D4.2 Learning tools on Impact's creativity and innovation methods

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Creation of the content & pedagogical model of the 24h of innovation (module 2)

Introduction

This deliverable is concerning the creation of the content and the pedagogical model of the module 2). From a practical and theorical point of view, the goal of the module 2 (based on The 24h of innovation) is to foster the socio-technical practices of the students that are involved in a short but intensive collaborative period with the use of creativity and design tools, marketing and communication methods. This deliverable is divided in 2 sections:

- The first one is about the pedagogical model
- The second one is about the content of the module 2 and the different tools used to organize the module

The 24 Hours of Innovation event is designed to maximize synergies between diverse stakeholders, fostering an environment where creativity, collaboration, and open innovation thrive. It brings together:

- **Participants from varied backgrounds** – students, young job seekers, and vocational trainees – whose diverse perspectives enrich the ideation process and fuel innovative thinking.
- **Challenge providers**, including small, medium, and large enterprises, public institutions, and NGOs, who bring real-world innovation challenges and seek fresh, disruptive ideas through an open innovation format.
- **A multidisciplinary coaching team**, composed of educators who adopt a more hands-on, interactive role beyond traditional teaching methods, and professionals eager to share their expertise and guide teams throughout the challenge.
- **A panel of expert judges** who assess projects with a constructive and encouraging approach, ensuring that creativity, feasibility, and impact are valued in the final presentations.
- **An organizing team** responsible for overseeing logistics and ensuring that the event runs smoothly while cultivating a dynamic, creative, and convivial atmosphere.

By integrating these different actors, the 24 Hours of Innovation serves as a unique catalyst for the generation of impactful, sustainable, and groundbreaking solutions within an intense, collaborative timeframe.

This deliverable aims to support any organization wishing to replicate the methodology of Module 2 in order to connect these diverse profiles and foster the success of the active learning approach at the core of the 24 Hours of Innovation concept.

Pedagogical model of the Module 2

Created by ESTIA in 2007, “The 24h of innovation®” (http://24h.estia.fr) is a 24 hours nonstop challenge to develop creative and innovative concepts of products (mechanical, electronic, software…) and services. The concept of this event is simple: projects and topics are proposed by companies, labs, associations, and they are unveiled at the beginning of the competition. Teams are freely composed of a mix of any volunteers (students, researchers, teachers, consultants, free-lances, employees…). After 24 hours of development, teams present their results in a show of 3 minutes in front of a jury of professionals in the field of innovation. The winner teams receive the “24h of innovation” awards and they receive prizes offered by the sponsors of the event.

Teams are free to choose their subject among the projects proposed by the inventors and applicants. The topics are communicated during the opening ceremony of the 24h of innovation and the team will then be allowed to choose them. Several teams may work on the same subject.

Then, each team has 24 hours to develop creative solutions (innovative concepts or prototypes) corresponding to the project proposals. At the end of these 24 hours period, each team presents its propositions during the short time of only 3 minutes in front of all the participants and a jury formed by innovation professionals. This jury then awards the best teams with prices offered by the event sponsors. The classification of the projects may be made from the documents and prototypes proposed during the presentations.

The pedagogical model of the module 2 is mainly based on collective “learning by doing”. During the module 2, the teams are quite free, but we try to encourage the teams to follow a generic methodology based on the adaption of the Double Diamond design process (see figure 1).

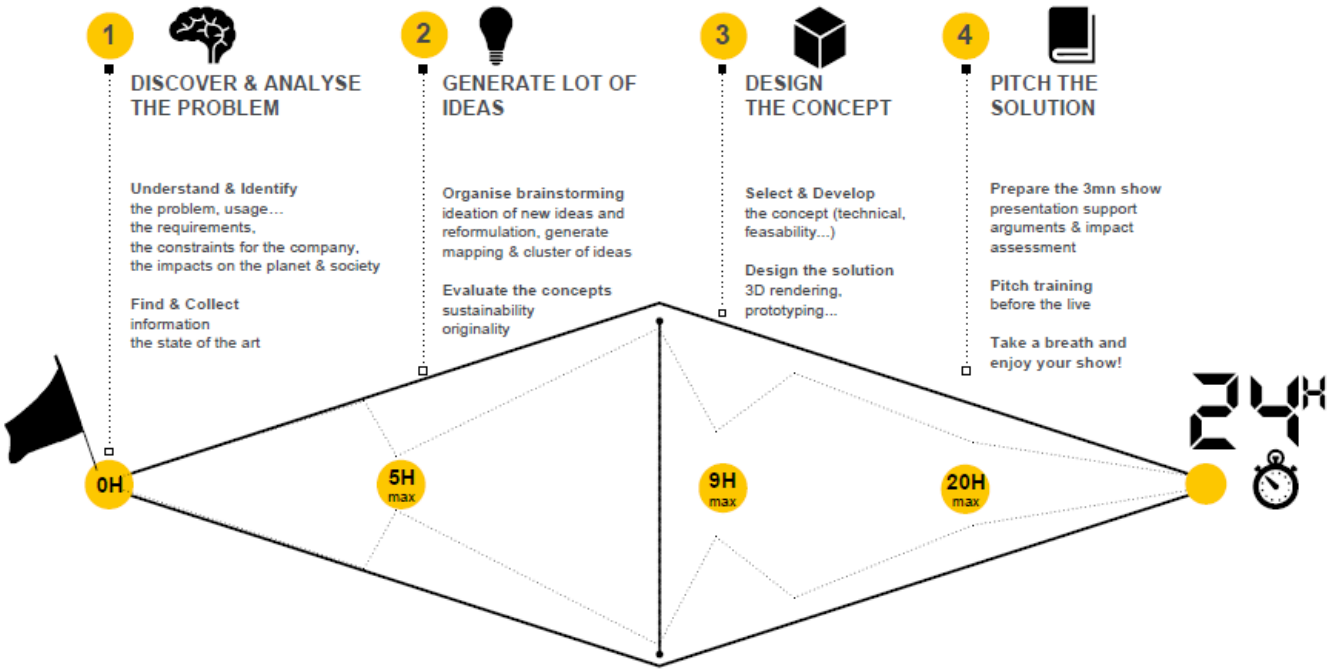


Figure 1. The 24h of innovation design process

(adapted from the Double diamond developed initially by the British Design Council in 2005)

During the 24h of innovation we encourage a learning by doing approach based on the use of all the different tools and methodology by a hybridization approach developed by ESTIA team since many years. This hybridization approach (see figure 2) based on (Legardeur 2009) highlighted that the use of combination of several methods, tools and techniques is a more flexible and agile approach to support complex creativity and innovation processes.

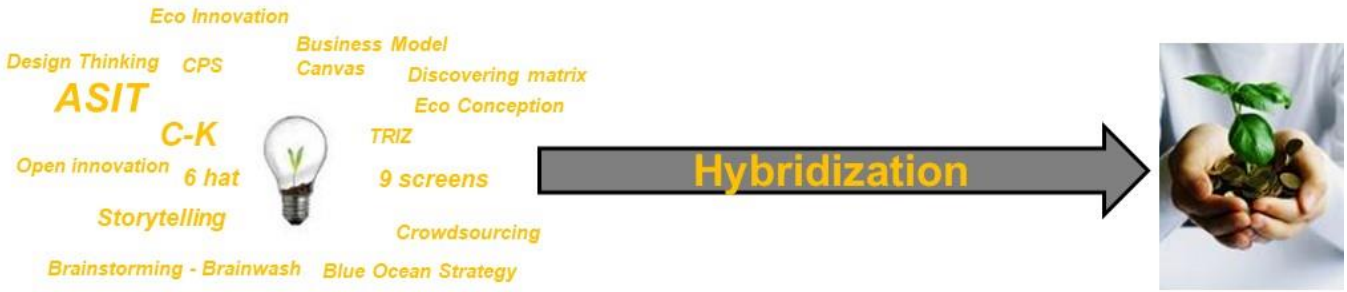


Figure 2. illustration of the "hybridization approach"

With this model of hybridization, we can combine several creative methods and tools approaches that have been developed since 1960 in order to adapt according to the different team advancement during the 24 hours. Most of the time, we are using the following approaches:

- Frame collective creative and innovation processes like the double diamond, Design Thinking approach, stage-gate process, CPS approach, etc.
- Redefine the STSs and its ecosystem where different methods/tools could be useful to "redefine the box" like SWOT matrix, Strategic canvas, 9 windows of TRIZ…

- Facilitate the people and humans by methods to stimulate the teams like Six thinking hats, brainstorming rules, SCAMPER method, Mind mapping techniques…
- Define innovative solutions and roadmaps by "Out of the box" thinking that involves intentionally bringing new concepts and knowledge (C-K theory…) to the system or finding new markets (Blue Ocean Strategy, Lean Startup…)
- Solve innovative problems by "in the box" thinking that occurs within a defined or closed system using existing resources (rather than introducing new ones) seeks to remove obstacles or conflicts between the problem and the solution with methods like TRIZ, or the Advanced Systemic Inventive Thinking, ASIT...

Creation of the content of the module 2

The event is organized as follows: a call for project proposal, for participation, and for sponsors is sent out before the event, and the most interesting topics, participants, and sponsors are selected. At the official opening of the event, the topics are revealed, and the teams are formed (with a maximum of 10 persons per team). The team constitution is free and open and is not imposed by the organizers. We just strongly encourage the team-building compound with different profiles: 1st, 2nd, 3rd years, master, different schools and universities…

Concerning the facilitation and organization of a 24-hour Innovation Event, we have share different tools to organize the module 2 on the three different sites:

- Checklist for Organizers
- Guidelines/Tips for Organizers/Facilitators, for Project Leaders, for Coaches

Checklist for Organizers

We have designed and shared the following checklist among the different partners in order to organize the module 2.

24h checklist

Phases	Equities	Period	Who?	Status	Commentaries
					Not started
					Ongoing
					Done
					Warning !!!
PREP EVENEMENT	Macro/Reverse Planning				
	Strategy definition	D-90			
	- Scope, theme, dates, global schedule (start and end hours), sites & organizers				
	- Provisional budget				
	- Declination of the logo and name of the 24h edition				
	Organization logistics team and animation	D-90			
	- Set up organizing team for each site				
	- voluntary call (student) to help organizing team	D-15			Optional
	Calls for participation participants, companies, sponsors	D-90			
	- Send a save the date	D-90			
	Design a website or send forms: info + registrations	D-90			
	- Call participants (students)				
	- Call for coach				
	- Production and distribution of a video/teaser	D-60			Optional
	- sending of the first call for participation	D-60			
	- relaunches	D-30			
	Partner search	D-60			
	- Identification and selection of project/topics partners, logistics service providers;				
	Search for sponsors	D-90			
	- local, regional, national fund				taking into account of the compatibility with the ERASMUS+ grant
	- private funding (sponsors)				
	- gift for award				
	Search for topics	D-90			For 200 participants => 20 - 30 subjects => 20 to 30 teams (5 to 10 people/ team)
	- call for project/topics (companies);	D-90			
	- Qualification and choice of subjects;	D-30			
	- Formalisation of subjects on a unified powerpoint;	D-1			
	Communication plan (media)	D-30			to be discussed / according to TeamIT communication plan
	- Press release No. 1: presentation of the edition	D-30			
	- Press release no. 2: list of school, companies	D-7			
	- Press release n°3: launching announcement	D-1			
	- Press release n°4: Results and Awards	D+1			
LOGISTICS	Preparation Organization & Logistics				
	Find logistics Providers - Meals	D-60			
	- lunch or dinner 1st day for VIP (sponsors, companies)				
	- 1st day meal for all the participants				
	- breakfast 2nd day				
	- lunch 2nd day				
	- end cocktail				
	Find logistics providers: technical, security, insurance	D-60			
	- Internet access - WIFI				Optional if already equipped
	- Sound and video projection of the venue for plenary sessions;				Optional if place already sound and equipped with 2 video projectors
	- Security presence				Optional - See if location requires presence
	- First aid provider				Optional - See rule in force in the country concerned
	- Notify local insurer				
	Actions Communication	D-30			Optional
	- video recording during 24 hours;				Recommended
	- Photo shoot				Recommended
	- streaming				Optional
	- community manager				Recommended
	- decoration place, stage, etc.				Recommended
	- Realization Teeshirt 24h (or scarf) with different colors for participants, coach, companies				Optional if budget available
	- Realization Stickers 24h				Optional if budget available
	- Stand or poster background for interview with partner logo				Optional
	- Goodies to distribute with edition logo				Optional
	Simultaneous Translation Providers	D-30			If necessary
	- Simultaneous translation: translators and headsets;				
	Prototyping/Mock-up space	D-60			Recommended
	- Fablab/ Maquettage service provider				
	Spaces Entertainment & Relaxation	D-60			
	- Provide animations (Table football, pingpong, games console, photobooth, dance lessons, hiphop, etc.)				Recommended
	- Provide relaxation area: sofas, poof, sleeping space...				
	International				
	- Schedule videoconference (if remote partner)				between the 3 sites
	- Partnerships with transport companies: Train, plane, carpooling				Optional
	Definition of the technical driver	D-10			
	- Days & hours of installation of service providers				
	- Plan implementation plans with teams/subject locations				
	- Provide layout plans with proto spaces/ meals...				
Welcome zone	Logistics				
	Print final list of topics				
	Plan listing Companies, Consultant, Coach, Jury, VIP				
	List participants classified A - Z				
	Preparation KIT accueil VIP (Organizer brochure, partner flyer, etc.)				
	Riders or Badges for Company, Jury, Sponsors				
	Print Tickets Meal - or bracelet				
	Print Participant Cards				
	Coach armband or scarf				Optional
	Edit listing instructions (List of software, account and WIFI login/ Room map/ Emergency evacuation/ Security)				
	24H t-shirt for team Dream, participant, coach, webTV				
	Internal signs/ Signalitic to the place				
	Installation POS organizers, sponsors, partners, etc.				
	Decorative installation				
	Recover Oriflamme Partners				
	Set up a welcome stand				
	Alarm to turn off for the night				
	Software or computer installation				
	Wifi Internet access test				
	Paperboard or board with markers...				
	Stock Post it & markers, A3 paper, Tracing paper ...				
	Provide access shower or deodorant, wipe in WC				
	Plan for selective sorting container				
	Provide garbage bag for cleaning				
					Optional
Auditorium	Microphone - sound system (test microphone, video and switch pc)	D-1			Optional
	Secondary video projector installation: Countdown 24h				
	Book reserved places: Companies, VIP, Sponsors				
	Place decoration				
Meal room for VIP	V.I.P. meal room preparation: customers, sponsors...	D-1			
	Receiving service provider				
Fablab prototyping zone	Installation Machine and equipment for prototyping: 3D printing, laser graving machine	D-1			according to machine availability
	Provide consumable: / Lego/ tape/ cardboard...				
	Small tools: cutter, gloves...				
Award and gift preparation	Take stock of the gifts collected	D-1			
	Define gift for Awards (1st, 2nd, 3rd...)				
	Place lots in a secure location				
	Print Vouchers if lots/gift not available				
ANIMATION	Animation	D-1			
	Preparation (pptx) Opening Ceremony				
	- Presentation with Final List of Topics				
	- Logos Sponsors				
	Team Registration Form				
	Participation card				
	Jury grid				
	Plan animation during jury deliberation				
	Prepare the presentation (ppt) for the award ceremony				Optional
	Confetti cannon for winner				Optional
	Plan music for intro and end of the event				Optional
	Golden book				Optional

Guidelines/Tips for Organizers/Facilitators

Before the 24 Hours:

- Standardize topics using the same format, consolidating them into a single presentation and arranging them in a specific order (by theme, company, etc.). See example in Annexes.
- Define the exact number of students per team based on the number of topics and participants present on the day (ensuring all topics are assigned to a team).
- If certain topics may lead to models or prototypes, prepare specific materials (mockups, prototyping tools, etc.) to provide to the teams. See list of material in Annex
- Brief the coaches and project leaders (see below).

During the Opening Ceremony:

- Present the 24-hour schedule and conduct creativity warm-ups/ice-breaker activities.
- Introduction: thank partners, sponsors, project leaders, coaches, and students.
- Introduce the various topics and identify project leaders for local facilitators.
- Invite project leaders to leave the room ahead of participants to join their reserved spaces.

During Team Formation:

- At the end of the opening ceremony, invite participants to choose their topic (running!).
- Rule: First come, first served (team size limits, typically 10 students maximum, will be announced during the ceremony).
- For popular topics, try to form multidisciplinary teams (pairs or trios with varied expertise, schools, nationalities, etc.).
- For less popular topics, it is not necessary to fill the team to its maximum size if the participants are motivated.
- If a topic does not attract interest during team formation, organizers and coaches should guide participants to the topic (note: this phase can be lengthy).
- To "formalize" participants' commitment to each topic, use participant cards.

At the Start of the 24-Hour Development Phase:

- Encourage project leaders to brief their teams early without revealing all their ideas.
- Allow coaches to attend briefings to understand the expectations and constraints of the topics.
- Ensure project leaders do not stay permanently with the teams and allow them to brainstorm independently; project leaders should also check in periodically to track progress.
- Arrange a briefing space for coaches to ensure smooth communication among them.
- Provide a space for project leaders to work independently, leaving the teams autonomous.

During the 24 Hours:

- Gather team information: team name, chosen topic, participant names, and affiliations.
- Toward the end of the 24 hours, create a presentation schedule:
    - Start with a strong project, ideally with a humorous presentation to break the ice.
    - End with an exceptional project to conclude on a high note.
    - Alternate between the best teams and those facing more challenges, ensuring diverse deliverables (CAD, mockups, prototypes, etc.).
- Create a schedule of team presentations for the facilitator.
- Provide jury members with a schedule and evaluation criteria (creativity, feasibility, potential).

During Team Pitches

- The facilitator may conduct an ice-breaker before the pitches.
- The facilitator can introduce or ask jury members to introduce themselves (name, affiliation).
- The facilitator presents the pitch rules: a 3-minute presentation, one question per team from the jury, the team's response, followed by a word or punchline from the project leader. See example of pitch on the YouTube : https://www.youtube.com/user/24hofinnovationTV
- The facilitator must assist with the launch and transitions between team pitches: reminding the audience of the chosen topic, the team name, and the students' affiliations in case of multi-school teams.

During Jury Deliberation

- **Facilitator:** Propose activities (e.g., Blind Test, Just Dance) to keep participants engaged while the jury deliberates.
- **Organizer:** Facilitate the jury's deliberation by asking each member for their ranking (Top 3 or Top 5) and then defining the prizes. We invite the jury members to evaluate the teams' pitches using an assessment grid based on three criteria: Originality of the solution, Feasibility (technical, economic) of the solution, and Potential of the solution (market, usage, etc.).
- **Organizer:** Create a PowerPoint presentation (with music) during the deliberation to announce the results.

Guidelines/Tips for Project Leaders

Before the 24 Hours:

- Propose and finalize your topic using the slide format provided by the organizers (mandatory).
- Gather as much material as possible* about your topic before the 24 hours to brief the team (e.g., context, challenges, technical and environmental constraints, etc.).
- Bring the necessary materials if the topic could lead to a model or prototype (optional).
- Prepare access to any specific software needed, if applicable.

During the Opening Ceremony:

- Be present to be identified as a project leader.
- Follow organizers' instructions to join your reserved project space.

During the Briefing Phase (mandatory presence):

- Provide as much information as possible about the topic but avoid sharing your own ideas immediately to see if students come up with other ideas.
- Agree on the communication methods between you and the team during the 24 hours: exchange phone numbers, emails, Skype, etc., and establish time slots when you will be unavailable (especially at night!).

During the 24-Hour Development Phases (tips):

- **Alternate, if possible:**
    - Presence phases (to refocus the team, select the most promising solution paths, etc.).
    - Absence phases (so the team can take ownership of the topic and propose fresh ideas with a new perspective).
- **Recommended attitudes:**
    - Encourage your team to conduct real brainstorming sessions, first reflecting individually, then sharing collectively, and building on each other's ideas.
    - Avoid the "Not Invented Here" syndrome or "No, it's not possible" — and if it's not, prove it!
    - Sometimes play the "Devil's Advocate" at the start to challenge ideas and the "Angel's Advocate" to improve proposals!
    - Encourage and motivate your team, especially toward the end!
    - Alert the coaches if your team needs help with creativity, group/project management, technical expertise, communication, or pitching.

During the Final Hour:

- Be very positive and encourage/help/support the team as they prepare their 3-minute presentation.

During the Team Presentation Phase (recommended presence to see the final results):

- Remember that most participants will not have slept, have no distance from their topic, and presenting in 3 minutes flat is a very challenging exercise!

- Encourage all teams, even if yours is (of course) the best!
- Be ready to say a word or a punchline about your team after their 3-minute presentation and the jury's questions (if time allows).

During the 24-Hour Closing Ceremony:

- Congratulate your team regardless of the jury's final decision!
- Remember to collect contact details from your team members before leaving.
- Do not hesitate to offer:
    - To have them present their project at your organization again,
    - One or more internships for the most motivated participants,
    - One or more job offers if you've identified one or more talents!

Guidelines/Tips for Coaches

During the Opening Ceremony:

- Be present, if possible, to be identified as a coach.

During Team Formation:

- Assist with team formation.
- If the topic interests many participants, encourage the creation of a multidisciplinary team (pairs or trios with varied expertise, schools, nationalities, etc.).
- If the topic does not seem to interest students during the team formation phase, try to recruit or direct participants to ensure all teams are complete.

During the 24-Hour Development Phases (Tips):

- Participate in the coaches' briefing: present your expertise, position yourself on preferred topics, and define a method for exchanging information among coaches (e.g., tracking tables or WhatsApp groups).
- Alternate, if possible:
    - Presence phases (to refocus the team, identify the most promising solution paths, etc.).
    - Absence phases (so the team can take ownership of the topic and propose fresh ideas with a new perspective).
- Avoid disrupting teams by successive visits from coaches giving conflicting advice and opinions.

Recommended Attitudes:

- Encourage your team to conduct real brainstorming sessions: reflect individually first, then share collectively, and build on each other's ideas.
- Avoid the syndromes: "Not Invented Here" or "No, it's not possible"—and if it's not, prove it!
- Play "Devil's Advocate" at the beginning to challenge ideas and "Angel's Advocate" to refine proposals!
- During the night, identify and collectively coach struggling teams to help them find solutions.
- Encourage and motivate teams, especially towards the end!

- Alert the coaches if your team needs help with creativity, group management, project management, technical expertise, or communication/pitching.

During the Final Hour:

- Be very positive and encourage/help/support the team as they prepare their 3-minute pitch.

If There Are Communication Specialists Among the Coaches:

- Organize pitch training sessions.

Conclusion

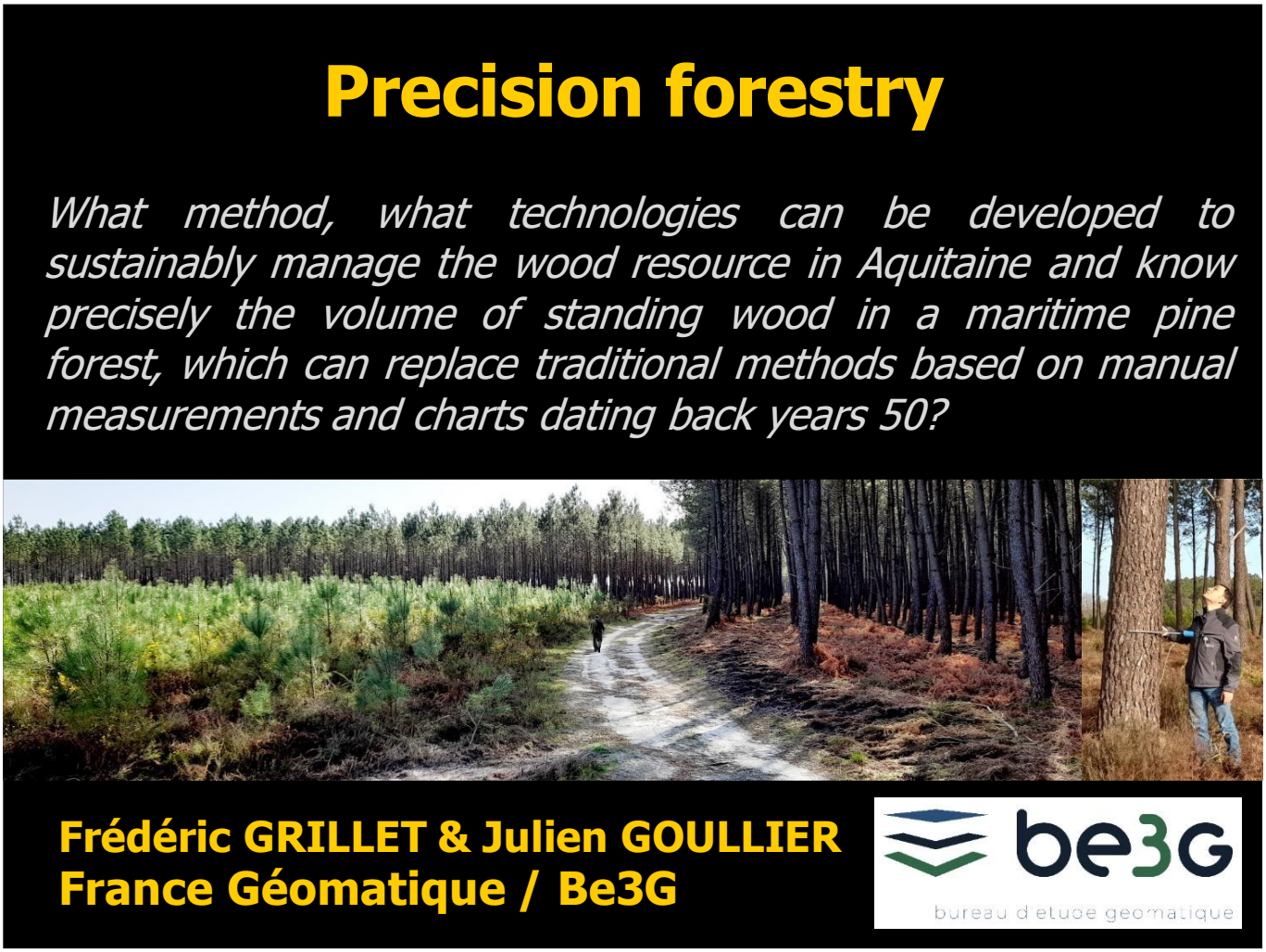
One of the global TeamIT+ objective is to foster "impact innovations" that can be defined as "new services, products or processes that will find economically viable markets to ensure the sustainability of their uses, while neutralizing and even making positive their social and environmental impacts". To achieve this, we need to mobilize and combine all the creative minds in the world, especially those who aspire to bring about this new paradigm. That's why it's so important to train new generations in the hybridization of all forms of creativity so that they can invent and overturn today's models. Tomorrow, the current and next generations must, more than ever, become experts in collective intelligence, which means learning to work in the unknown, the undefined, to detect weak signals, to take an interest in singularities, to work outside one's comfort zone in exploring areas of "non-art" and their uncertainties...

References

⊕ Legardeur J., « Le management des idées en conception innovante : pour une hybridation des outils d'aide aux développements créatifs », Habilitation à Diriger les Recherches (HDR), Université Bordeaux 1, 2009.

Annexes

Exemple of project



List of Workshop Equipment for a Prototyping Lab

Here is a list of equipment for a prototyping workshop. Of course, within the limits of what you have available, participants will adapt to what they find.

Manual Prototyping

- Plenty of cardboard (can be collected from businesses or large stores)
- We discourage the use of polystyrene for ecological reasons and ease of cleaning
- Scraps and pieces of various materials (plastic sheets, tubes of different diameters, wooden rods and panels, etc.)
- Scissors / cutters
- Glue / tape / double-sided tape
- Glue gun + glue sticks

- Markers, pencils
- Spray paint
- Modeling clay
- Fabric scraps, sewing essentials
- Paper reams
- Staplers
- Hammer, nails
- Screwdriver, wood screws
- Gloves, safety glasses
- Rulers, measuring tapes
- Files, sandpaper
- Pliers
- Wire + wire cutters

Machines (if available)

- 3D printer + filament in multiple colors
- Laser cutter + consumables
- Drill + drill bits
- Rotary tool (e.g., Dremel)
- Paper cutter (guillotine)