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Lorenzo Ambrosini of the Agire Foundation introduces the major new innovation projects underway in the Italian-speaking Swiss canton of Ticino; the canton's strong existing footprint in bioinformatics, AI, and computer modelling; and how it is looking to leverage its connections to the rest of Switzerland and to Italy.

Could you begin by introducing our audience to the Agire Foundation?

The Agire Foundation is the innovation agency for the Canton of Ticino. Although fully financed by government, it is an independent entity and will celebrate its tenth anniversary in 2021. The organisation was formed by a constellation of actors, including representatives from government, Ticino's two universities - Università della Svizzera italiana (USI) and Scuola universitaria professionale della Svizzera italiana (SUPSI) -, the chamber of commerce, other industry associations, and banking associations, as well as city mayors and other entities.

All these actors have different objectives and KPIs, but through bringing them together four or five times a year they are obliged to discuss some key issues. It is quite unique in Switzerland for an innovation agency to represent all the major stakeholders and this is part of what makes the Agire Foundation special.

Canton Ticino is one of six regional innovation systems within Switzerland, receiving funding at the Swiss Confederation level. The Agire Foundation operates on a mandate of the Department of

Finance and Economics of Canton Ticino with the mission of promoting and disseminating, in accordance with the values of sustainability and corporate responsibility, product, process and business model innovation, with the aim of increasing the number of highly skilled jobs and the economic competitiveness of our territory.

What would you say are the current strengths of Ticino's economy and the cantonal government's main priorities in terms of economic development?

Nowadays Canton Ticino is a region where innovation has reached a record-breaking level. A 2019 study of the European Commission ranked Ticino as the second most innovative system (after Zurich) within over 238 European regions. We can be proud of this result, which demonstrates the sagacity of the Canton's economic development strategy, as well as the quality of the recently implemented innovation ecosystem here.

There are also other positive signs that indicate the strength of our economy, like the growth of workforce in the scientific and technological sector, an above-average number of patent applications (some of which are world-class patents) and a dynamic development of the sectors of chemistry, biochemistry and pharma, as well as MedTech and microelectromechanical systems (MEMS).

Unlike that of Basel or Zurich the Ticinese economy is small but diversified, with less vertical integration. This has both advantages and disadvantages, for example during the recent financial crisis, our diversified economy saw us suffer less than other Cantons. Our key sectors are the life sciences, mechatronics, and banking, but Ticino also has a lifestyle and fashion industry, as well as a footprint in food production and engineering.

What are some of the Agire Foundation's initiatives that are already underway and what do you have in the pipeline?

Our activities range from managing the *Tecnopolo Ticino* – composed of 30 companies –, *Boldbrain Startup Challenge* – an accelerator for early-stage startups – and organizing a series of networking and promotion activities to spread awareness of our region and its opportunities. We aim to be the first point of entry for early-stage innovation and start-ups in the Canton.

Additionally, in November 2020 Canton Ticino gave us a mandate to develop *Switzerland Innovation Park Ticino*, associated with *Park Zurich*. This will be one of six physical sites across Switzerland where companies can settle down, cooperate with academia, and create new innovations in a structured way. This is part of a broader push by the Swiss government to promote Swiss excellence and position Switzerland as a country of innovation. The connection to *Park Zurich* allows a small Canton like ours to leverage a more significant hub like Zurich.

Can you outline the particularities of *Switzerland Innovation Park Ticino*?

We aim to connect companies with academic institutions, capitalizing on Ticino's academic excellence in three key areas: life sciences – especially in bio fabrication and high potency ingredients – drones, and blockchain. *Switzerland Innovation Park Ticino* will have three competence centres structured around these areas, where we have a globally competitive research footprint. Connecting industry to academia is nothing new, but these centres aim to do so in a structured manner that allows easy access to academic excellence.

It is also important to note that there are many interdisciplinary connections between these three areas. Blockchain technology can be used in pharma logistics, drones can be used to deliver drugs, and principles developed in pharma can be used to develop drone algorithms. We are therefore aiming for cross-fertilisation between these different competencies.

The site will be located at the core of the Cantonal capital city of Bellinzona. A 120,000 square metre site that currently houses workshops for Swiss Federal Railways (SBB) will be developed into an entire innovation district. Such districts already exist in places like Boston, Barcelona, and Milan, providing a huge integrated space for people to live, work, eat, drink, and play. We plan to create a pulsating, spirited neighbourhood by 2026. The innovation district has a strategic location at the core of Bellinzona, not on the outskirts, and – with the building of new tunnels last year – Zurich and Milan are just an hour and a half away and Lugano 15 minutes.

What are some of the challenges that Ticino must face to ensure the success of this ambitious project?

Talent is an issue and, as we are a small Canton, it can be difficult to retain, attract, and re-import the right people. Our two universities are attractive and are starting to offer more specialised courses, but we have to think carefully about how to improve and present Ticino's value

proposition. Training will become increasingly important, and the end goal will be to attract people and companies from both inside and outside Switzerland to come and set up shop here.

There are also some internal organisational challenges in building up such a park, such as facilitating cooperation between different actors. We are building processes and models from scratch, not just creating another company, and need heavy investment in staff, machinery, governance etc.

The other challenge is launching and selling this park to Switzerland and the world. A huge marketing effort required to showcase our excellence.

All in all, this will require a huge effort on the part of all stakeholders. More than an academic or institutional exercise this is an entrepreneurial and generational project. This is not a quick shot, but rather part of a concerted push to catapult Switzerland into position as *the* country of innovation with Ticino as part of it.

Can you explain how well-connected Ticino is with the rest of Switzerland and with Italy, and how this affects your value proposal as an investment destination?

The position of the Canton of Ticino is strategic on the North-South axis, enhanced by the opening of the Gotthard base tunnel and the recent entry into operation of the Ceneri base tunnel. This position brings with its numerous opportunities, which our Canton is striving to exploit.

Since the beginning of 2019, Ticino has been a member of the **Greater Zurich Area**. This consolidates the unique link between the two most innovative regions in Europe and - thanks to the Gotthard railway base tunnel - our Canton can create stronger links northwards, as well as reinforce its position as the "entry door" to the Mediterranean region.

Additionally, our proximity to Milan, one of the European metropolises of luxury and fashion, as well as an important logistical and industrial centre, makes our Canton an interesting territory for all those activities that intend to invest in these sectors. We have physical and cultural vicinity to both Italy and Switzerland, meaning that we are a gateway both for Switzerland to invest in Italy and for Italy to invest in Switzerland.

What role does the life sciences have within the Ticinese economy today?

The life sciences sector is crucial to Ticino's economic development, with around 50 companies with more than 10 employees, employing over 4,000 people (full-time equivalent). The most vibrant scene is in Farma Industria Ticino (FIT), which is made up of 23 companies, many of which are world class and export oriented. They are extremely well connected, with several ongoing initiatives on talent, and are well recognised in Switzerland. There is another pool of MedTech companies and some – although not so many – BioTechs. To complement this ecosystem, there are a wide range of companies that offer services and support. Ticino is particularly strong in computer science – indeed the Canton is home to one of the world's most powerful supercomputers – which is something we are looking to capitalise on.

What are some of Ticino's life science success stories?

There are excellent academic and research institutions in Ticino, which are also internationally renowned, and which contribute to forming a true pole of excellence in the field of biotechnology and, more generally, of the life sciences, facilitating the birth and development of virtuous collaborations. Among these are the Institute for Research in Biomedicine (IRB), the Oncological Research Institute (IOR), the IOSI in the oncological field, the Cardioentro Ticino, the SIRM in regenerative medicine and the Neurocentro Ticino. Additionally, the Faculty of Biomedical Sciences at USI offers a master's degree in medicine.

The IRB recently developed a second-generation 'double antibody' that protects from SARS-CoV-2, the virus causing COVID-19, and all its tested variants. It also prevents the virus from mutating to resist the therapy.

Other successes include Humabs BioMed, which recently had a treatment against Ebola approved, developed in part after research work at IRB laboratories. Sintetica, based in Mendrisio, also came to the fore in 2020 when it became the only company in Switzerland able to produce drugs that, in March, were used in intensive care for the treatment of COVID.

How else are the region's network of high-level research institutions being leveraged?

One of the competence centres being developed within the Switzerland Innovation Park Ticino is focused on life sciences. This centre will serve as a vehicle for the aggregation of existing realities and help create the "cluster" effect necessary for Ticino's innovation ecosystem in this field to be able to reach the critical dimensions to be attractive and competitive at an international level.

One focus of the Life Sciences Competence Centre is on the field of Highly Potent Active Pharmaceutical Ingredients (HPAPIs). The aim is to speed up the development and manufacturing processes of drug substance and products and avoid critical human interaction, when possible, by introducing innovative solutions.

A second area of activity of the Centre is Bio fabrication. This revolves around the creation of living human 3D tissues in an additive manufacturing approach, targeting both bio fabrication and regenerative medicine challenges. The Competence Centre involves, among others, the Institute of Computational Science of USI and the Department of Innovative Technologies of SUPSI, as well as the Ente Ospedaliero Cantonale. Many relevant companies of the sector have already adhered to the initiative.

What is Ticino's potential to become a leading international hub for bioinformatics, AI, and computer modelling?

The conditions are all there: among others, Ticino is home to the Swiss Centre for Scientific Computing of ETH, which works closely with university institutions in research projects of the highest level. We also have the Dalle Molle Institute for Artificial Intelligence Studies, among the top 10 in the world in its field of research. Moreover, the Institute of Computer Science and Cardiocentro collaborate as part of the Centre for Computational Medicine in Cardiology, which develops new computational approaches and methods as well as new simulation tools aimed at increasing the knowledge of the cardiovascular circulation system and thereby improving diagnostics.

We strongly believe that starting with the enriching contribution of the various skills and cultures present in Ticino, we can attract new partners from other parts of Switzerland and abroad to create a virtuous circle of innovation.

As both Switzerland and Italy have quite entrepreneurial cultures, do you have to find start-ups, or do they come to you?

The start-up scene in Ticino is growing and vibrant with many different segments represented, not just life sciences. Our vision is for innovation to spread as a culture in Ticino, within schools, families, friends, government, and in both big and small companies. There needs to be a certain cultural groundswell to foster the growth of start-ups, convincing potential entrepreneurs that they

are not alone and that the risks are worthwhile. This is something that the AgireFoundation is actively working on.

How would you characterise the investment environment?

There are some angel investors and a few venture capitals (VC) funds, with potential to bring even more to the Canton. We want investors from outside Ticino to see our Canton as a place where things happen, for example through Boldbrain. This will involve plenty of work on our side building up the reputation of both Ticino and Switzerland as a start-up investment destination.

Secondly, there is a growing interest from other capital, such as family businesses, into establishing VC funds. There are a lot of wealthy families in Ticino with investments in things like real estate and shares that have an interest in diversifying a little bit of their capital in some riskier projects. However, this is something that has to be learned as portfolios are built and risk management is established.

The COVID-19 pandemic has forced a re-evaluation of how the pharma industry operates globally, with companies and regions pivoting to ensure security of supply in the face of this and future pandemics. How affected has Ticino been by the pandemic?

Ticino, like the rest of Switzerland but also like all countries in the world, has suffered (and is still suffering) the economic repercussions of the pandemic. Unfortunately, there are numerous economic sectors which, according to economic forecasts, will undergo a marked slowdown. However, it is interesting to note that, in the emergency, a virtue of necessity was made. In fact, several companies have started to produce masks, disinfectant or material intended for the health sector.

For example, FIT donated more than 940 litres of 75 percent ethanol, necessary to produce disinfectant, to the Ente Ospedaliero Cantonale. It did so thanks to the collaboration of small local companies. IBSA sent gel, masks, overcoats, and alcohol to health facilities, has donated 500,000 francs to support health facilities in the most affected areas, and has set up a solidarity fund through which donations and private initiatives of employees can flow. VF International has donated thousands of products and made a multimillion-dollar contribution globally, including a 75,000-franc credit to Canton Hospital while Consitex converted a portion of its Mendrisio production lines to produce 30,000 medical protective gowns.

On a more general level, it should be noted that COVID has accelerated a series of processes that were already underway, including digitalisation, discovering new digital solutions. All of this demonstrates that in Ticino, despite the critical situation, the spirit of seizing the opportunities hidden in the crisis has not been lacking.

What do you see as the future role of Ticino - with its strong manufacturing footprint - to safeguard security of supply?

In Ticino, the industrial sector is historically solid and present. We are home to several niche production plants, particularly in the fields of pharmaceuticals, electronics, and precision mechanics, which will be able to contribute to security of supply in the future as well. Finally, we should not forget the horticultural, wine and food industry, which contributes to the export of excellent products appreciated throughout Switzerland and abroad.

After three and a half years in the role, what are your proudest achievements and ambitions for the future?

It is not to me to judge my results. For sure this is one of the most stimulating jobs, which requires both technical and scientific understanding as well as the ability to communicate with a very broad range of stakeholders, from politicians to academics and the heads of private enterprises. I am convinced that Ticino has all the pre-requisites and is now on track to become one of the most attractive innovation systems in Switzerland.

What would be your final message to our international audience of pharma executives?

Come and see Ticino for yourself; talk to people and look at the institutes, companies, network, and quality of life we have here. This is part of what I myself came back from Zurich for. With two airports and close connections to Milan and Zurich, Ticino is compact, vibrant, and a great place to live. The compactness also means that making connections is much easier, something that is not the case in bigger cities and regions.

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