

Interview: Dr. Andreas Kremer - Co-Founder & Managing Director, ITTM, Luxembourg



“People always try to put you in existing boxes but the definition of new does not include existing boxes, you need a new box.”

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ITTM's innovative co-founder Dr. Andreas Kremer reveals the steps his start-up is currently undertaking to restructure the world of BioIT and the presentation of medical information.

Why did you personally decide a year and half ago that ITTM was going to be your next adventure, and what were your first impressions of Luxembourg's Life Sciences scene?

I have a diverse background in the pharmaceutical industry with experience both in clinical research and diagnostics research. This diversity is very useful for the challenges pharma and healthcare industries are facing. When speaking to colleagues in Luxembourg, I realized that there is a clear initiative to develop new solutions and targets for not only Luxembourg's bio-health IT sector and I was curious to learn more about this new start-up within the sector.

Alongside five other colleagues, we set up ITTM and as a co-founder, this implies that I was not only interested by the idea but I also invested in it. I hadn't considered Luxembourg as a base before I realized the potential that exists here. The quality of the people and the opportunities in Luxembourg are unique. The combination of having already in place the LCSB (Luxembourg Center for Systems Biomedicine) of the University of Luxembourg, the IBBL (Integrated Bio Bank of Luxembourg), as well as the LIH (Luxembourg Institute of Health), alongside the will of the government to move towards a more integrated system for medical information, make Luxembourg an attractive environment. From a research perspective, Luxembourg provides a strong platform to build on. There is still plenty of work to be done but if you are speaking directly

about medical information, one advantage Luxembourg has is a great history of security which derived from the banking sector. There is a reputation in the secure handling of sensitive information which is hugely beneficial for our business.

As you just mentioned, Luxembourg has a very strong heritage from the financial and ICT field, notably when it comes to data security and confidentiality. What do you think can be the role of Luxembourg in the global BioIT field? How can Luxembourg act as a testbed in the field of data security?

The field is currently developing and it is a complex mixture of physicians, insurance companies, personal/private health and pharmaceutical companies. Demand is causing all companies involved to adapt their business models. For this reason, it is very difficult to predict the medium to long-term future. However, because the industry is undergoing changes one needs to identify immediate next steps very clearly. I can see Luxembourg playing a similar role in Bio- and Health IT as the one they currently play in secure financing.

Healthcare is not something that nowadays has to be automatically associated with a nation. I have lived in seven different countries and all my medical information is scattered in these seven countries. From a personal perspective, I would like to have my information to hand when I visit a doctor. However, many countries simply do not allow all medical (genetic) information to leave the border, the UK being one. I feel this system is inefficient and is far from ideal for the patient.

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Luxembourg has the ability to do everything quickly not just because it has a small population but also because there is strong interaction between the government, research groups and industries operating within the country. Luxembourg is essentially testing its operations in a controlled manner. If rapid changes need to be made, they will be made based on the forthcoming conclusions. Security is a major concern for countries globally, this is not solely a problem for Luxembourg. Everyone working within the industry is discussing security at present. In Luxembourg, the eco-system that exists should allow the nation to progress at a much faster rate. It is however always difficult to start working with new systems and develop new practices. People naturally are resistant to changes within their own operations. A lot of work therefore must be done on the education front and we must govern these changes very carefully.

ITTM is a perfect example of the home-grown players combining both worlds of IT and Bio. Could you please elaborate on your motto “Right data at the Right Moment for the Right Use and the Right People” and share with our audience what is ITTM’s focus?

ITTM is a spin-off from the LCSB, the Luxembourg Centre for Systems Biomedicine of the University of Luxembourg- which has been heavily involved in international collaborative research projects

between the pharmaceutical industry, the EU and academic institutes. Pharmaceutical firms had previously provided feedback on IMI (Innovative Medicine Initiative) projects explaining that they felt there was a need for a service company within the biomedical sector instead of performing project based services. This was the key moment in ITTM's foundation. Seeing that there is need within the pharmaceutical, biotech and healthcare sector for quality data in the right context and to be curated by those who understand the industry. Large IT corporations might claim they have the capabilities to perform data management services, but deep knowledge and understanding of the specific data is very important when working with these datasets. If you do not have the domain expertise, you may not fully understand why particular questions were asked or what the real source of problems (misunderstandings) are. That combination of our expertise and our service model allows ITTM to be very competitive within this sector: We are service-orientated and not product-orientated and our focus is to make sure our partners receive everything they require. Understanding the context of the information and customization of this information are the pillars of our success. For example, if I have a blood test result, what the patient has eaten previously that day might be fundamental to the result. The information must be harmonized and contextualized very carefully. This is something that is not necessarily common practice and not always very easy. This is just one area where ITTM can actively support pharmaceutical firms and in the long run aid healthcare. We care and are passionate about data.

What have been the key milestones achieved since your creation?

As a young company, it is fundamental to get companies to sign both pilot contracts and follow up contracts with us. Obviously, this demonstrates that our business is one of interest. Like the data cleansing /harmonization aspect, we provide analytical support as well as hosting services. We use a system called tranSMART which is owned by a foundation and is therefore not controlled just by one company thus allowing the software to be both open and available. We are committed to this philosophy of making software accessible across the research and economic community. We provide our hosting services through 'The cloud'. We received a strategic investment concluded in October 2015 by POST Capital, a subsidiary of POST Luxembourg. We are grateful that POST Luxembourg invested in our company and understood our business model. This connection is perfect because POST Luxembourg has the infrastructure and we can add our expertise and classical computing services like security to that base. Very few companies have a similar range and depth of knowledge which has certainly helped us in these early stages. We are already witnessing numerous opportunities develop and we will sign a variety of contracts very soon.

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Another aspect to our business which is very important is the visualization of the data. We must

present the data in such a way that everyone can use the information easily. The concept we use is called Disease Maps which was also developed by the LCSB for patients with Parkinson's disease. Initial feedback indicates the usefulness for clinicians, patients and individuals within the pharmaceutical industry. This demonstrates how putting quality information in the right context, presenting the information in a user-friendly manner when hosting and archiving the data can be extremely beneficial to our clients and partners.

The future of healthcare is not solely pharmaceutical companies providing new products; it is a combination of stakeholders working together. Diseases are not only driven by their genetic make-up; they are caused by a combination of genes and the impacts of the environment. If I wanted to have a personalized medical program, I would need to consider all aspects of my lifestyle.

Therefore, all our partners within the Luxembourg healthcare system need to be diverse. We are not only focused on big pharmaceutical companies, also biobanks like the IBBL for example are very important to us. This eco-system is very diverse and will form the modular aspect of our business. One monolithic system with a single view does not work. We want to provide solutions for all our users. This isn't new - the concept of personalized medicine is taking this already into considerations. Ideally, one should receive the correct/beneficial treatment; but the reality shows that many people experience adverse drug responses to medicines that are not beneficial to them. With better information (quality and context), I believe the healthcare system can greatly reduce cases like this.

Unifying internationally the collection, analysis and storage of heterogeneous data; putting in place universal protocols and standards that will inevitably help researchers fight a multitude of diseases is what you advocate for. How exactly are your services “game changing” in the BioIT sphere?

The philosophy certainly is game changing but I do not want to give the impression that we are or intend on fulfilling this vision alone. It is a modular process that requires partnerships with pharmaceutical companies and other stakeholders. This essentially means the standardization and harmonization within the industry. We do not want to collect data without improving and making the IT processes easier. Once that has been achieved, we can focus our resources in other areas. As a global challenge, it is very difficult as you need to find common ground in Asia, Europe and America. We are not the only place where these ideas are being debated. Step by step the industry is making progress. We recently became the delegate for Luxembourg in an ISO project on Biotechnology which covers beside others aspects of biobanks, analytical methods and data integration. However, the outstanding question is: How much do we all participate together? The idea sometimes is referred to as 'Pre-competitive collaboration'. In our view, there is no point in

struggling year after year in areas where we all have the same problems.

How would you characterize your partnership strategy overall?

Being a start-up implies you need first to build reputation to later have strong partnerships. The tranSMART-IPA connector is a good example of how it is possible to connect two systems together and maintain a strong and efficient flow of data. The code we put together helps to combine Qiagen's IPA with tranSMART thus allowing us to create superior interfaces which in turn makes the day-to-day activities of the scientists far easier. That was a real positive step for ITTM because it demonstrated that it was not just another piece of code; it was something that genuinely aided the efforts of those working within the industry and opens discussions with other companies. If we manage to create well defined interfaces, this allows our activities to run smoothly. Immediately it helps us to deliver a more structured product to our customers and our global partners. In addition, the integration work with biobanks occurs almost seamlessly as they are accustomed to standard operating systems.

We are also part of an initiative on harmonizing standardization efforts and I am leading a work package to facilitate industry and academic experts that there are no restrictions in regards to standardization on data integration and it is beneficial for all companies and research institutes. This is an important aspect of our future goals because we cannot achieve a more integrated ecosystem alone. Therefore, we must develop partnerships with those who have similar mindsets. Fortunately, combining my personal network with the one from LCSB, we have an existing network in which we can develop partnerships at a much faster rate within Luxembourg and beyond. We want to grow organically and the standardization process is hugely important to what we want to achieve.

What are your key challenges moving forward to further develop the business? Are they human, financial, infrastructural, technological?

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It is a combination of everything! As in any new area an important aspect is to educate all those involved at every stage of the process. For example, on a human level, individuals need to understand what translation medicine means: why should one not be concerned by this concept? From previous experience, both medical and IT technologies are only viable for a certain period. The term translational medicine is used for the need to govern and enable the reduction of time in which a solution is found and then in turn available to the general public and market. LCSB is doing a great job with their Parkinson's disease project. They are increasing the level of information

available and reducing the time between research and medical use phases.

We want to grow organically and we are not interested in increasing our workforce without the relevant and exciting new projects. With new customers and new partners, we must conduct pilot experiments which are normal but very time consuming. However, I am not negative in this regard as we are establishing leads and developing a very diverse portfolio. This attitude mirrors that of the data system we are trying to build. I am particularly proud about the fact that as a team we were able to accommodate such a diverse range of leads and receive follow up requests for assistance. We did not launch the company with huge marketing efforts so the fact we are becoming a known quantity is purely down to our performance.

Currently, I am spending a lot of time on education. I am explaining aspects of our business regularly to potential investors and customers. We quite often receive the comment that “our services are too complex”. Certainly, the topic is complex and multiple level and views have to be taken into considerations. One needs to understand that new ideas require a slightly different analytical mindset. Leroy Hood, a well-known scientist and entrepreneur, once explained that one of the challenges for any new company is investors will always attempt to put the new business model into an existing category. However, if you have created something new, often, there is no existing category in which to place your business plan. This is something that must be overcome at an early stage of any potential investment discussions. Investors naturally need to understand what our intentions are to identify risks, but in my opinion, something new and complex needs room and not strict boundaries.

What is your vision for ITTM in 5 years' time?

We will have an increased customer and partner base. I would like to become the preferred partner for Bio-IT in Luxembourg or the immediate region, maybe more. Equally, to be able to say we have multiple customers in a variety of areas would also be great. Within 5 years, I would like to see movements beyond the traditional Western markets. It is very early days but healthcare questions ultimately are not national but international questions so the future in that respect looks very promising.

We understand both the technological aspects and the science behind the data. We are a young and dynamic organization, that can be flexible and understand the needs of a business. We are passionate about data and are prepared to undertake multiple challenges to deliver a consistently improving package for one's business.

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