












Best Practice: SensUs

Best practice implemented at Eindhoven University of Technology (organizer) and RWTH Aachen (on of the participating universities)

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 <h2 style="display: inline;">Best Practice: SensUs Student Competition</h2>				
<p>Key resources:</p> <ul style="list-style-type: none"> Network of research teams (one for every participating university) headed by the initiator Menno Prins from TU/e Student team responsible for organization and promotion Coaches Partners: Eindhoven Startup Alliance (powered by ASML), Demcon, Medtronic, HighTechXL Jury: experts from the health industry, academics and entrepreneurs <p>Key activities:</p> <ul style="list-style-type: none"> Promotion of the event Coordination of coaching, activities and final contest event External relations: to build a network of sponsors/ 	<p>Critical success factors:</p> <ul style="list-style-type: none"> Competition element brings out the best in students, TRLs of biosensors are very high Menno Prins: expertise and network and the driving force Organized by and for students to evolve towards a sustainable format Involvement of TU/e Innovation Space Collaboration with the Honors Academy to ensure new talent entering the organization Self-development is key: participating students work on a personal development plan Involvement of local research groups (supporting the teams) 	<p>Value proposition:</p> <ul style="list-style-type: none"> Educational experience: student teams experience the innovation and development process of an innovative biosensor and compete against teams from other universities for various prizes. Become part of a worldwide community Develop collaborative skills Strength on student CV: practice-oriented experience Follow-up trajectories to stimulate start-ups 	<p>Customer management</p> <ul style="list-style-type: none"> Network of Menno Prins, founding father of the competition, both in the academic world and the industry PR team to promote SensUs towards various audiences (students, industry, academia) SensUs Connect: online platform where all relevant information and news is shared and where student teams can share their work. Workshops among medical professionals to raise awareness of SensUs and the value of biosensors Newsletter 	<p>Target group:</p> <ul style="list-style-type: none"> Primary target group: Students with an entrepreneurial mind and an interest biosensors, different educational backgrounds Secondary target groups: healthcare industry, healthcare professionals
<p>Costs</p> <p>The Competition Event (accommodation and activities for all the participating teams)</p> <p>Student assistant for the organization and promotion of the event</p> <p>Coaches</p>			<p>Revenues</p> <p>Public money: subsidies from EIT Health and support from the university</p> <p>Funding (cash and in kind) from partners in the TU/e ecosystem</p>	
       				
<p>Case selected from Eindhoven University of Technology</p>				

The Value Proposition

Practical description

SensUs is a Student Competition to stimulate the development of biosensors in a friendly competitive manner whereby students make and design innovative biosensors. Each year, a societally impactful indicator of health is chosen as objective in collaboration with different stakeholders. The first edition was organized in 2016 with 5 university teams participating. Ever since, SensUs has grown and innovated to further boost its mission. In 2018 an entrepreneurial training program was included as the biosensors developed by the students were very promising and had true commercial potential. To better prepare the students for a potential commercialization of their biosensor invention, the entrepreneurship training was added. Five year later, it has become clear that SensUs offers the ideal platform to foster entrepreneurial activity around biosensor. Since 2020 also an Express Venture Building Program has been added, organized by HighTechXL an renowned deep-tech accelerator, to further stimulate entrepreneurship.

SensUs aims to raise awareness about the possibilities that biosensing can offer to the life of patients and to health care in general. To spread this awareness on a worldwide scale, an online platform enables everybody from all over the world to view and experience the SensUs Contest. The competition is organized by professors and students from Eindhoven University of Technology in the Netherlands. During the latest edition (2020), 17 teams of engineering students from different universities competed for four awards (i.e. analytical performance, creativity, translational potential, and public inspiration). The recruitment of contest participants centered around team composition and backgrounds which are interdisciplinary and complement each other in order to ensure a high-level skill set for developing innovative solutions that, besides technological maturity, also match current market needs.

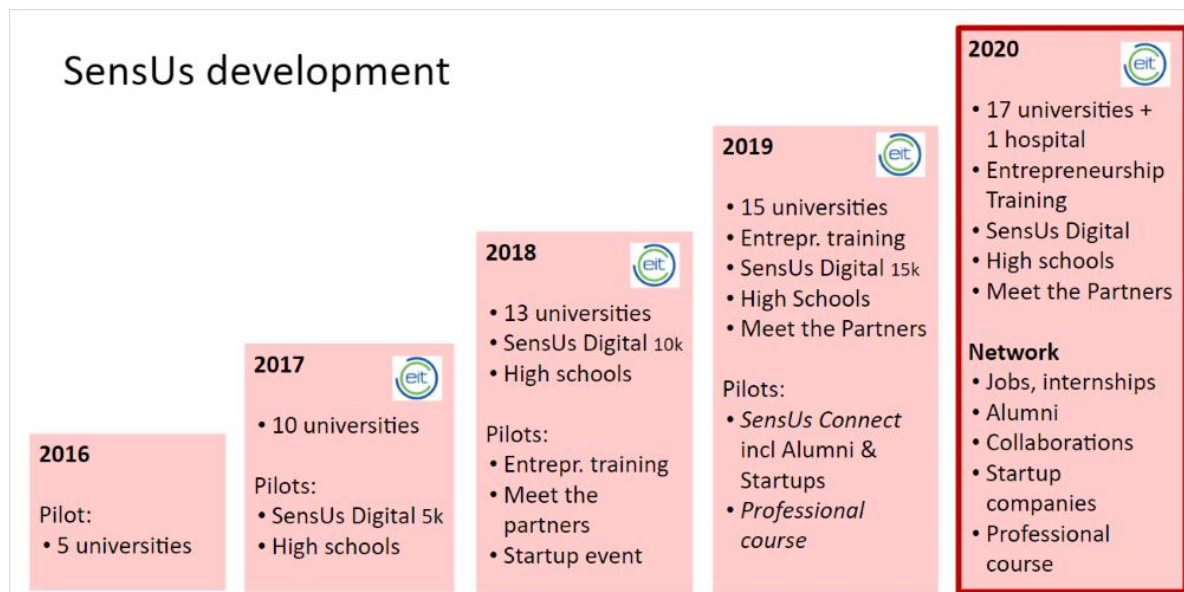


Figure 1: Development of the SensUs competition over time

Added value for participants

Participation in the SensUs competition contributes to the development and growth of the students as entrepreneurial innovators. The nature of the event creates the following benefits

- The competition is organized for student and by students. That way the students motivate each other leading to results that were unimaginable upfront.
- Participation in the contest provides access to a world-wide community of biosensor enthusiasts. As a result, the students experience the benefits of open innovation and collaboration within the SensUs Network.
- Every year, the competition addresses a new and compelling theme and aims to fulfill unmet needs. This way the student experience a feeling of societal relevance and impact.
- The entrepreneurial training and the different awards encourage entrepreneurship and the creation of start-ups
- Venture Building Program (VBP) & SensUs Startup ensure that student teams that continue with their project after the competition receive further support, thereby increasing societal impact and entrepreneurial action
- The competition creates a sense of urgency and pressure with the students, thereby pushing the development and enhancing quality.

The Target Group

The main target group of the SensUs Competition are the students of the participating universities. The student teams are mainly master students, typically in an engineering study, although all educational masters are allowed. Key is that the students have a passion for science and entrepreneurship. Students that want to participate, have to reach out to a professor at their own university. With the support of this professor, they can reach out to Menno Prins, the founding father of the competition. He assesses if sufficient expertise in biosensing is available. If this is the case, the team can participate. The professor and his/her research group are expected to continue to support the student team in their endeavors.

Unique about the SensUs competition is that it combines a number of entrepreneurial support measures in one initiative, while its clear focus on biosensors ensure a critical mass in this area, both regarding network and expertise. The SensUs competition combines three types of entrepreneurial support that is valued by entrepreneurial students: entrepreneurship events (the finals of the competition), network development (open innovation setting), and mentoring/coaching (coaching trajectories by both a professor in biosensors and a professor in entrepreneurship). Doing so, it brings together some of the most valued types of entrepreneurship support by students (as can be seen in figure 2 to 4). These figures show to what extent a sample of 200 entrepreneurial students value these support measures in the different development stages of a venture. In particular the percentages indicate how often this measure was put in the top three of the most desired support measures. These graphs nicely show how the SensUs competition covers the needs in various stages of entrepreneurship. While coaching/mentoring and entrepreneurship events are mainly valued in the definition and validation stage, the facilitation of network development is more valued in the efficiency and growth stage.

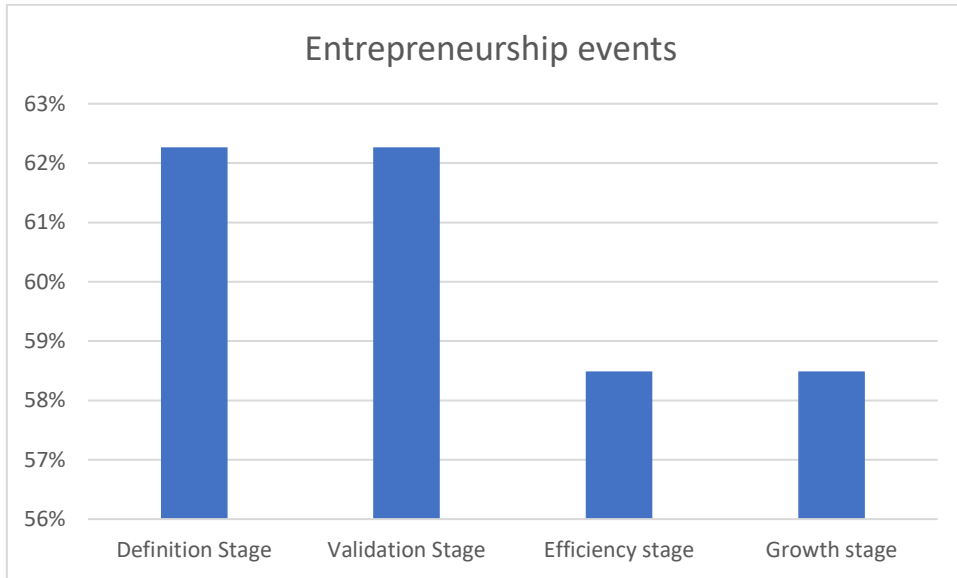


Figure 2: Desire for entrepreneurship events over the different development stages

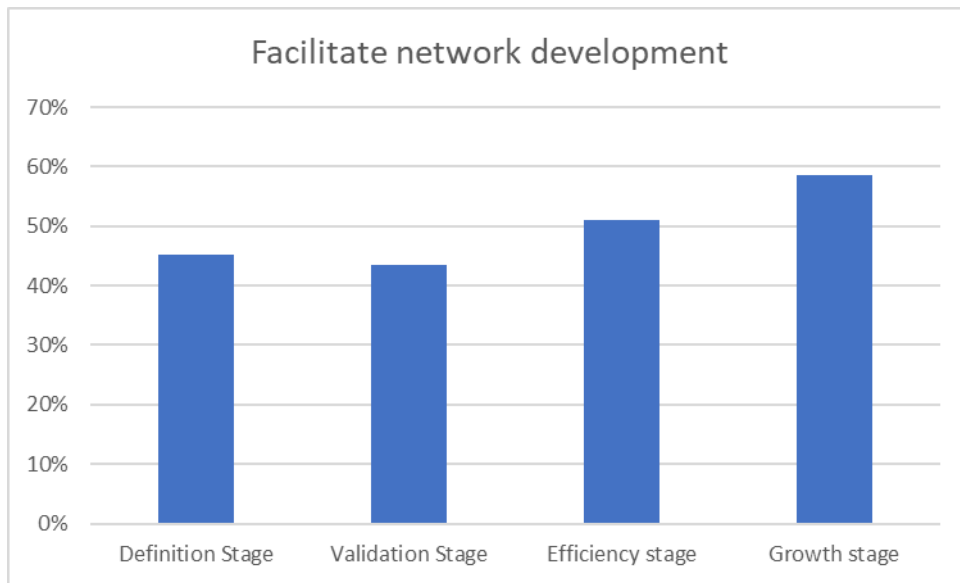


Figure 3: Desire for facilitation of network development over the different development stages

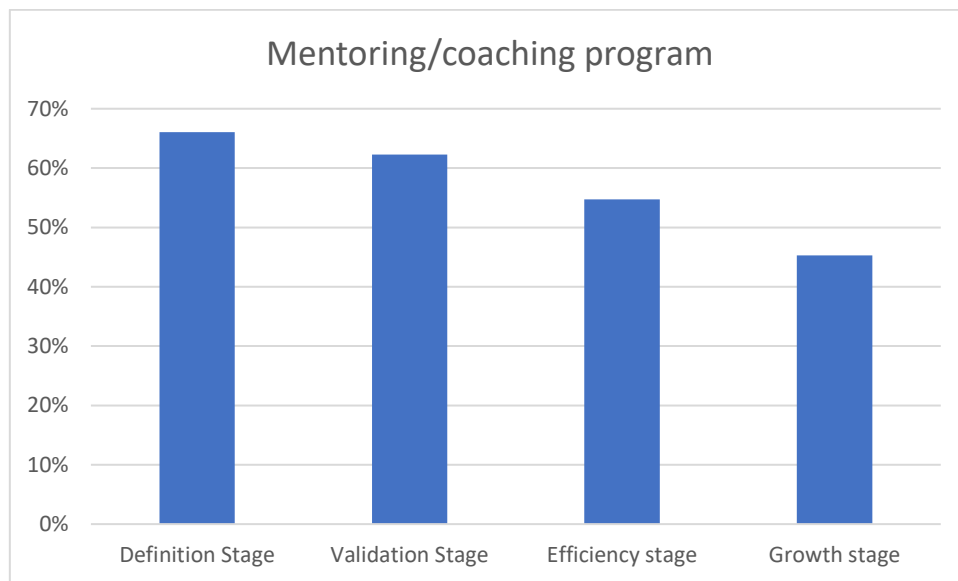


Figure 4: Desire for mentoring/coaching over the different development stages

How to Reach the Target Group

Different approaches are used to reach the target group, depending on whether it concerns students to help with the organization of the event or whether it concerns participating teams.

Regarding the recruitment of students to assist in the organisation of the competition, the following channels are used:

- Lecture talks
- Hand out flyers at the University
- Interest lunch
- Interest evening
- Social media
- Honors academy promotes SensUs with first year students (who obtained 60/60 points), following the honors academy track has the following advantages:
 - 15 extra study points after one year
 - Honors academy certificate after two years.

The recruitment of additional teams to participate in the competition is handled directly by Menno Prins, who personally ensures that new teams are properly supported and sufficient expertise is available at the university to develop an attractive biosensor.

SensUs also undertakes promotional activities to raise awareness for the event with a broader set of stakeholders. In particular, the promotion team makes use of the following channels:

Promotion of SensUs

- PR subgroup within the organization

- Newsletter
- Workshops for medical professionals
- Vlog competition with teams
- High school competition
- Public inspiration award the involve the public in the voting process

Organizing for Delivery of the Value Proposition

Key resources

The organization of a big initiative like the SensUs competition requires a strong team with high commitment. The following resources are crucial to ensure the delivery of the value proposition:

- Students to manage the organization of the event
- The involvement of Menno as head of the organisation and network builder towards the industry and academia:
- Guidance for the teams:
 - Professors and professionals that provide feedback to the student. This is organized in a series of feedback meetings. Two professors are available for feedback, one with expertise in biosensing and one with expertise in entrepreneurship.
 - Research group: situated at the home university of the participating team, provides guidance, coaching and expertise to their team.
- Professionals for:
 - The jury
 - The workshops
 - The venture building program
 - The SensUs startup project
 - To determine the theme of the upcoming edition
- Materials for the testing event (samples, score forms, electricity, test table, etc)
- Accommodation, food and guidance for the student teams during the SensUs Innovation Days
- Budget for promotion of SensUs and the organization, the SensUs Innovation Days and new initiatives
- Safety requirements:
 - Camping guard
 - Safe place for the materials of the teams and organization
 - Designated first aid provider
 - Safe use of testing materials and the lab

Key activities

To ensure a smooth organization of the event, the organization is structured in different teams, each team has its own responsibility:

- Chairs & co: maintain an overview of the organization and communication outside and within the organization.

- External relations: responsible for all contact with (potential) partners and organization of meet the partners and venture building program
- Public Relations: responsible for national and international promotion of SensUs and organization of the workshops
- Events: responsible for the organization of the SensUs Innovation Days
- Technology: responsible for the organization of the testing event and responsible for the new theme

Besides these core teams, also smaller teams are established. They also have clearly defined task, which often falls within the responsibility of one of the aforementioned teams:

- High schools: responsible for the organization of the high school competition
- Connect: responsible for SensUs digital during the event, the website and the SensUs connect platform
- Jury: responsible for selecting the jury, informing them and guiding them during the event
- Recruitment: responsible for recruiting the new organization that will manage the event in the upcoming year
- Startups: responsible for the organization of Sensus startup

Key partners

SensUs have developed an extensive network of collaborators and partners since its birth in 2016. These are the most prominent partners:

- TU/e
- EITH-health
- Eindhoven Startup Alliance
- Medtronic
- Demcon

To structure the involvement of the partners, three different packages were developed, i.e. the Gold, Silver and Bronze package. These packages lay out the terms of collaboration and also specify the type of promotion the partners get in return for this financial support.

The financial Side

The out-of-pocket cost categories for the SensUs competition broadly fall under these three categories: Competition Event (accommodation, catering and activities for all the participating teams and professionals involved), the hours for the organization and promotion of the event and the hours of the coaches. In the past these costs were mainly covered by subsidies by EIT Health. Yet, SensUs ambioned to become self-sufficient. Over the past years, it has developed a strong network of partners who will sponsor the event in the future. This, together the committed volunteering of many students and other professionals involved ensure the continued existence of the competition, even without public funding

More information

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