

THOMAS KALLSTENIUS

CEO, Luxembourg Institute of Science and Technology (LIST)

Mr. Kallstenius, one year has passed since you were appointed CEO of LIST last November. First of all, what were the motivations and interests that led you to take up this challenge?

I believe Luxembourg is sitting on a goldmine in terms of socio-economic resources and I had some first-hand experience of this prior to taking up my position as CEO. I lived in Luxembourg together with my family for a couple of years before we moved to Brussels in 2004. The innovation potential of this country impressed me already then, with its economic power, strategic location and strong local support. 15 years later, the emergence of Luxembourg as a global research and innovation player is firmly taking shape. This amazing development has been made possible by the unique collaborative spirit of a small but powerful RDI eco-system, composed of a handful of ministries, the university, the 3 major research institutes, Luxinnovation and FNR. Supported by such a “Team Luxembourg”, I believe LIST is in a prime position to develop into a world-leading research institute within its fields of expertise: informatics, environment and materials. This all goes to show that when I heard about the position at LIST in the second half of 2018, I got very excited. The translation of research outcomes into marketable innovations with impact have always been the main driver of my career. Doing it in Luxembourg is a dream come true.

How do you assess the results after one year?

First of all, after 10 months in the job, I’ve had ample confirmation that the collaborative spirit between LIST and its strategic partners really works like charm in practice. It’s a positive-sum game, not a zero-sum game. Openness, transparency and systemic collaboration is not a given anywhere in the world, so I’m very happy about that. More specifically within LIST, we are making good progress on putting together all the necessary building blocks to fully unleash our research and innovation potential. Over the last months, we have defined our strategic agenda based on a limited set of research and technology challenges and inter-disciplinary programs. We have also recruited some key people in the management team, launched self-funded exploratory projects and held a very successful LIST Tech Day in June that sparked a host of new partnerships and partnership opportunities. But most importantly, and to support the collaborative spirit I speak so much about, we

have created a more open, agile and positive culture within LIST based on ownership and accountability to further empower our people.

What will be LIST’s strategy and what are the research areas you plan to focus on?

Our mission is to contribute to the transformation of Luxembourg into a smart, trusted and sustainable data-driven economy. We want to achieve this by using our combined research and innovation competency within a limited number of research fields. Naturally, these fields need to respond to the main societal meta-challenges of our time: digitisation and the internet of everything, climate change and sustainability and finally the reinvention of industry with new production processes and the development of new materials.

As we develop and mature new insights and technologies, our work can typically be distinguished into three different types of research: First, we conduct strategic research, which covers our essential domains of knowledge and basically represents LIST’s best bet on the technologies of the future. This view is completed and constantly updated by our interactions with industry and their view of things. This is why the bulk of our work focusses on applied research. This type of research directly responds to the trends and evolutions demanded by industry and public sector partners today. Thirdly, we focus on technology development, with advanced instrumentation, prototyping, bench testing as well as pilot testing. At LIST, we believe that both strategic research and applied research reinforce one another. It is both “push” and “pull”, both “give” and “take”: sometimes an industry partner changes its innovation roadmap thanks to building blocks it discovered at LIST, and sometimes LIST changes its research targets to enable the innovations needed by an industry partner. LIST can especially leverage the positive effects of this approach in vertical markets that still have many open questions, but will have great societal impact for Luxembourg. These are markets such as Industry 4.0, Smart Nation, Space Resources and the data-intensive service industry.



Interview



At the opening of the LIST Tech Day 2019 you launched the idea of a digital twin of Luxembourg. Can you explain what it is about and how it fits with the Luxembourg smart specialization strategy?

A nation-wide digital twin of Luxembourg is essentially a digital replica of the entire country. It is a virtual representation of physical systems (traffic, water, air etc.) and physical assets (buildings, resources etc.) that can make simulations, tests and predictions of planned actions almost in real-time. A twin is essentially used to get information on an action in a simulated world, before the action is actually carried out in the real world, opening enormous opportunities for citizens, companies and authorities alike. Luxembourg's twin would be the world's first ever nationwide platform. It could serve as a technical test-bed for researchers, a regulatory sandbox for regulators, a living-lab for private and public stakeholders (planners, designers, researchers and engineers), as well as for citizens and policy makers to model and simulate user experience, human-AI-interaction and value co-creation. Such a twin would catapult Luxembourg into a hub of excellence in terms of digital development, gaining attractiveness for both international industrials that would like to introduce their products and services onto the European market and academic players that seek a digital-friendly environment to develop their research and innovations. In order to be a success, the digital twin needs to be developed based on "privacy by design" (rather than privacy as an afterthought) principles. This means that privacy must be embedded into the coded architecture of the twin's systems, but also into the business practices linked to it. I consider this to be absolutely key, but it is also an opportunity for Luxembourg, to be driving the data privacy narrative through such a user-centric approach.

LIST is a partner of the recently launched Luxembourg Digital Innovation Hub L-DIH. What will be your service offer to the new L-DIH?

Small and Medium Sized Enterprises (SMEs) are particularly slow in integrating digital technologies: only one out of five SMEs in the EU is highly digitized, yet SMEs represent over 90% of all businesses in Europe. I believe the situation is somewhat better here in Luxembourg but there is still a lot to do to mitigate this. The L-DIH will act as a national platform to bring together offer and demand in the scope of digitalization of industry, in particular SMEs, by facilitating contact between LIST and companies with a need to access digitalization competences, technologies, services

and related support mechanisms. LIST will be the solution provider in the L-DIH, with an interest to showcase our research and technologies to meet the needs of the industry in general and Luxembourgish SMEs specifically.

One of the key challenges is to further develop partnerships with Luxembourg industry and business in order to foster collaborative research and innovation projects. How do you intend to tackle this challenge and how do you envisage to encourage Luxembourg SMEs to get involved in this process?

LIST will introduce a new partnership and business development model in 2020 to better articulate our value proposition to the Luxembourgish industry and business world. It will be based partly on our involvement in the L-DIH, which is an important pillar of our business development strategy, specifically towards SMEs. Here we need to make a difference between fast growing scale-ups, which are in an SME phase but with an ambition to grow further, and more classical SMEs, which have been SMEs for a long time and may remain so in the near future. The scale-ups are often early adopters of digital technologies while the "classic SMEs" may need more involvement to outline and understand the necessity and opportunities offered by a digital transformation of their business. On the other hand, we will further clarify our business models and make the way we work with our partners more transparent. This will apply to our whole range from individual projects, to strategic partnerships and all the way to the larger programs with more than one partner. It's important to make it crystal clear how we can support our partners. Just as Mariana Mazzucato writes in her book "The Entrepreneurial State", I believe that LIST should be "a daring partner, willing to take the risks that our businesses partners won't". In this sense, we are partners in the innovation risk management.

INTERVIEW

GEORGES SANTER

Responsable digitalisation et innovation auprès de la FEDIL

georges.santer@fedil.lu

PHOTOS

ANN SOPHIE LINDSTRÖM