platform in a thought-provoking, motivating, and informative way, leading to user's conscious decision-making. Impact data encompasses the data related to the company's ecological footprint. A systemic design framework was used for data collection and analysis for this cross-sectional grounded theory and action research. During the residency, the student developed a body of research compiling resources and tools to visually communicate complex impact data in a tangible form and acquired a new skill-set concerning the creation of interactive prototypes and presentations. The quality of the research was assessed against process, invention, extensibility, and relevance. The result of this research is relevant for every stakeholder involved in the textile industry thinking of ways to implement impact data in supply chain processes and it should be understood to drive change towards an educated use of materials in every industry that uses textile.





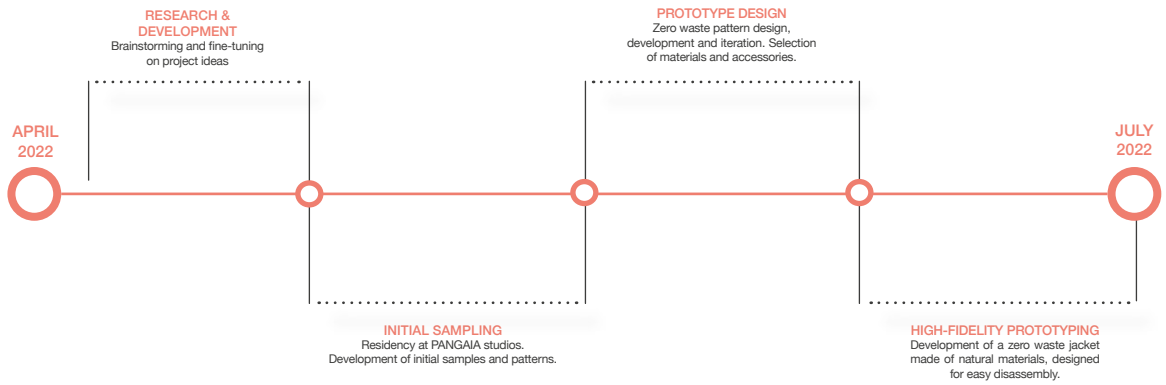
Garmentity *(noun)*

The process of giving a garment an identity

PHYSICAL PROTOTYPE

AUTHOR: Lauren Chivers
COMPANY: Pangaia Grado Zero s.r.l., Italy
HEI: University of the Arts London, London College of Fashion, London, United Kingdom
DURATION: 4 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

Garmentity is a conceptual jacket designed considering “zero waste”, size adjustability and “design for disassembly” as key process drivers. The project takes into account the garment end-of-life as both a constraint and inspiration for the design process. The jacket is produced using natural, biodegradable materials, and a singular metal zip, all of which can be easily separated and recycled. The garment is made taking advantage of the entire width of the fabric as the basis but using the otherwise unnecessary cut-offs in a functional or decorative way. The residency was developed over four months alternating remote work (project brief definition, preliminary research, and digital prototyping) and in studio activities (pattern-making, material sourcing, physical prototyping, jackets collection finalisation). Key learning outcomes include: increased awareness of constraints concerning developing a zero waste pattern (difficulties of varying fabric widths and utilization of all the fabric); increased knowledge around sustainable textiles, natural and biodegradable fabrics and their features; exploration and development of a system to make a ”one size” zero waste pattern adaptable to varying bodies.

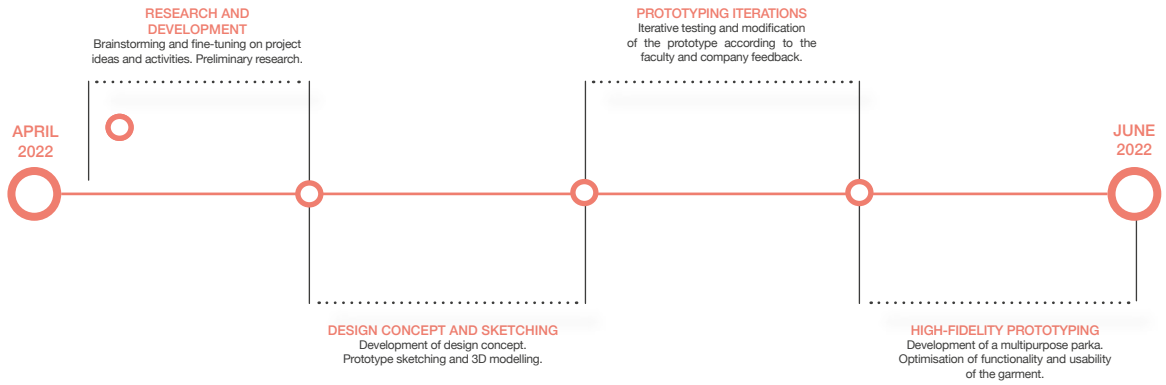
Modular Design and System for Disassembly

A Multipurpose Parka

VIRTUAL PROTOTYPE

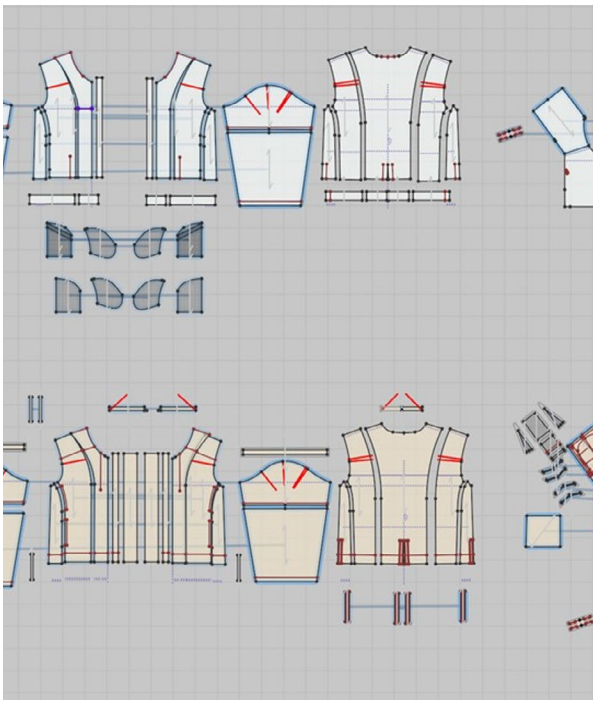
AUTHOR: Yiyang Tang
COMPANY: Pangaia Grado Zero s.r.l., Italy
HEI: University of the Arts London, London College of Fashion, London, United Kingdom
DURATION: 3 months

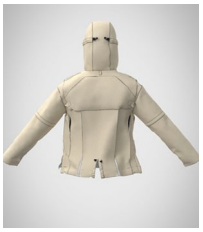
FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

This project investigates the innovative application of a modular design approach to the multi-purpose jacket parka, exploring how easy disassembly and design recyclability can be achieved while ensuring the performance of the garment, thus responding to the challenges of developing a circular economy in the fashion industry. Two methods of observation and analysis were used to examine the structural characteristics of the commercially available multi-purpose parka, followed by field observations to document the environment in which the product is used and the lifestyles of the target users. Three main design methods were used: modular design, design for disassembly, and digital garment prototyping. The results of this research could help guiding designers to think of innovative ways to recycle garments and offer potential buy-back solutions from the consumer's perspective.





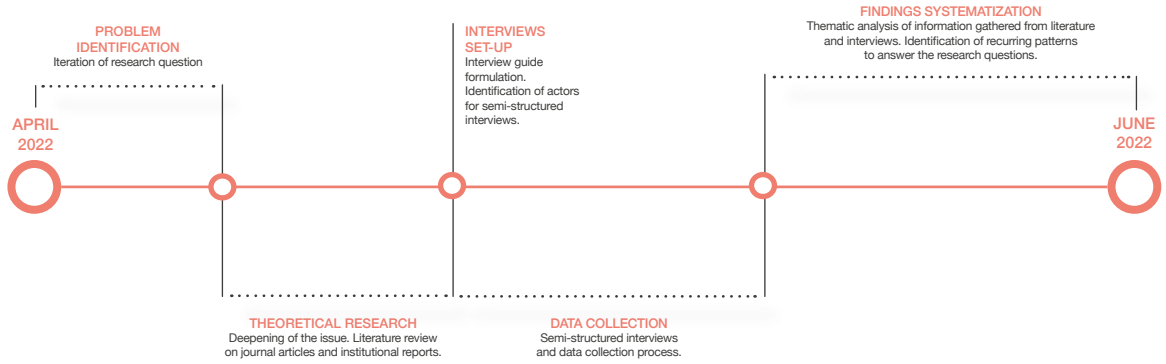
Bridging Infrastructural Holes

Traceability for circularity in textiles

MODEL/FRAMEWORK

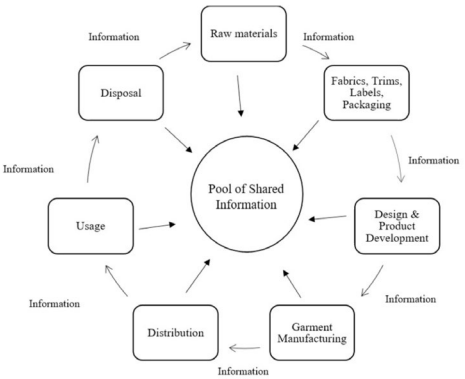
AUTHOR: Arafat Saleheen
COMPANY: We Love You (WLY) Innovation
HEI: Högskolan i Borås, Sweden
DURATION: 3 months

FT RESIDENCY TIMELINE

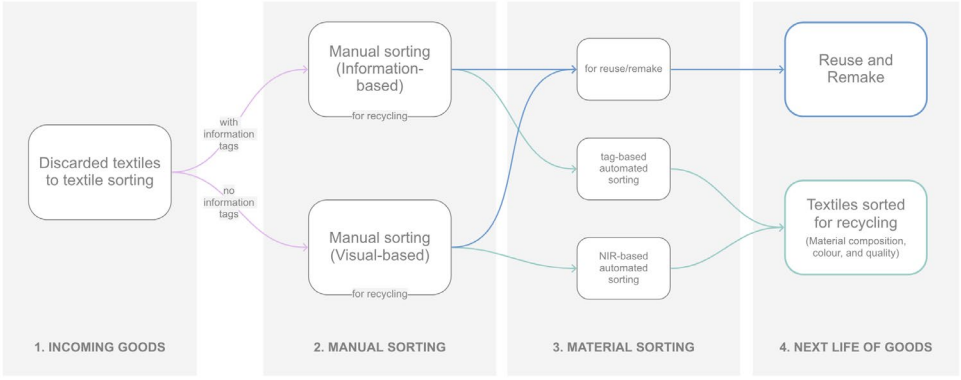


FT RESIDENCY PROJECT

The purpose of this study is to investigate on how fashion brands can improve their existing state of traceability that can enhance the sorting and recycling of textiles. Existing traceability can be improved by focusing on ensuring a transparent value chain, sharing recycling-related information between the actors, and mapping the supply chain. During the residency, a small sample size of stakeholders was involved in the research. This study advances our understanding of how transparent information sharing and traceability and transparency can support opportunities for textile recycling industry. It also suggests that sorting and recycling operations can be enhanced with an improved traceability system implemented by fashion brands.



MODEL FOR IMPROVED TRACEABILITY



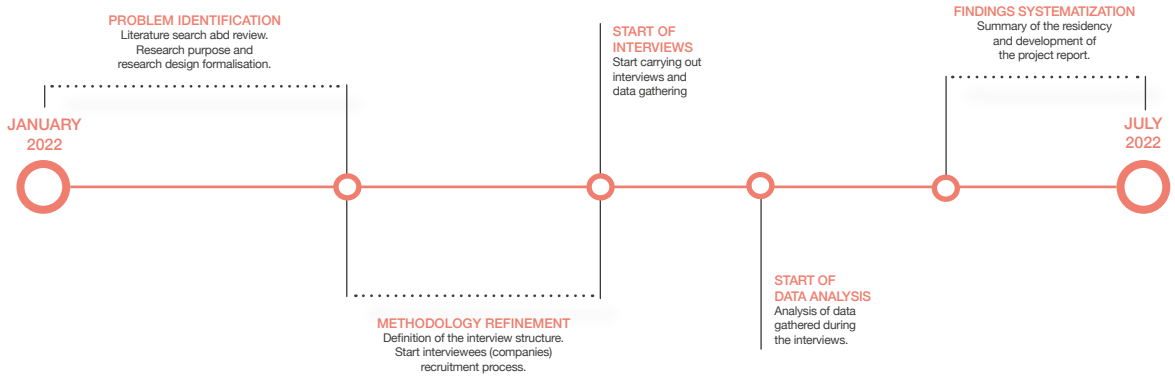
Collaborative Fashion Consumption

Business Model analysis of clothing rental digital platforms

MODEL/FRAMEWORK

AUTHOR: Imali De Silva & Dulanjani Werellagama
COMPANY: We Love You (WLY) Innovation
HEI: Swedish School of Textiles, Högskolan i Borås, Sweden
DURATION: 7 months

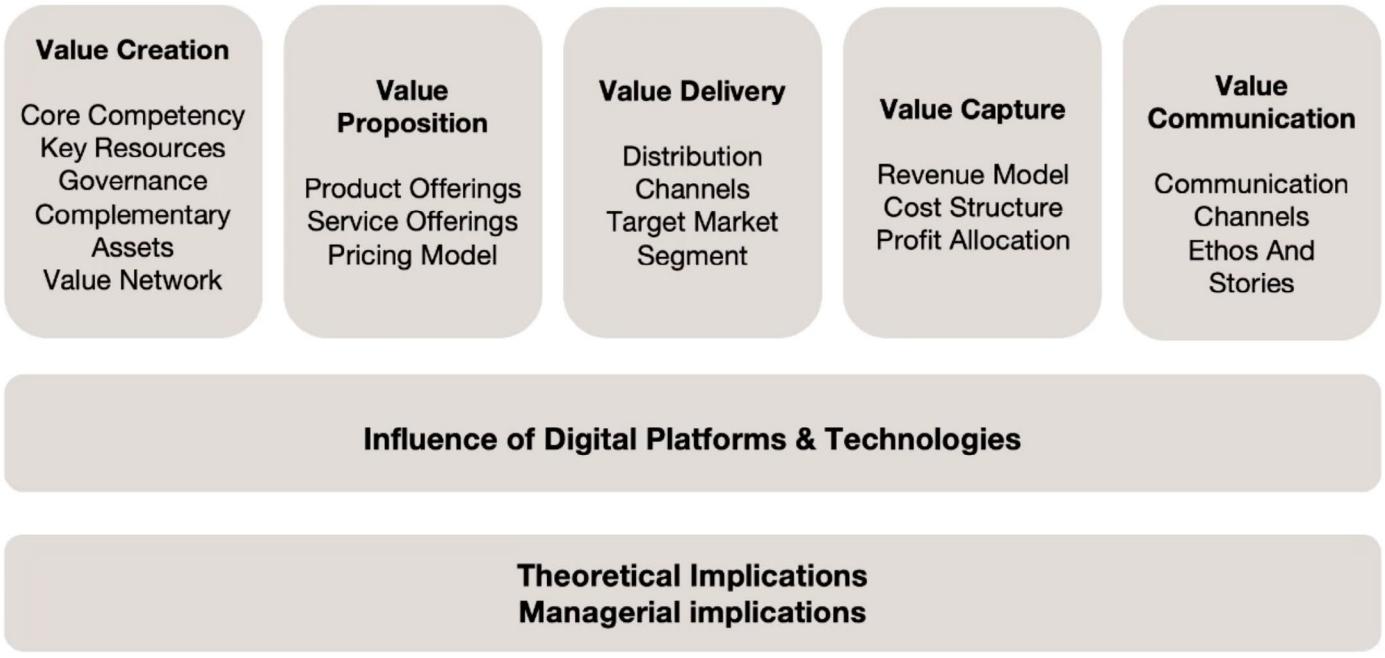
FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

The study analyzes the value perspective of clothing rental business models and the influence of digital platforms and technology on clothing rental to gain a deeper understanding of the rental business in the fashion industry. A higher number of studies focused more on consumers' perspectives in clothing rental business, while the business perspective of clothing rental gained minor focus. This creates a research gap in academia, understanding rental business models which function differently according to the companies. Therefore, qualitative research was conducted based on the case studies of five clothing rental companies. The study results showed the key components of clothing rental business models in value creation, value proposition, value delivery, value capture, and value communication, and the influence of digital platforms and technology in rental business that has the potential to grow.

Business Model Framework



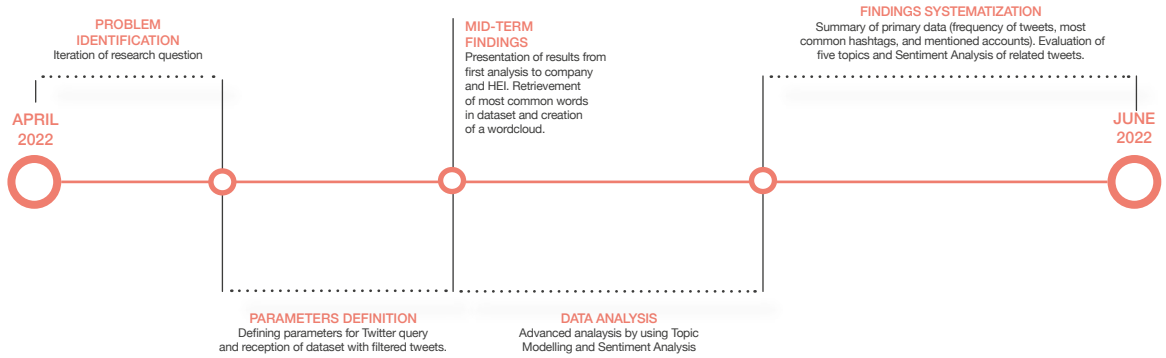
Discussion topics on Fashion Rental

An application of Topic Modelling with LDA and Sentiment Analysis with data from Twitter

MODEL/FRAMEWORK

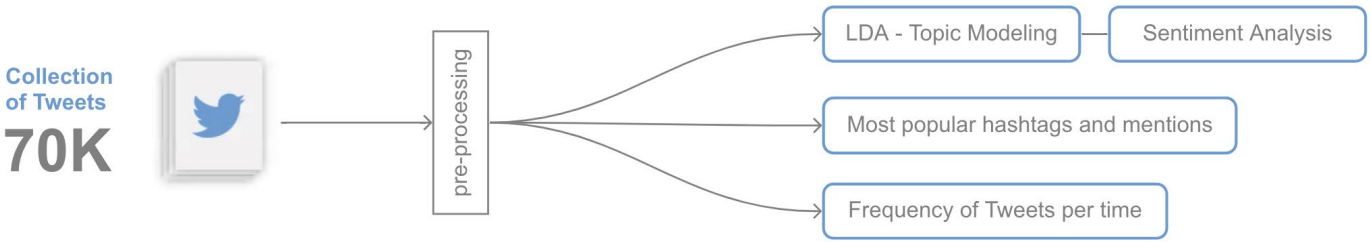
AUTHOR: Fabian Pirrwitz
COMPANY: We Love You (WLY) Innovation
HEI: Swedish School of Textiles, Högskolan i Borås, Sweden
DURATION: 3 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

The purpose of this study is to investigate the opinions and discussions related to fashion rental using social media platforms such as Twitter. By applying a primary data analysis and a topic modelling approach with a following semantic analysis, the research showed differences to the current understanding of opinions and motivations of consumers towards fashion rental. Whereas in literature, sustainability is mentioned as a main argument by consumers, this research showed that features such as the availability, price point and service, and subscription options are the main drivers to engage in fashion rental.



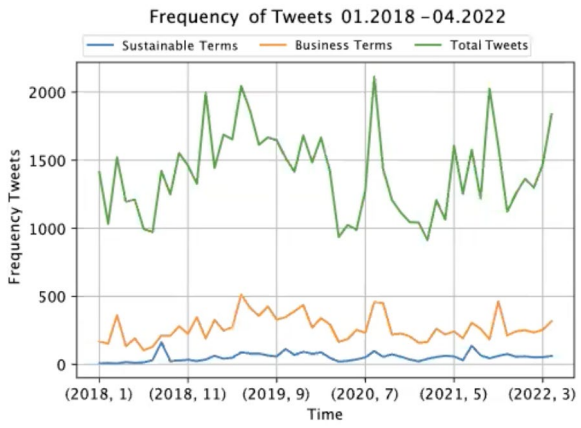


Figure 1: Frequency of Tweets, based on pulled dataset from Twitter

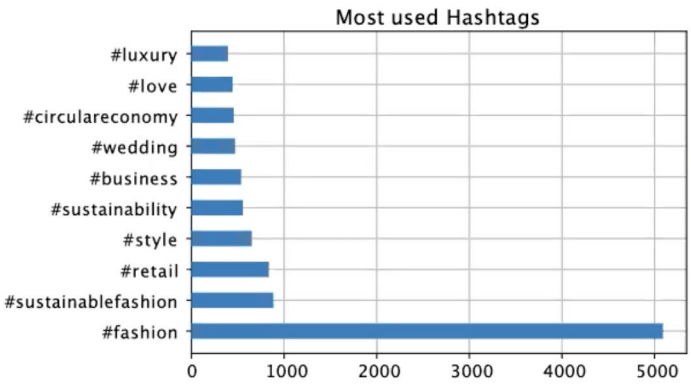


Figure 2: Most used Hashtags, based on pulled dataset from Twitter

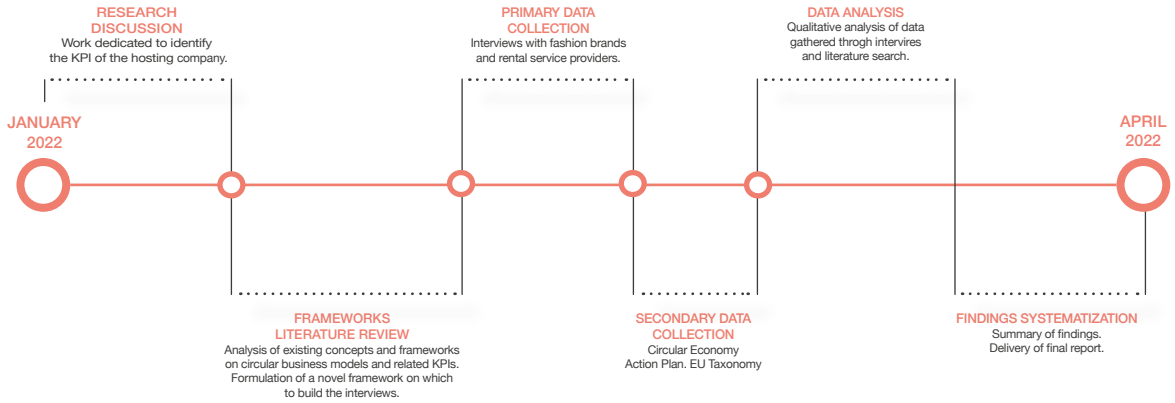
Developing KPI Framework for Circular Fashion Management

A study on circularity initiatives of fashion brands in connection with EU taxonomy

MODEL/FRAMEWORK

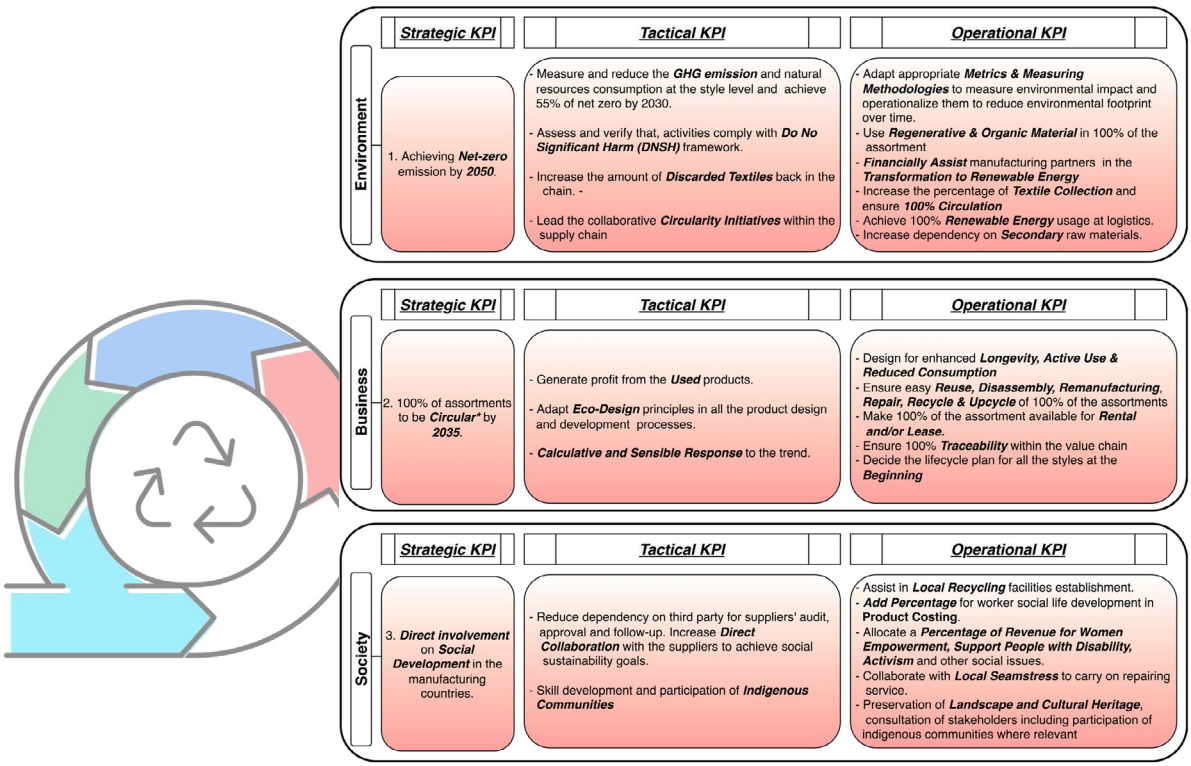
AUTHOR: Robayat Ferdous Saikot
COMPANY: We Love You (WLY) Innovation
HEI: Swedish School of Textiles, Högskolan i Borås, Sweden
DURATION: 3/4 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

Due to the linear consumption models and increasingly higher demand for fashion products, textile waste has become a crucial issue nowadays. The industry stakeholders, academia, and policymakers are seeing the Circular Economy as a solution and the fashion brands are also going in that direction to achieve a sustained competitive advantage. At this stage, challenges exist to guide the circular initiatives of the industry in the right direction with proper definition, measurement and monitoring. The purpose of this study is to develop the KPI framework for the brands that helps them to align their organizational goals with thre European Taxonomy while adapting to CBMs (Circular Business Models) to face the sustainability challenges in the industry.



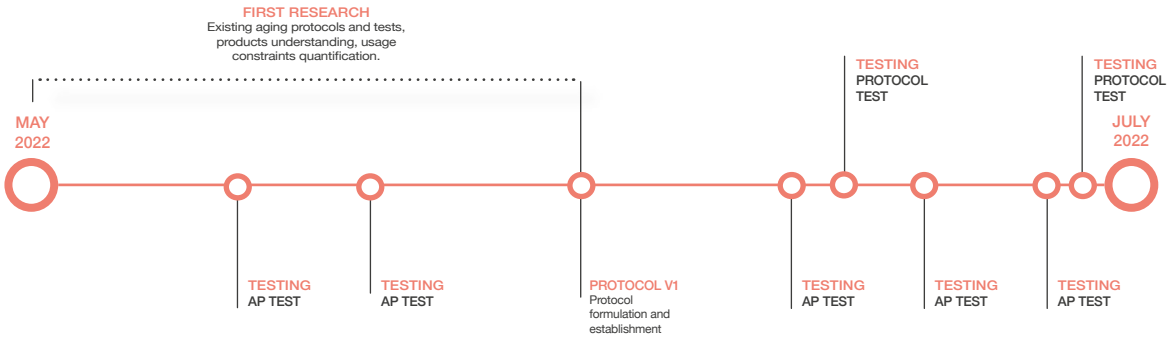
Developing Aging Protocols and Product Advantages (PA) tests

A work focused on swimwear products and materials

TESTING & ANALYSIS

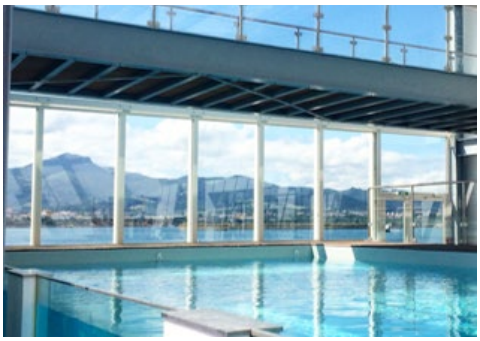
AUTHOR: Charlotte Lasalle
COMPANY: Decathlon
HEI: ESTIA, School of Engineering, France
DURATION: 2 months

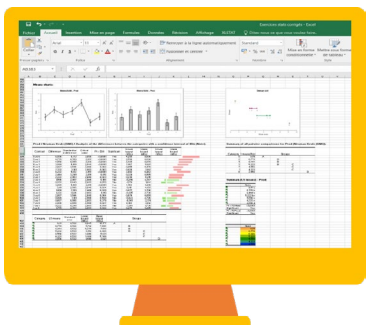
FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

Assessing the aging, wear and tear process of materials is key to understand the lifespan of products and make informed choices to design durable and long-lasting products. To this end, the residency layed the ground for the development of a protocol to reproduce an accelerated aging of swimwear accessories, specifically swimsuits, and offered the opportunity to perform preliminary tests. An initial phase concerned the research of existing prototocols to assess the aging of products and related tests, the definition of the constraints undergone by swimsuits during use, and their quantification. Once this phase was concluded, a selection of jersey fabric samples was performed together with tests in controlled laboratory environment by employing a dynamometer. In parallel to the development of the aging protocol, the residency activities included the planning, organisation, deployment, rating and reporting of Product Advantages (AP) tests on selected items, involving external testers, performed in the pool ecosystem. Written documentation of the aging protocol and AP tests results, even if not fully validated due to lack of time, offer the hosting company a valuable basis for further research.





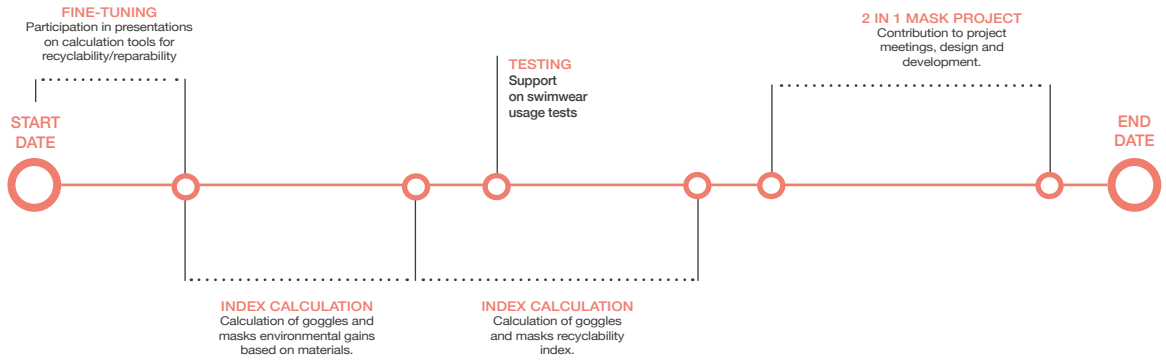
Recyclability and Reparability for Circularity

Environmental reductions for products in the Aquatic Ecosystem

TESTING & ANALYSIS

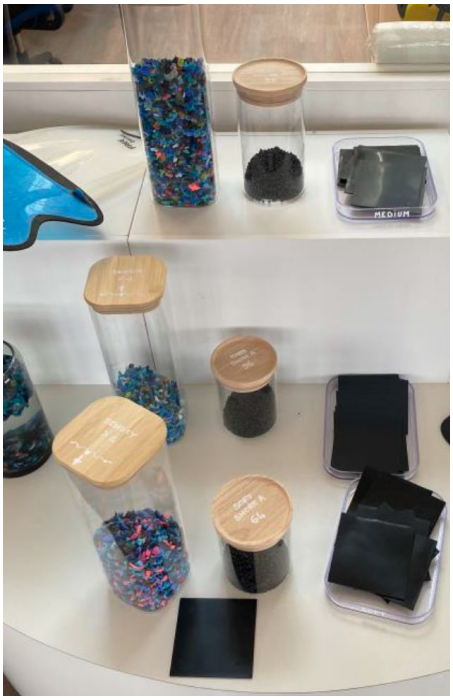
AUTHOR: Cléa Renard
COMPANY: Decathlon
HEI: ESTIA, School of Engineering, France
DURATION: 2 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

The possibility to measure and calculate products' recyclability and reparability indices is crucial for companies to review and improve the decision-making process towards more sustainable choices. Following tools and method to assess recyclability and reparability index of products, the first period of the residency was focused on calculating the environmental gains of several company's products realised with recycled materials (from a revalorisation) against the ones made of virgin materials. The recyclability of different models of swimming goggles, diving and swimming masks was also assessed looking at their components and assembly. In parallel, the student contributed to the development of the company's ongoing project "2 in 1 mask". Thanks to the work above, it was possible to assess the CO2 environmental gain of several products, linking the resulting percentage to the specific quantity and typology of material used. In addition to this, the research on disassembly, dismantling or reassembly of many of the company's glasses and googles demonstrate the impossibility of performing this process manually, therefore leading to the need to improve research on automated post-shredding separation methods.



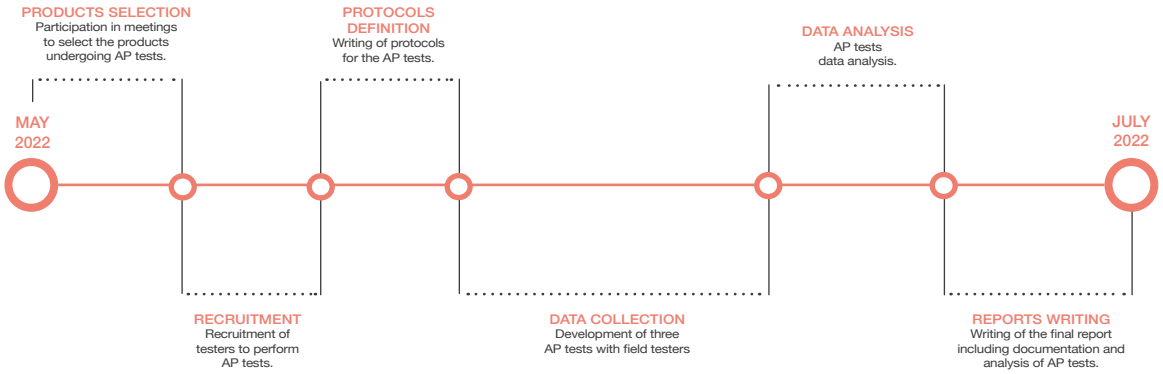
Developing Product Advantages Test

for current and future products

TESTING & ANALYSIS

AUTHOR: Andoni Guerin
COMPANY: Decathlon
HEI: ESTIA, School of Engineering, France
DURATION: 2 months

FT RESIDENCY TIMELINE



FT RESIDENCY PROJECT

The project, based on Decathlon's mission, focuses on testing products in order to determine "Product Advantages" (PA). Decathlon's products are classified 100 for beginners, 500 for intermediates and 900 for experts. The aim of the residency was to understand, quantify, validate and rate the benefits achieved by the products developed in Decathlon (such as support, chlorine resistance, muscle work) to subsequently interpret these results that support the decision-making process on the possibility to commercialise the product or not. The residency activities included a first phase in which to perform the selection of products and timing for tests to happen and the establishment and writing of the experiment protocols. The protocol allowed clear instructions to all testers asked to perform the same movements so that the results would be as consistent as possible. Subsequently, AP tests were planned, organised, deployed on selected items, involving external testers. During the experiments, data collected were analysed to allow rating products and reporting on tests. According to the tests scores and comments, it was possible to compae products via statistics and claim or not a "Product Advantage".

Progressing Repair, Recyclability and Reuse

of Glasses and Masks in the Aquatic Ecosystem

TESTING & ANALYSIS

AUTHOR: Lorentxo Bordagaray
COMPANY: Decathlon
HEI: ESTIA, School of Engineering, France
DURATION: 2 months

FT RESIDENCY TIMELINE

FT RESIDENCY PROJECT

The residency focuses on the promotion of the circular economy inside the Nabaiji and Subea sub companies, offering responsible swimming and diving products, reducing waste and promoting reparability and recycling. The main activities were conducted to perform the calculation of the reparability index on masks and google products, to realize videos tutorials about spare parts and to assist in the design of the SUBEA 500 Pano, a mask which is designed to be repairable.
The project output is an analysis based on the reparability index and video tutorials.

Research and Benchmark of Collection Systems

of Products in the Aquatic Ecosystem

TESTING & ANALYSIS

AUTHOR: Jorcin Théo
COMPANY: Decathlon
HEI: ESTIA, School of Engineering, France
DURATION: 2 months

FT RESIDENCY TIMELINE

FT RESIDENCY PROJECT

The residency focuses on the deposit system for swimming costumes, flippers, and microfibre towels to increase circular and non-linear economy of the company. This system is conceived as a service that, by paying an additional sum at the purchase of an item which is given back to the buyer when the item is returned to the shop at the end of its use, for recycling purposes. An extensive benchmarking was implemented by comparing different collection/deposit systems on a series of criteria such as the type of collection, the typology of collected items, the collection processes, the prices and ways of distributing reward to the customers. The aim of the research was to understand and explain how the deposit/collection processes work and compare their communication strategies.

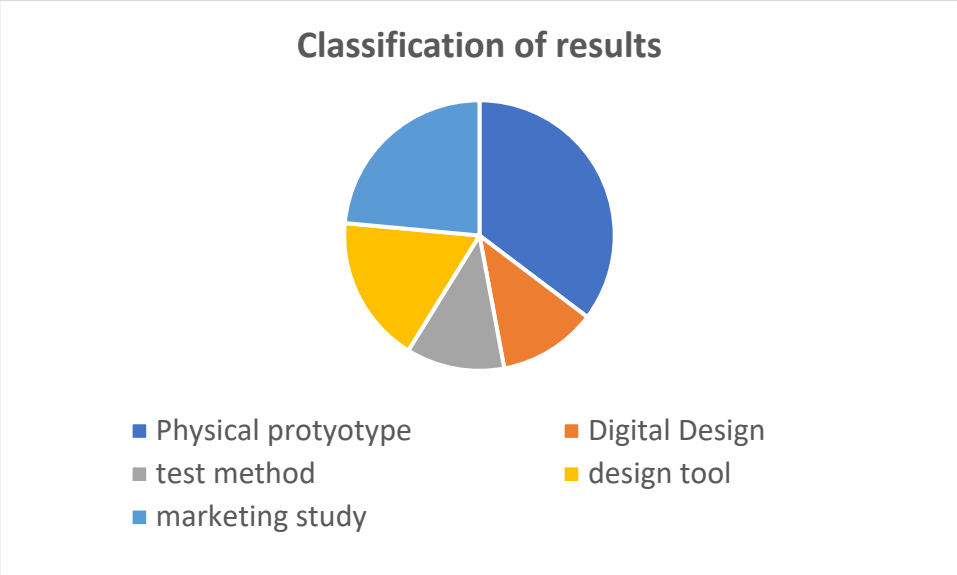
Discussion

For 17 of the projects the final reports could be used to evaluate the results. From the different categories for results type we defined five classes:

- Physical prototypes
- Digital Designs
- Test methods
- Design tools
- Marketing studies

Based on these five classes the research outcomes were evaluated. If the result was both a digital design and a physical prototype it as counted as a physical prototype. The results are shown in figure 3.

Figure 3: Classification of final results type



From that figure we can see that the main types of outcome were a physical prototype (35%) or a marketing study (24%). Digital designing is an important trend for the future of Fashion-Tech and was used in many of the studies, usually as a preparation for a physical prototype. 12% of the projects had only a digital design as output. When viewed per HEI (not indicated in Figure 3) it showed a clustering per university: at ESTIA most testing and test method development was done, most physical prototypes were developed by the Polimi students and HB students focused mostly on marketing related studies.

5. Conclusions

In this report we gave an overview of the available projects as proposed by the Fashion-Tech companies, the student selection process as well as the assessment and results of their internship programs. In general, the residency projects met the goals of the FTalliance project of giving young students in the Fashion-Tech field the opportunity of being trained and getting experience in an actual company environment and allowing the companies to work with talented students educated at the academic institutions participating in the project.

In most cases, the projects were received well by students, HEI and company. Only in one case the student performance was evaluated as below expectation.

The main problems encountered in the projects were the delays due to administrations (hiring contracts with companies, forms of HEIs) and the finding of suitable accommodation. In combination with the short duration (e.g. 2 months) this has resulted in less project deliverables and a shift from the making of a physical prototype to a digital one.

For future projects involving student residencies we recommend considering the following changes:

- Strive to undertake a minimum residency time of 3 months. This will make sure that the students have enough time to do meaningful work. Two months has shown to be not enough
- Start 4-6 weeks earlier with the preparation of the residency contest. This includes
    - Asking companies for their project briefs
    - Preparing the website for the contest announcement containing the briefs
    - Announcing the contest and website to the students
    - Rating the contest applications and informing the selected students
- Allow a period of about 4 weeks between the candidate selection and the residency start to handle the administrative issues related to the internships. This is important for students, HEI and companies and will ensure that students can actually start on the planned dates. It will prevent the loss of internship time since extensions are often not possible due to timetables and obligations for the student in the next academic semester.

Appendix 1: Template for midterm assignment

Name student (s)	
Project title	
Name Tutor (HEI)	
Name Tutor (company)	
Interim/midterm results	
Short description of realised interim results: (100-150 words) (Student) *<to be filled in by the student: a short description of the results realized by the time of filling this evaluation>*	
Images / Schem / Diagram of realised interim results (optional) (Student): *<to be filled in by the student: results realized by the time of filling this evaluation, maximum 150 words >*	
Reflection on description interim results (Company): *<to be filled in by the tutors from the company, maximum 150 words>*	
Reflection on description interim results (HEI): *<to be filled in by the tutors from the HEI, maximum 150 words >*	
Reflection *<take the objectives in the student's proposal as starting point when reflecting on the topics below>*	
Reflection on quality	*<to be filled in by student, up to 100 words>* * <Briefly reflect on the quality of work or results realized so far in the relation to the proposed work? Reflect on how the arrangement made in the residency project supported or complicated the realization of the work>
Reflection on planning	*<to be filled in by student, up to 100 words>* *<Briefly reflect on how the planning process of the proposed activities e.g. time planning, mobility, etc. facilitated or hindered the learning experience and realized of the work>
Reflection on project context	*<to be filled in by student; up to 100 words> <Briefly provide an overall reflection on the project work, process, and the support received within the FTAlliance residency project and how it impacted the learning experience>*
Reflection *<take the objectives in the student's proposal as starting point when reflecting on the topics below>*	
Reflection on quality	*< to be filled in by the tutors from the HEI, up to 100 words >* <Briefly reflect on the quality of work or results realized so far in the relation to the proposed work? Reflect on how the arrangement made in the residency project supported or complicated the realization of the work>
Reflection on planning	*< to be filled in by the tutors from the HEI, up to 100 words >* <Briefly reflect on how the planning process of the proposed activities e.g. time planning, mobility, etc. facilitated or hindered the learning experience and realized of the work>
Reflection on project context	*< to be filled in by the tutors from the HEI, up to 100 words > <Briefly provide an overall reflection on the project work, process, and the support received within the FTAlliance residency project and how it impacted the learning experience>*
Reflection *<take the objectives in the student's proposal as starting point when reflecting on the topics below>*	
Reflection on quality	*< to be filled in by the tutors from the company, up to 100 words >* <Briefly reflect on the quality of work or results realized so far in the relation to the proposed work? Reflect on how the arrangement made in the residency project supported or complicated the realization of the work>
Reflection on planning	*< to be filled in by the tutors from the company, up to 100 words >* <Briefly reflect on how the planning process of the proposed activities e.g. time planning, mobility, etc. facilitated or hindered the learning experience and realized of the work>
Reflection on project context	*< to be filled in by the tutors from the company, up to 100 words >*

	<Briefly provide an overall reflection on the project work, process, and the support received within the FTAlliance residency project and how it impacted the learning experience>
Adjustment of Project Brief: new arrangements	
Describe deviations and new arrangements: *< to be filled in by the tutors HEI: based on the above reflection. If applicable: add appendices>*	
Final arrangements *< to be filled in by the tutors HEI: describe here the agreed on new arrangements, to be filled in during/after meeting>*	
List of International design competitions and contests *< to be filled in by the tutors HEI:* suggest 2 to 3 *International design competitions or contests relevant to this project >*	

Appendix 2: Final evaluation forms

FORM 1. Evaluation of work done (To be filled by the supervisor)

FINAL DELIVERABLES : connected to the INITIAL PROJECT PROPOSAL & MODERATION ACTIVITY		
(description of the following components is given on the last page)	GRADE (H= high, M= Medium, L= Low)	*Specific comments (if any)*
1. Relevance	H/ M/ L	
2. Innovation potential/level	H/ M/ L	
3. Applicability potential/level	H/ M/ L	
4. Degree of integration/collaboration	H/ M/ L	
5. Multidisciplinarity	H/ M/ L	
6. Entre-/intrapreneurship potential	H/ M/ L	
Over comments (if any):		

FORM 2. Evaluation of report (To be filled by the supervisor)

FINAL EVALUATION : OVERALL RESIDENCY PROJECT		
		EVALUATION & Specific comments (H= high, M= Medium, L= Low)
1. KNOWLEDGE This should be evaluated based on the research process where: Collect and Analyse refers to sufficiency and relevance of contents/ data/ information has been collected and analysed, with a good alignment to the aim of the project Generate and evaluate refers to sufficiency and relevancy of knowledge that has been generated to support the overall goal of the project	COLLECT AND ANALYSE	(H/ M/ L): M Comments (if any):
	GENERATE AND EVALUATE	(H/ M/ L): Comments (if any):
2. METHODS	USE OF METHODS	(H/ M/ L):

This should be based on the actual project finding where, Use of methods refers to the appropriateness of methods, theories, etc. used to realize the residency project. Dealing with project complexity refers the initial problem statement and the goal that has been argued in the beginning of project		Comments (if any):
	DEALING WITH PROJECT COMPLEXITY	(H/ M/ L):
		Comments (if any):
3. PROJECT RESULTS This should be based on the actual project finding where, Feasibility refers to the state or degree the findings can be successfully applied in a real application scenario. Desirability refers to whether the project findings are appropriate or desired for solving the selected challenge or problem statement. Viability refers to whether the project results are suitable or sustainable in long term for solving the selected problem or problem statement.	FEASIBILITY	(H/ M/ L):
		Comments (if any):
	DESIRABILITY	(H/ M/ L):
		Comments (if any):
	VIABILITY	(H/ M/ L):
		Comments (if any):
4. COMMUNICATION These should be evaluated based on the student final report, where 'academic level' and 'connecting to stakeholders' refers to the written how well the final report communicate the results or findings to academic audience and other stakeholders (such as companies), respectively.	ACADEMIC LEVEL	(H/ M/ L):
	CONNECTING TO STAKEHOLDERS	Comments (if any):
5. PROJECT MANAGEMENT AND PLANNING This evaluation is based on the management and execution by the student of overall residency project, where, Planning refers to overall activities since start of residency project. Autonomy & Initiative refers to independence and initiatives shown by the student at various stages of the residency projects (such as designing experiments, proposing ideas, etc.) Response to feedback to how well the student has responded to the supervision or other feedback that might have received to improve the work. Time spent refers to how well the students has utilized the time.	PLANNING	(H/ M/ L):
		Comments (if any):
	AUTONOMY & INITIATIVE	(H/ M/ L):
		Comments (if any):
	RESPONSE TO FEEDBACK	(H/ M/ L):
		Comments (if any):
	TIME SPENT	(H/ M/ L):
		Comments (if any):
Other comments (if any):		

Appendix 3: List of international design competitions and contests

As part of the midterm, assessment reports several suggestions have been made for international design competitions. In the list below we summarize the suggested events. Note that the current suggestions are for competitions in 2022 but many of them can be expected to behold also in the next years in similar periods of the year.

Design competitions
FTAlliance Exhibition at 2022 Biarritz Good Fashion Week Website: ..... *DEADLINE:*

TALKING TEXTILES *Dorothy Waxman International Textile Design Prize* https://www.textilemonth.nyc/textileprize *DEADLINE:* 30 June 2022
FASHION, APPAREL AND GARMENT DESIGN AWARD *https://competition.adesignaward.com/competitions/fashiondesign.html* *DEADLINE:*
CONTEST - MITTELMODA *https://mittelmoda.com/fashion-award* *DEADLINE: July, 12th 2022*
GLOBAL DESIGN GRADUATE SHOW 2022 *https://www.artsthread.com/competitions/global-design-graduate-show-2022/* *DEADLINE: 30TH JUN 2022*
A Design Award and competition https://competition.adesignaward.com/ DEADLINE*: 30TH JUN 2022*
Creative Conscience https://www.creative-conscience.org.uk/awards/
ITS Responsible Creativity Award https://itsweb.org/its-contest/the-ark-of-creativity/#awards
C.L.A.S.S. Imagining Sustainable Fashion Award: https://www.classecohub.org/archives/11624
https://www.red-dot.org/ > categories “Interaction and User Experience”, “Service Design”
UX design awards https://ux-design-awards.com/en/enter