Physi's market research and feasibility analysis

Capstone Project Summary by Tamas Kadar

In a capstone pitching event of CEU iLAB (the startup incubator of Central European University) back in the spring time of 2019 a small but dynamic team of Physi has dragged my attention with their NBS (Nature Based Solutions) concept. Honestly I did not understand every detail what they were doing but the topic seemed so interesting that I decided to team up with them to work on my capstone project. After a few discussions and alignments the collaboration has been set up. But what is Physi doing anyway, one might ask and what it has to do with NBS?

Physi is a start-up spinoff of Naturvation, a research project funded through the Horizon 2020 science program of the European Commission. Physi envisions a solution to municipal and landscape planners; property owners; developers and investors of urban infrastructure for planning, visualizing and pre-assessing the multiple impacts of urban nature-based solutions. Physi has a solution vision of a realistic tool that fills the information-decision gap for NBS implementation. It demonstrates the benefits of NBS and convinces customers by providing first-order estimates of the potential NBS impacts and suggesting service providers a portfolio of NBS. It is important to note that Physi is in an early stage of the startup lifecycle with yet no solid business plan including that no commercial product offering is in place. On the other hand NBS has two interpretations and the real challenge is how to leverage these concepts that Physi can monetize from:

- European Commission (EC): Nature-based solutions (NBS) are actions inspired by, supported by or copied from nature and which aim to help societies address a variety of environmental, social and economic challenges in sustainable ways.
- International Union for Conservation of Nature (IUCN): Nature-based solutions (NBS) are actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

As for the potential impacts and benefits of NBS, it is important to give a wider vision of what NBS can achieve in urban environments. So it's important to add that besides the water and climate related impacts identified in the table, NBS also represent economic benefits, as well as socio-cultural impacts (these can be related to health and well being, social interaction, social justice, safety, cultural heritage, community involvement, among others). However there is a substantial gap between this 'promise' of NBS and their uptake. NBS deployment is currently sporadic, isolated, that lacks strategic coherence, perspective and drivers to scale-up. This carries a huge potential for such initiatives like Physi to approach the problem from strategic point of view and create successful business model to exploit possibilities in this domain.

The timeframe for the capstone project was 3-4 months and I wanted to have a scope definition that both ensures professional engagement for me and delivers valuable work for the Physi team. Therefore in my capstone project I have set up the following major tasks:

- Background research: processing available materials, read after related topics and IT background, discussions with team members
- Gap Analysis: review and understand what assets Physi has today and what additional work has to be done to deliver a business plan
- Product conceptualization and Use Case workshop: based on gap analysis I created product conceptualization (solution vision) materials and also initiated a common workshop to bring the solution vision closer to the ground by elaborating several potential use cases
- Conclusions and next steps: the workshop delivered some key findings and also enabled the definition of tasks and deliverables for the forthcoming weeks/months

The common workshop was a good opportunity for the team to elaborate challenges of NBS design and implementation in a real-like situation working on use cases. Three use cases (Public Hospital, Private Office Building, Public Park) were selected and analyzed in small groups and presented in the whole group. The main purpose was to understand the potential partners, customers and users in an NBS design and implementation process; what inputs are expected and minimum required from the customer for the NBS selection and decision process and what would be the key functions and features of Physi solution that

could support the information-decision process of a customer. In the following some main conclusions are summarized:

- Potential customers for Physi will/may be Partners who integrate (or host) Physi solution into their architecture planning (SW) platforms or those that these landscape designers/architects work for (e.g. a municipality planning to invest into a public space) to take over the initiation / ideation phase of projects from them.
- Physi solution needs Customer inputs with regard to the NBS alternatives generation. Two main groups were considered but further elaboration is needed: general parameters independent from NBS use case (e.g.: physical characteristics of the building/area and environment (temperature, humidity, sunlight), NBS component description fields) and use case specific parameters (target users, availability, attractors).
- Functions/features of NBS and Physi solution have to be distinguished: Physi will support information-decision process of the customer to choose the right 'fit-forpurpose' NBS design and implementation however NBS with its physical implementation will deliver benefits both the customer and users.
- Calculation and measurement framework has to be defined for impact-benefit analysis
- Existing NBS database to be leveraged to recommend alternatives and select fit-forpurpose NBS implementation

The conclusions can be grouped into clarifications achieved and further tasks assigned to the team. From the team's tasks and obligations a roadmap shall be drafted with the main focus on defining requirements and specification for a minimum viable product or prototype and its development that can be presented to potential customers and investors. One main conclusion is that the daily operation of Physi team has to be set up, individual members of the team have to take commitment for the deliverables and effective leadership has to be established to lead and monitor the activities of the team and hold regular statuses to motivate and enable collaboration. The overall team spirit is exceptional but more focus has to be concentrated on business plan creation. At last but not least I would like to expresses my gratitude for the capstone project opportunity and the professional support and help I received from the Physi team.