

Ready for Take-Off?

Financing New High-Tech Ventures in the Aviation Industry

“In the rapidly evolving airline industry, emerging technologies could play an increasingly critical role in the delivery of real and perceived customer value” (Taneja, 2010). Taneja, the author of highly interesting books on the aviation business like *“Airline survival kit”* (2003), *“Simpli-Flying”* (2004) and *“Flying ahead the airplane”* (2008) pointed out that innovation is of major relevance for the aviation industry worldwide. Innovation means that new products, services, processes and business models will be introduced successfully to the market. In the field of aviation innovation can be related to the aircraft (e.g. new materials used, avionics and engine technologies) but not necessarily. Innovation is also the introduction of check-in kiosks at airports, new revenue models of the low-cost carriers, the use of social media by airlines and techniques for the decrease of perceived ground noise. In this short article we discuss why it is not easy to bring an innovative product or service to the market related to the aviation business. But we describe also a venture capital fund initiated in The Netherlands that will support emerging technologies in this domain and speed up innovation: the Mainport Innovation Fund. The introduction of this fund could decrease the hurdles of starting entrepreneurs in the aviation business.

by: Bram Kaashoek

High-Tech Ventures and Aviation: a Bumpy Road for Entrepreneurs

Entrepreneurs might face thresholds to start a new venture for several reasons. First of all, not only related to the aviation industry, there might be a so-called ‘equity gap’ (Landström, 2007; for a study on the empirical evidence of the equity gap, see Hall, 2005). In most of the cases innovative start-ups build their business on new, creative ideas. It is insecure to what extent the newly introduced product, service or business model will be adopted by users finally. Moreover, since we are talking about *starting* firms, entrepreneurs are not able to show already historical, financial data concerning the company development. That is the reason why conventional private equity firms and retail banks are reserved in providing financial resources to

those firms. The European Commission recently (2009) stated that this – although considerable progress in the last 10 years – still hampers the start of early stage firms exploiting innovative technologies.

Furthermore, for innovative products and services it is common to have upfront investments in research and/or development (R&D) before the business will generate money. Starting entrepreneurs do not always have financial resources to invest in R&D themselves (Landström, 2007). For starting firms in the domain of aviation, some characteristics of the industry might be barriers as well (based on the interview with Guus Verhees, fund manager of Rabobank): (i) the industry is dominated by large organisations that are not always good accessible for small, starting firms (e.g. airlines, airports, the large aircraft manufacturers), (ii) national markets are internationally woven



(iii) there is a strong need for and trend towards standardization of technologies (e.g. by the working groups of IATA) and (iv) due to safety and security issues there is a strong focus on regulation, accreditation and certification.

Mainport Innovation Fund: Paving the Bumpy Road

As addressed in the previous section, it is not always easy for starting entrepreneurs with good ideas in the field of aviation to start their venture. In the Netherlands that was a reason for the introduction of a new venture capital fund. The Mainport Innovation Fund (<http://www.mainportinnovationfund.nl/>) is partly funded by the Dutch national scheme TechnoPartner (<http://www.technopartner.nl>) – a matching scheme of the Ministry of Economic Affairs in order to increase resources for ‘technostarters’ (technology driven start-ups).

The Mainport Innovation Fund was not initiated merely by a bank or private equity firm, but by a consortium of the Dutch national airline KLM, Schiphol Group, Rabobank and Delft University of Technology. Fund manager Guus Verhees: *“We do more than providing money to entrepreneurs in this field. Because of the collaboration with an airport organisation, an airline company and a university specialised in aerospace engineering we are able to bring in a lot of knowledge; knowledge on the sector and on related technologies”*. All partners bring in deal flow (which is the stream of possibilities for investments), open their network and give access to knowledge in order to support management of new ventures in paving the bumpy road to success.

Above all, the collaboration between Rabobank, Delft University of Technology, KLM and Schiphol Group provides a launching platform for innovations. KLM and Schiphol Group are able to use new technologies in their operations and for their services as early adopters. By doing so, first of all the entrepreneur has a ‘launching customer’ for the new product. Secondly, KLM and Schiphol Group test the new products and carefully reflect on how it works. This feedback can be used to optimise the product and sell the concept to other airlines or airports worldwide. By doing so, the construction with a launching customer will have a positive effect on the further development of the product - and in the end the quality of it.

Photo 1: *The introduction of biofuels in the aviation industry.*



Finally, KLM and Schiphol Group continuously try to increase their competitive advantage. Their involvement in the Mainport Innovation Fund makes it possible for them to speed up relevant innovations (better services, cost reduction, etcetera) leading to a more appealing value position for their customers. By their collaboration, together and with starting entrepreneurs, the consortium partners fulfil their vision on Open Innovation. The concept of Open Innovation, introduced by Chesbrough (2003), is built on the idea that organisations in essence – despite their size or type of organisation – do not have all resources (financial resources, but also human capital and knowledge) themselves. Therefore, organisations need to collaborate with others, buy or license processes and inventions from other companies.

The Rules of the Game

The Mainport Innovation Fund is meant for sustainable products, services and solutions related to all operations in the aviation business. Examples could be passenger service solutions using new technologies for identification and authentication at airports, bio fuels for aircrafts, new (sustainable) cabin interior products, technologies to reduce ground noise or improve traffic flows, an Internet service platform for travellers to find the best connections between modalities, and so on. Guus Verhees: *“Sustainability is a very import criterion for us. We are open for proposals addressing green energy, security & safety, the environment and mobility. Next to that proposals should enhance an innovative technology; that is a condition of TechnoPartner”*. It is also part of the TechnoPartner game we can only invest in ventures younger than 5 years and not in mature companies or projects.

Fund manager Verhees continues: *“We are looking for initiatives that have a rather short time to market and do not require a long-term and expensive research & development trajectory or complex certification”*. The reason for that is simple: the TechnoPartner programme allows funds (like the Mainport Innovation Fund) to invest just until the moment the venture has raised a maximum equity of 2.5 million euro and furthermore. TechnoPartner states that the average investment euro per venture over the total portfolio should not exceed 0.8 million . The consequence is that the Mainport Innovation Fund prefers to step into relative low capital-intensive ventures because of these

limitations. The overall fund covers 8 million Euros. The Mainport Innovation Fund is explicitly a fund to invest in technology related ventures in the phase of bringing their products to the market. The ventures Mainport Innovation Fund focuses at have passed the R&D or pre-seed stage where funding is mostly based on subsidy schemes, innovation vouchers and business angels. Another reason for the focus on the market entry phase is the investment horizon of the fund: within the first 4-5 years the investment team will build the portfolio of participations in ventures, whereas within the last 4-5 years the efforts are in the management of the portfolio, the development of the companies and – eventually – exits of the participations. The most common exit strategy is selling the venture to a strategic player or a private equity firm who wants to fund the next growth phase.

Once a proposal is submitted to the Mainport Innovation Fund a thorough analysis will be executed. The team of analysts, including sector and technology experts from KLM, Schiphol Group and Delft University of Technology, look at the technological feasibility of the venture proposal. But the team puts also emphasis on the managerial part. For the Mainport Innovation Fund it is, for example, important that there is a clear outlook on launching or potential customers and a solid revenue model. Above all, there must be the idea that the entrepreneur or the management of the venture is competent and willing to make a success out of the new firm. Quality of the management is a very important criteria used by almost all venture capitalists, as previously pointed out by the researchers Kaplan and Strömberg (2004). They surveyed venture capital analysts and found that quality of management was the number 1 criterion, followed by a clear business strategy & model, a competitive market position, the certainty of market size & growth, and the technological certainty.

Recommendations for Entrepreneurs

Guus Verhees has some advises for starting high tech entrepreneurs. First of all: do not focus solely on the technical part of the

invention. Reflect critically on the position your concept could have in the market. What are current alternatives for the product you have developed? To what extent are possible customers able to churn from the existing product to the one you would like to introduce? For example: are there current long-term contracts that hamper your product adoption? Or did possible customers make high upfront investments in other technologies or infrastructures? And make a realistic bottom-up estimation of your share within a global market.

Secondly, build a business model around the developed technology. What is the earnings model for your venture? Earnings can be a simple derivative of the number of products sold, the number of services provided and the profit margin. However in some cases someone could also think of other earning models, for example based on recurring revenues (e.g. for software related services).

The last recommendation: try to find possibilities to scale the invention. Find opportunities to elaborate on the new technologies in related domains (e.g. logistics, seaports, the leisure industry or other large service sectors) and in other countries. So, do not think local and do not build your idea upon very area specific needs or possibilities.

For more information take a look at www.mainportinnovation-fund.nl.

About the Author

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