

"Forum de l'Ingénierie Durable" (FID) Value Analysis

Context - introduction

The industrial revolution occurred thanks to engineers' innovations. It has been the golden age of engineering and raised the world population quality of life more than ever. But as off the early 20th century, some people started to denounce the harmful consequences of human activities on the environment. Ecological issues have been contested but are now ubiquitous in the public debate and builds a consensus in the scientific community. The engineer, whose activity participated to the ecological disaster, is now called to find new solutions. Tomorrow's engineers doubt: why, for whom should they produce? How could they use engineering to build a more sustainable world? Could nowadays companies allow them to fulfill such a purpose? In 2019, the students from UTC created a sustainable engineering (SE) forum to meet their need to work with responsible companies. After this first shot, several questions emerged. They were looking for answers to create, year after year, an ideal FID in year 2030.

Feedback on the 2019 edition

During the FID 2019, three formats of meetings between organizations and students had been organized, each one was supposed to fulfill a purpose and provoked proper reactions.

Form	Companies' stands with internship offers	Debates, conferences and workshops	DIY animations
Goal	Creates professional relationships or opportunities	Educates and raises awareness	Allows to discover new lifestyles
Feed-back	Not enough companies and offers	Good feedback	Wrong image, not professional enough

The visitors met difficulties understanding what was the real purpose of the FID. Was it a real forum, or a fair about SE?

The value analysis purpose

After the FID 2019, the members of the FID organization faced the visitors' feedbacks. They realized that they did not have a clear idea of what they wanted the FID to be. Even worse, many of them disagreed about the future of the event. The FID value analysis helped them to consider new ideas, to organise their thoughts, to decide of priorities, to enlighten the conflicting objectives and to propose tools to help decision making.

Nowadays FID functional analysis

A first workshop with the members of the FID association revealed the numerus version of the FID they had in mind. In one's mind, the FID was a simple internship forum. In another's mind, it was a temporary organization whose mission was to help the UTC to make a transition and that should disappear as soon as the university take its place. In a third one's mind, it was a place where people could talk, exchange ideas and research solutions together while raising awareness. The discussions with the association's members also revealed that the three deep causes of the FID existence were: the fact that the climate, the ressources, the biodiversity and the social crisis are real ; the fact that most companies willing to hire fresh graduated engineers work to amplify these crisis ; and the fact that in order to be happy, engineer students want more and more to work in line with their values, but they feel like engineering can be anti-ecological and have no clue how to use their knowledges to help. From these three causes emerged the three main FID functions (where "processus" refers to the event FID, and user refers to its visitors):

- FP1: The processus must bring concrete answers to the users' questions about the compatibility between sustainability and engineering.
- FP2: The processus must help the users willing to work or intern in the world of the sustainable development.
- FP3: The processus must, because it exists, participate to transform and to increase the liability of the UTC and of its partner companies.

From these three main functions, a global function called the functional essence is formulated.

“The processus must bring concrete and positive part of the **answer** to the questioning about compatibility between **engineering and sustainability**, while igniting **meetings** between many sustainable development actors and engineering students and so creating **professional opportunities**. Doing this, it must indirectly participate to **transform the values, the actions and the formats** of the UTC and the engineering world.”

Time horizon

Since the goals and functions of the FID had been properly defined and agreed by all the members of the association, the priority objectives had to be identified. First, the long-term (2030) objectives had to be clarified. Then, to fulfil those objectives, a concrete idea of the FID 2020 should be pictured and so year after year, the FID should evolve to its 2030 version.

A vision for year 2030

The long-term visions of the members association had been collected and two big pictures came out of this consultation.

Vision 1

- The FID still exists
- One day per year is entirely free and dedicated to the FID
- Exchanges between organizations and visitors are more like debates and workshops
- The FID has become more an exchange place than an internship forum

Vision 2

- There is no need for the FID to exist anymore
- The traditional internship forum meets the FID objectives
- SE is taught in courses at UTC
- UTC becomes a transition model for other universities

Once these visions had been written, the members could discuss them and came to a final vision. In year 2030, they hope that the UTC would answer the demand of internships in sustainable fields and companies through the traditional internship forum (FP2). They assess that the UTC would provide courses about SE, and that such practices would have grown and blossomed in the companies. In this frame, the FID would have become an ambitious yearly meeting involving the UTC, the municipality and others, open to public, to present innovative SE projects examples, to discuss and generate new ideas and search solutions for global society issues.

An improvement for year 2020

Meeting formats

In order to find out the most appropriate meeting formats to meet the functions FP1 and FP2, 13 interesting formats have been identified by the consulting team, and their capacity to perform 5 sub-functions related to FP1 and FP2 was evaluated by a three-colours scale. A second workshop with the association’s members allowed them to choose the most relevant sub-functions and the most interesting meeting formats. In the end of the workshop, the members of the association had selected 10 most relevant formats and combined three sub-functions in one to get a total of 3 sub-functions. The table below is the original table (in french) showing the evaluated formats and their characteristics.

Légende

- Oui, Obligatoire
- Possible, Modulable, Au choix
- Non, Impossible, Incompatible

Table of the chosen meeting formats for FID 2020

Fonctions	Animation			Conférences			Débat		Rencontre ouverte	Rencontre indirecte
	Sur un stand	Par des organismes recruteurs	Par des assos	Présentation (projet ou organisme)	Gesticulée	Retour d'expérience	Classique	Mouvant	Cocktail	Présentation d'organismes absents
Réflexion : élaboration de solutions nouvelles, instruction & sensibilisation (relatif à FP1)										
Opportunité professionnelle (relatif à FP2)										
Relations humaines : réseau, échanges... (FP2 bis)										

Target audience, students & organizations

One of the main issues for the FID association was to determine who were the target students and who were the organizations to invite. For the FID 2019, they had chosen to target very concerned students and organizations only, but they figured out that only few people came. In one hand, they thought they could better raise awareness if they could attract more students, less concerned about environmental or social issues, and that they had to invite more organizations like less-deeply-concerned organizations willing to improve their practices, to attract them. It would make the event bigger, which was wishable. In the other hand, they wanted to be very selective so that deeply-concerned students would not be disappointed, and so they would not organize a greenwashing event. To help them decide their target audience, the consulting team created two typologies. One for students and one for organizations. Then the typologies were crossed in a table to evaluate which meetings between student types and organization types were the most interesting to fulfill the functions FP1 and FP2. The original typologies definitions (in french) are in the following frames and the cross-table is below.

Typologie des étudiants (student types)

Type Radical : étudiants pour qui l'aspect durable est un facteur indispensable dans leurs choix de vie.

Type Engagé : étudiants pour qui l'aspect durable est un facteur important dans leurs choix de vie.

Type Conscient : étudiants pour qui l'aspect durable est un plus qui peut influencer les choix de vie.

Type Indifférent : étudiants pour qui l'aspect durable n'a aucune influence devant les autres facteurs sur leurs choix de vie.

Type Sceptique : étudiants rebutés par l'image véhiculée par l'engagement durable.

Typologie des organismes (organization types)

Type Radical : organismes dont l'activité principale œuvre pour des modes de vie plus durables, dont les pratiques sont durables et qui s'inscrivent dans un modèle économique parallèle.

Type Engagé : organismes dont l'activité œuvre pour des modes plus durables et dont les pratiques sont durables (entreprises qui fournissent options alternatives et durables : éoliennes, agriculture).

Type Responsable : organismes dont l'activité n'œuvre pas pour des modes de vie plus durables mais dont les pratiques sont durables.

Type En Transition : organismes dont l'activité principale n'œuvre pas pour des modes de vie plus durables mais dont des pratiques sont en évolution.

Type Traditionnel : organismes dont l'activité principale n'œuvre pas pour des modes de vie plus durables et ont des pratiques traditionnelles peu durables.

Type Court-termiste : organismes dont le fond de commerce va à l'encontre de la préservation de l'environnement.

Cross table of the meetings between students and organizations typologies

		Organismes					
		Radicaux	Engagés	Responsables	En transition	Traditionnels	Court-termistes
étudiants	Radicaux						
	Engagés						
	Conscients						
	Indifférents						
	Sceptiques						



Consonance cognitive pour l'éti, entente, accomplissement mutuel, symbiose

Dissonance cognitive possible pour l'éti, jugement négatif d'un parti sur l'autre, incompatibilité de valeurs ou de priorités

Opinion négative réciproque, rencontre infructueuse, mauvaise presse pour l'événement auprès de chaque partie prenante

si entente, gros potentiel évolutif (vers les objectifs finaux indirects du FID : évolution des entreprises, de l'économie, des formations...) mais possibilité de mésentente pour les organismes en transition

potentiel de ralentissement d'évolution

FID 2019

FID 2020 (et +, mais typologie peut être inadaptée à 2030...)

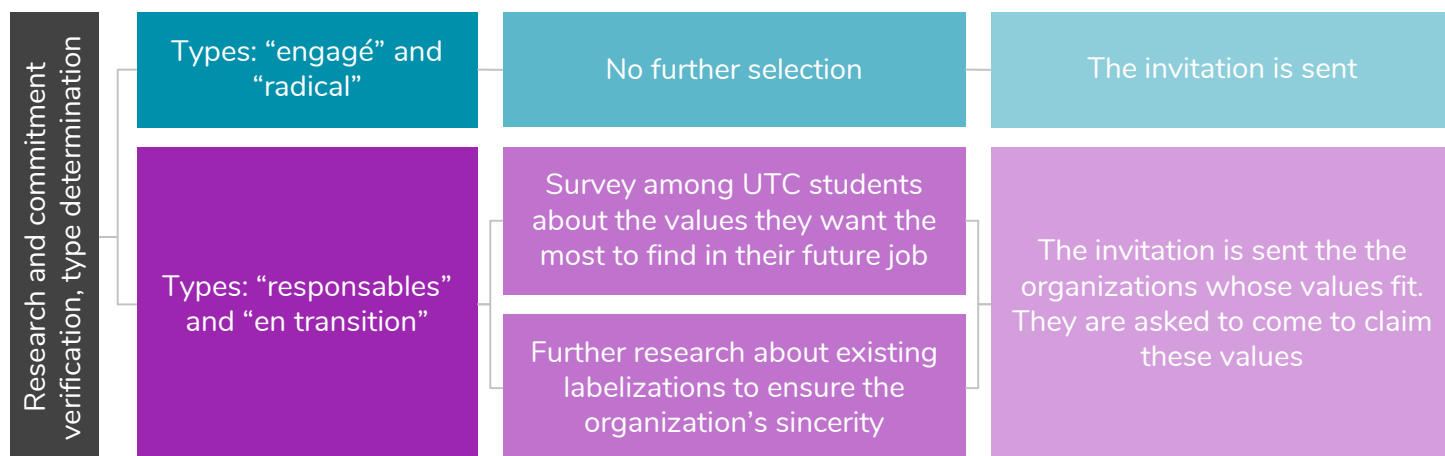
The discussions around this table resulted in the expansion of the target frame of students and organisms (from the red line in 2019 to the blue line in 2020) to increase the chances to fulfill FP1 and FP3.

The last main issue that had to be solved was the way to verify what type an organization belonged to.

Organizations selection method

This task was one of the most difficult. The association members had to verify the commitment of each invited organization, and the selection of the organizations had to follow four rules. First, it has to attract as most students as possible. Then, it should allow organization-to-organization as well as organization-to-student exchange and enrichment. Third, the organization or guest must at least be close to the engineering field (that was not the case of all during the FID 2019). Finally, the organizations had to be legitimate and sincere. For the 2019 event, one of the rules was that the organization had to make internship offers. The FID members decided not to keep this rule since it reduced a lot the number of possible guests, when these guests could still help fulfill FP1 and FP3. To fulfill these rules, the consulting team proposed the following method:

Some committed organizations are well-known by the association's members and are no source of doubt. The selection actually applies to the responsible organizations and the transitional organizations (cf. typology "responsable" and "en transition"). Indeed, these organizations are the most likely to practice greenwashing, which is why a research about existing label and a previous meeting with the organization should help decide if it should be invited to the FID or not. In parallel, the FID association's members figured out that they only had their own values as a reference and thought it would be very profitable to ask other students their most dear values to respect while working, so they could invite the appropriate organizations.



Value analysis results

After this consulting work, the FID association's members agreed on a direction to follow at the time horizon 2030, while finding concrete elements to improve the FID in year 2020. They could clarify their own ideas as well as the feedback they received. They had new tools at their disposal and could end the endless debates to start the concrete organization of the next event. The reflexions that merged during the workshops led them to new ideas, like the ideal event size and duration, the event planning, the best stand display considering the organization type or claimed value... The question of annex activities during the year, especially on their website, was also addressed, among many others.