

# Leading an R&D Innovation SME: Are you on the right track?

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December 2016 – January 2017

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The GCC countries are taking initiatives for the accomplishment of technological advancements with the vision of expanding in the fields of science and technology, in the objective of transforming their economies traditionally based on petrochemicals to more diversified and sustainable economies with an important component based on research and development ('R&D'), technology, knowledge and innovation. Having realised that the achievement of such a vision passes necessarily through SMEs, an important part of the governmental initiatives are directed to attracting and supporting SMEs focusing on R&D and innovations in the different industrial sectors. This has unfastened a wide arena for business developments and investments in the region in technology based SMEs, including start-ups focusing on R&D and the development of innovative technologies in different technical fields. The main assets of these SMEs being innovations, it is crucial for them to adopt appropriate commercial and legal routes for the development, commercialization, and legal protection of these innovations in order to protect their investments and secure their sustainability and competitive edge. It is also important for investors investing in SMEs to conduct their own due diligences in order to manage their investment risks and business expectations, including appropriately assessing the actual value as well as business potential of these companies, essentially, based on the actual and prospective value of innovations and other valuable intangibles developed or under development by these companies.

## Guiding R&D and Innovations

SMEs should focus their efforts in developing innovative technologies which are novel, inventive and useful in addition to being commercially viable with a commercial advantage with respect to existing technologies in the field. Innovative technologies can be pioneer technologies (not seen before) or can consist of improvements over existing technologies. Most of the innovations taking place are improvements over existing technologies, and they are used, in their turn, as a benchmark basis for future technological advancements by the same R&D team or by others if they become part of the public domain.

For technology based SMEs, innovation is generally the main or only asset on which they rely to attract investments, fund the operations of the company, and generate revenues. It is difficult for technology based companies nowadays to have a successful and sustainable business model without developing and commercialising innovative technologies. It takes on average between one to three years for SMEs to complete the research stage and to develop a first version of a product before they start the commercialisation stage and start generating money. This period may extend longer in case of life sciences based companies, such as chemical and pharmaceutical companies. During this period, entrepreneurs and start-ups normally rely heavily on capital investments, including their own savings as well as on a limited number of investors.

Therefore, it is crucial for SME's to appropriately guide their R&D projects in order to develop an innovative product worth the investment made. Otherwise, they would spend human capital, time, and money in working on a technology already existing in the field. This is a common issue faced by inexperienced

entrepreneurs and SMEs. Focusing efforts and money on developing a technology which turns out to be existing in the technical art or which falls short of providing a technical/commercial edge over existing technologies can have heavy business consequences. This can lead to bankruptcy or the cease of operations, especially in case of entrepreneurs and start-ups which normally have limited fund sourcing and their business continuity relies on the success or failure of a single or few technical projects.

Not only it is important for the innovative project to be new and inexistent as a commercial product in the market, but also to reflect an innovative concept not known in the technical field that is eligible for protection from the intellectual property perspective. It is intellectual property, particularly patents and industrial designs, at the end of the day, that provides proprietary rights on developed innovative technologies, prohibiting others from using the technology without authorisation, and, therefore, boosting the commercial value of these technologies and of the companies.

It is, therefore, recommended for R&D and innovation based companies to conduct state of the art landscape searches as early as possible in the R&D process in order to determine the state of the technical art and to calibrate and guide the R&D project. As a result, efforts can be focused towards the development of an innovative technology that is commercially viable and eligible for intellectual property protection, with inventive technical contributions and improvements over existing and competing technologies. Companies can seek assistance and training by specialised professionals, including patent professionals, to conduct these state of the art landscape searches and for reading through, analysing and applying the results to realign their R&D projects. These searches are normally conducted iteratively throughout the R&D process.

### **Funding R&D and Innovations**

Seeking and managing an initial funding is crucial for the R&D stage. Initial funding generally come from personal savings of the founders, personal loans, or from capital funding, which is more difficult and more costly to obtain when companies are in the early stage of their R&D project and absent proof of concept.

Seeking and selecting capital fund investors is a business decision that should be considered carefully and wisely based on the commercial and financial needs to fund the development of these innovations during the R&D and commercialisation stages. Capital share investors look to secure a portion in the capital share of the company as a counterpart to their investments, and, in some cases, participation in the management of the company. Active investors (with participation rights in the business management) should be considered and selected carefully based on the profile of the investors and the company's business needs in such a manner as to fulfill certain expertise required by the companies for the success advancement of their projects. Active investors would act as business partners; thus, the importance for the companies of selecting these partners diligently is to ensure business vision alignment and the smooth management of the operations.

Amount, timing, and equity tradeoffs for these investments should also be considered wisely so as not to dilute the founders share portions unnecessarily, in case these investments are not required. Normally, the earliest investment is sought, the higher the risk is for investors, and the more they would require in equity counterpart to their investments. The risk would be reduced substantially after intellectual property protection is sought and a technical and commercially viable prototype is developed. It is, therefore, generally advantageous for start-ups to limit and reduce the calling for funds from capital fund investors, where practically possible, until securing intellectual property protection and developing a first viable prototype. The negotiation position would substantially increase for companies once these are secured. Using these funds wisely is also extremely important. The first funds are normally used to fund the R&D operations, secure the first intellectual property rights, and build a viable prototype. Unnecessary spending on other secondary matters is to be avoided during the first R&D stage, absent specific valuable reasons justifying such spending.

### **Protecting R&D and Innovations**

Intellectual property protection improves the business position of R&D and innovation based companies by securing proprietary rights to their innovations and monopoly for the commercialisation of these. Some types of R&D and innovations are more sensitive to intellectual property protection than others, which means that a higher focus on intellectual property protection would secure a more substantial return on investment than others. This would reflect in a substantially better business position and in leading to more commercial and financial returns for the company compared to the investments made. This is particularly the case for innovations with a reasonably medium to high life expectancy before they become obsolete and outrun by the advancement of other competing technologies or by the needs of the market. The life expectancy may be assessed by, among others, the period of time required for the competition to develop a competing technology with a better competitive edge over the developed one and by the needs of the market to continue using the innovation. Life expectancy is particularly high for information and communication technologies ('ICT'), transport, aerospace and defence, healthcare and biomedical, clean energy, integrated circuits ('IC'), and pharmaceutical and chemical related technologies.

The main intellectual property rights involved in the protection of innovations are patents and industrial designs. Patents are related to the protection of the structural and functional aspects of innovations where industrial designs are related to the protection of the visual and ornamental features of these. There are other types of intellectual property rights, including copyright, plant varieties, and trade secrets, which may also be relevant depending on the nature of the innovation. Trade marks, another form of intellectual property, should also be considered to protect the brand of the product when it reaches the commercialisation stage.

There is an advantage to considering patent and industrial design protection very early in the R&D stage. Such consideration should be made as soon as the innovative concept is conceived and is theoretically workable. It is not necessary to wait for the development of a working prototype. The earlier patent/design protection is sought, the earlier proprietary rights for the invention are allocated to its owners, which would provide them a priority over others on the property of the innovation. Also, the quicker a patent/industrial design is granted, the quicker the company can use the legal remedies available under the applicable patent/industrial design law to enforce their monopoly rights in the innovation against competition and exploit their rights to licence the patented innovation and benefit from royalties.

Patent/industrial design protection should be sought even before reaching out to investors, where practically and financially possible. If there are restrictions in time/budget, provisional protection may be sought quickly and inexpensively, before disclosure is made, to preserve patent rights in the invention for a given period of time. At a strict minimum, a confidentiality agreement (also called a non-disclosure agreement) must be put in place between the disclosing and receiving parties. Confidentiality agreements, however, have their limitations in case of breach. Also, intellectual property protection boosts the financial value of an innovation and of the developing company, thereby, providing better commercial leverage while seeking investors or commercial partners.

In all cases, it is imperative to seek patent/industrial design of an innovation while it is still at the confidential stage and before any public disclosure thereof, as such disclosure may irrevocably compromise protection of the innovation.

An appropriate intellectual property protection strategy, including patents and designs, should be adopted with the help of intellectual property professionals on a case by case basis based on the nature of the innovation, the commercial objectives, the potential markets and budget. An effective intellectual property strategy would also address protection of an innovation from different angles and using the different legal vehicles available in order to make it more difficult for competition to design around or benefit from unprotected aspects of the innovation.

### **Consideration for Investors: Conducting Due diligence and IP Valuation**

Investing in R&D and innovation startups presents as much risks as opportunities. There are no strict rules

to which to adhere for the investors before planning to invest in startups, however, as a matter of guidance, it is advisable to appropriately conduct a due diligence. Such due diligence should include the assessment and valuation of intellectual property rights, particularly patents and industrial designs, associated to the R&D and innovations developed or under development by the company as this would provide a better visibility on the prospects to succeed in the market. A startup with weak, or without, intellectual property assets has lower prospects of success in the market than a startup with a strong intellectual property portfolio. Without intellectual property protection, there is no exclusivity for the exploitation of an innovation and competition is free to adopt and commercialise the same without restrictions. This puts the company at high risk for competition and can largely affect commercial success and financial returns of the business.

Assessment of intellectual property should account, among others, for current and/or prospective territorial coverage, temporal scope, and competitive scope secured by the protection. A patent application means little if not appropriately assessed as to the competitive scope and edge provided by the inventive subject matter. By such prospect, a patent application translates into a granted patent as an industrial design or other form of intellectual property rights. Due diligence should also extend to assess any risks of infringing third parties' rights by the commercial exploitation of the innovation, in case the latter, at least partially, incorporates or builds on components subject to intellectual property rights owned by others.

In this respect, a due diligence should account for any intellectual property litigations or infringement notices against the company, for the registration status of intellectual property rights and for the prospects of registering any unregistered intellectual property rights, including projects still at the research stage. A valuation of intellectual property would also be recommended once these rights are appropriately determined and assessed, which would provide investors with an indication on the current and/or potential value of the innovation. This value can then be considered in making the investment decision.

## **Conclusion**

Business success of innovation based businesses is highly sensitive to the management of the business from the early stages, including appropriately obtaining and managing R&D funds, guiding the R&D projects, seeking intellectual property protection, and appropriately and wisely seeking and selecting the right investors.

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