Importance of Sourcing Partners for Novel Therapy Projects

Industry Drivers: Why is this Important for SMEs Developing Novel Therapies?
The animal health industry is experiencing very interesting times. In 2014, it was worth US$23.9 bn at a nominal growth rate of 4 %.

Of this, 62 % was attributed to pharmaceuticals, whilst biologicals and medicinal feed additives are gaining importance, with 26 % and 12 % market share, respectively. Definitely, the challenging environment of preventive use of pharmaceuticals in food-producing animals can be seen in the market data. The share of 59 % of the market being in food animals and 49 % of the market being in companion animals shows that there are interesting market volumes in both segments[1].

At the same time, there is a consolidation occurring in the industry. The financial results of the bigger companies indicated significant revenue gains, mainly from acquisitions. Larger firms continue to be interested in acquiring companies, technologies or geographical marketing capabilities to accelerate the growth of their business on a global basis.

This trend is widely discussed in the industry and likely to continue. After the announced acquisition of Merial by Boehringer Ingelheim, the three largest animal health companies will have combined revenues of approximately US$13 bn and a worldwide market share in the range of 45 %. There are similar consolidations in other segments of the industry such as pet food, feed additives etc. It seems that it is less expensive to acquire revenue instead of waiting for internal growth[2].

Why is this important for small- to medium-sized enterprises (SMEs) developing novel therapies?
Whilst some years ago, fully integrated pharmaceutical companies, moving their products from basic research up to the market, were the industry standard, meanwhile virtually integrated pharmaceutical companies have become the industry standard, because of an increasingly fragmented value chain. There can be tens of different companies involved in bringing a product to the market, including research institutes, founding start-ups, specialised investors, service providers and bigger companies that are relying on so-called external research, basically passing on the development risk to SMEs.

As for the growth in mergers and acquisitions and IPOs over the last years, there has been considerably more attention from investors on the animal health sector, as can be seen in the growing number of investment forums dedicated to the industry around the globe. Speculating on a licensing deal or even acquisition of assets or companies as a whole can be seen as an interesting exit strategy for SME companies, even more so as most of them are backed by venture capital money.

In order to enhance the chances of successful partnerships with strategic investors or larger companies, a business developing a novel therapy should get it right from the beginning and properly define the value proposition, the activities that it is able to perform internally, the resources it has at its disposal and the partner we will need.

As novel therapeutics still face unknown variables and challenges in the market, it is crucial to have a solid business model, identify a knowledgeable business partner and ensure a proper up-scaling of the company.

Novel Therapies and Strategic Outlook for Defining Partnering Needs
To start with: It is still quite complex to foresee the future viability of a business model around a novel therapy. The animal health industry in Europe is likely to draw up stricter guidelines for the regulation of new therapies. As recognised by the EMA, there is a lack of focused guidelines for therapies such as growth factors, cytokines, recombinant hormones and monoclonal antibodies. There have been regulatory advances in human health for products with new concepts of active substances, but not yet in animal health. Currently, novel therapies do not fall under the definition of a pharmaceutical or an immunological and assessment concepts are not directly applicable, specific guidance is not available, there are data requirement problems and maximum residue limits may not apply.

Regulators will need to offer specific expertise on these new technologies, while at the same time providing scientific and regulatory advice to the industry. There seems to be an ongoing dialogue between the EU bodies and the developers of these next-generation animal medicines, as the Ad hoc Group on Veterinary Novel Therapies (ADVENT). This group will be part of the EMA and was approved by the Committee for Medicinal Products for Veterinary Use (CVMP) in May 2014. ADVENT will provide more advice and general guidance to companies specialising in novel therapies[3].

Companies which are active in this field shall use the current flexible landscape, whilst being aware of stricter rules in future. It is crucial to have in mind the costs of financing the development versus the expected profit, after a thorough risk analysis of a possible changing environment.

Have the end in mind: It is crucial to validate the current business model, in order to identify potential risks and the possibilities to reduce these risks by involving a partner with

additional resources and knowledge in order to rapidly adapt to the environment. Validating a business model means verifying if all assumptions on which the business strategy is based are true and the business is viable; in other words, to check if the market the business is addressing is actually there – and will stay there.

Each year, pharmaceutical companies in animal health spend from 10-12% of their sales on new innovative developments, as the development of a major new animal health drug takes seven to 10 years and can cost up to US$100 mn, whilst developing a vaccine can take between three and five years4. These are numbers to be considered, and currently there are certain shortcuts, especially for novel therapies. But will this stay like this?

The animal health market is a tiny fraction of the size of the human health market, but at the same time has a similar stringent regulatory process with additional studies on food safety when treating food-producing animals. Therefore, validating a business model can save much time and money and, even more important, a lot of frustration for staff, investors and business partners.

When thinking about a business model, a value proposition is established that identifies problems and solutions. A target customer group is segmented into users and types, who will receive the therapy via a certain channel, namely the prescriber and vendor, and who will be willing to buy the product at a price and in volumes that over time will sum up to a higher amount than the manufacturing and conversion costs – basically the R&D spending – in order to justify such activities in developing and registering the novel therapy.

Especially for novel therapies, one has to learn to ask the right questions at the beginning and build up the assumptions to be validated in order to identify shortfalls and partnering needs for capital, resources or know-how. Compared with regular therapies, this might be more of a challenge in novel therapies. It might be a challenge later on, if we take the current situation and knowledge as granted and universally true. At least a business is able to validate assumptions that can be classified into three different groups:

- **Assumptions on the customers:** How will the customer groups behave, how can we reach our customers in a highly regulated and competitive setting, and how will customers, prescribers, and further stakeholders and competitors, react to a market entry of a novel therapy alternative.
- **Assumptions on the problem:** What is the real problem that will be treated? How is it treated currently, or how could it be treated by new competitors? Is the problem a real economic or emotional problem that will justify the use of a novel therapy out of well-established guidelines?
- **Assumptions on product/solution:** These sum up the assumptions that are directly linked to the product and how it will solve the problem.

The process of validating the business model can be quick and simple and should follow basic steps. With these, a clear picture on partnering needs and opportunities will become visible.

1. The health sector is a complex setting – make it simple and use visual tools

Working with a business model canvas, such as the one designed by Alexander Osterwalder, a coherent look at the different aspects of a business, including customer segments, sales channels, customer relations, activities, resources, partners, revenue streams and cost structure, can be gained in as little as a creative 30 minutes. Digging deeper and defining the working mechanisms and numbers with importance for the business will take a little longer.

2. Identify the key aspects and challenges

As said before, validating a business model is testing the assumptions on which the business strategy is based. Each business will have several basic assumptions, but not all will be the same, and different variables will have to be considered.

3. Connect and learn

Most of the time it can be very interesting and relevant to talk to stakeholders who will interact with the business. As mentioned before, novel therapies are still to be regulated in a more structured way. However, this does not mean that the relevant customers, prescribers, vendors, manufacturer, investors and regulators do not have important knowledge and benchmarks to share. This will give fresh ideas and new points of view on the assumptions.

4. Get specific

Whenever the major gaps are identified, it is necessary to schedule expert interviews for addressing these specific points. Whilst working with specialised consultants might require capital, there will always be industry peers who would be willing to help out based on intrinsic motivation. These interviews, with today's communication possibilities, are a very fast and efficient way to close information gaps and to acquire strategic knowledge. A challenge might be that it will be difficult to sort out the objective information, but it will help to have a clearer picture of standpoints and industry trends. Paying attention to emotions and terms used by the interview partners will back a proper communication to similar stakeholders in the future. Is it even possible to run field trials and collect important and beneficial data before a market launch? In a regulated industry with a highly trackable manufacturing chain, such as the food industry, this might be a challenge. However, from experience we have seen that there are many public research groups who are very open for such analysis, as well as bringing in the relevant contacts. Perhaps even a so-called "smoke test" can be done, trying to test the reaction of possible customers before having a commercial product available, just using the collected information and sales arguments.

Of course, there is always the method of getting scientific advice from a regulatory authority. One has to be careful of the questions to ask, as the answers could have a huge impact on our future development route, limiting the available

alternatives: on the positive as well as the negative side. In novel therapies, there are no clear guidelines and this might result in contradictory or even harmful information and direction for the business.

The take-home message of all these points is that a sustainable business can just be started based on facts. By being very active in the market, a lot of time and resources can be saved. This shall be a continuous effort to be updated on occurring changes in the industry around the business at every step of the development of a novel therapy.

Having all assumptions cleared, it will become obvious which of the business activities can be run by internal resources and for which aspects we would need further support from specialised external resources. The field of novel therapies is very specialised and it will be crucial to move with partners that have knowledge and experience in this field, in order to bring benchmarks and relevant networks into the business. The most important fields to consider for partnering will be regulatory affairs, manufacturing, capital, marketing and sales. Over the years, outsourcing has grown from being a short-term tactic into a long-term strategic alternative. The outsourcing world has grown up tremendously in the last 10 years for biologics and pharmaceuticals in general, so companies have a lot more outsourcing options. In this way, companies can move fixed costs to variable costs, while having a higher expertise level, and focusing their energy on building their pipeline and marketing their existing products.

Two decades ago, as stated above, the model followed by many small companies was to raise as much money as possible, and then attempt to become a fully integrated pharmaceutical company, with in-house development, manufacturing and sales capabilities. That model is no longer an option for small companies. Investors are not willing to invest in infrastructure; they want to invest in well-validated technology. Most small companies have research capability, but frequently they outsource all development activities. They will come up with a product lead, do some early work and then outsource everything else: process development, analytical, manufacturing and regulatory. What has changed is that the larger companies are beginning to adopt this model, outsourcing more and more. A 20 to 40 % increase in outsourcing development and manufacturing among larger customers can be observed[5].

Consider that it is a very important signal to potential investors, licensees, distributors or acquirers of novel therapies that the business has conducted in-depth validation of its market, channels and customers from the beginning and is working with the best partners in order to fill existing gaps.

Considerations for SMEs Developing Novel Therapies

The animal health sector is expected to exceed US$33 bn by 2020. Rapid population growth, increased urbanisation and per capita income in emerging markets are driving two important trends[1].

- Increased demand for animal protein, including milk, meat, eggs and fish, challenged by limited new farmland and water, requiring that more food is produced with less resources.
- Increased companion animal ownership and spending on medicines to help pets live longer, healthier lives.

Both trends are good news for developers of novel therapies, as unmet needs will have to be addressed with alternative solutions. In particular, the increasing concerns for animal welfare, antimicrobial resistance, and demands for low-cost, reliable and safe food will likely drive development of novel therapies by the animal health sector to meet these demands. Novel therapies still have the advantage to not comply with clear regulations and therefore can act as fast vehicles to enter the market with economical solutions for lower spending on development and approval.

The market is highly volatile, with a lot of mergers, acquisitions and joint ventures taking place in the last few years. The competition is expected to reduce in the long run in the animal healthcare market, due to increasing consolidation activities taking place. However, the changing regulatory environment in this domain, and the emergence of regional and country-specific companies, may introduce competition of a new dimension in the global market. So it seems advisable for developing SMEs to be surrounded by partners with adequate financial resources and know-how in order to face upcoming challenges and turn those into opportunities for intelligent exit strategies in a growing industry – growing in regulation, but also in demand, attention and opportunities.

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