

Start-up simulation tool

Degree programme : BSc in Industrial Engineering and Management Science | Specialisation : Business Engineering
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The preparation of a business plan is still mandatory for many start-ups. However, most of the information contained in the business plan is speculation. With the help of a simulation model, this thesis develops a possibility to simulate the market environment and the influence of the start-up on it. The assumptions made in the business plans can be tested and improved so that the validity of the business plans can be increased.

In Switzerland, three hundred new start-ups are founded every year. About 90% of them fail around seven years after they have been founded. One reason is an ill-fitted idea of the own product and the corresponding market demands. To minimize the risk of misevaluating the market requirements, start-ups develop a business plan. However, the preparation of a business plan is a time-consuming and rather meaningless when an adequate market validation is missing. Furthermore, most of the information contained in a business plan is based on isolated or only weakly integrated assumptions. For external stakeholders, it is difficult to understand how these business plans are derived and what dynamics are embedded in the business system. The task of this thesis is to make these dynamics in business plans more consistent, salient, and easier to understand. External stakeholders can comprehend the assumptions faster and easier. With the help of a simulation modeling approach, this thesis develops a tool to simulate the start-ups market environment. The assumptions made in business plans can be implemented, tested and then improved iteratively so that the logical and market validity of the business plans can be increased in successive steps. It helps start-ups to make decisions and can be used to communicate more easily with external stakeholders, e.g., investors.

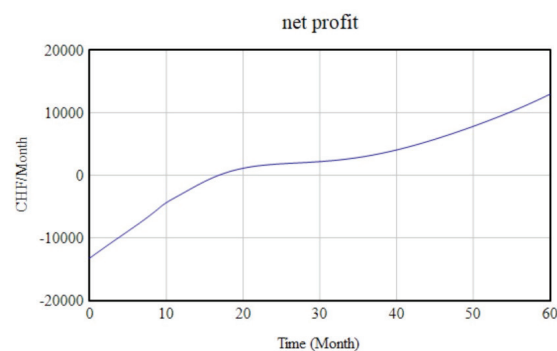
This thesis uses the System Dynamics (SD) methodology to create a simulation model that reflects the market environment of a start-up in the ICT sector.

The model is operated via an input dashboard, which allows the user to define properties of the start-up and to influence the market simulation. The dashboard allows the user to easily change variables in the model.

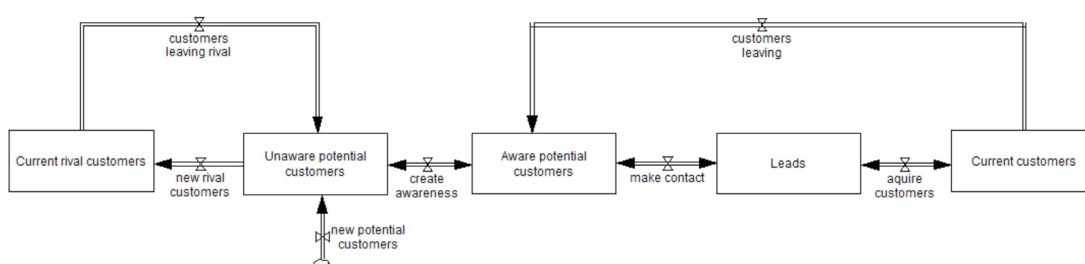
The model can be divided into four sectors. The most significant part constitutes a customer aging chain which shows how the customers in the market move between different stages over time. At the end of the customer aging chain they either become customers of the start-up or of a competitor. The simulation results show, for instance, the number of customers, the market share, and the profit development of the start-up over the simulation period of five years. The simulation was validated with the help of experts.



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Change in net profit



Customer Aging Chain