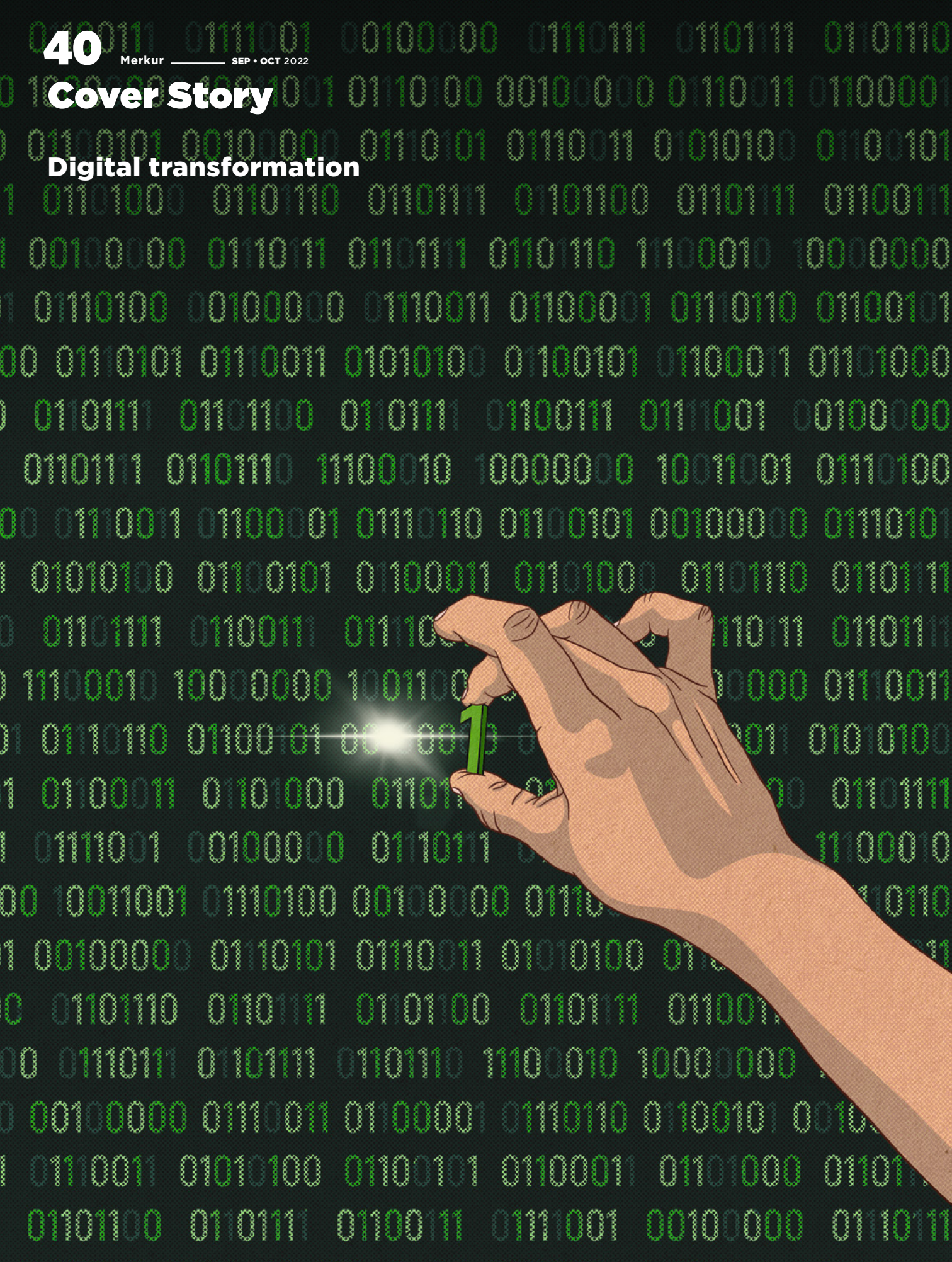
Cover Story

Digital transformation



For better or for worse?

TEXT Stéphane Étienne / Hypallages
TRANSLATION FROM FRENCH Martin Davies, Hannah Ekberg

Since the pandemic and its accelerating effect on the transformation of work and consumption habits, the digital transformation of companies has become an economic imperative. To ensure their sustainability, business entities, whether small or large, private or public, must embark on the train to digital transformation. But undergoing the digitalisation of a business is a complex process that is not limited to acquiring the latest technological tools, it also involves stepping out of one's comfort zone, rethinking a business, and even reinventing oneself. Do our national economy and its stakeholders have the means?

According to the latest report from the European Commission's Digital Economy and Society Index (DESI), which measures the progress made by EU Member States in the digital field, the Grand Duchy occupies eighth place. However, this score, as honourable as it seems, is a bit like being unable to see the wood for the trees. The country continues with its digital transformation, but much more slowly than others. Its digital growth rate is the lowest in the European Union: 6% on an average each year between 2017 and 2022. Some shortcomings are also pointed out, such as the adoption of innovative technologies by companies.

The State, the star pupil in the class?

There are several public initiatives in Luxembourg to encourage businesses and citizens to use digital tools. To advance the general technological development of the country, a Ministry of Digitalisation was created in 2018. The state has committed itself to digital transformation and has not hesitated to introduce innovative technologies. For example, on 1 August 2021, it launched a pilot phase for a student loan application procedure, which is done entirely electronically thanks to blockchain. Initially in partnership with Spuerkeess, the procedure will gradually be extended to all contracted banks.

Luxembourg has also actively taken part in major European projects. Two particular examples are the Luxembourg hubs of Gaia-X and MeluXina. The mission of Gaia-X Luxembourg is to contribute to the establishment of secure European data infrastructure bringing together cloud service providers and their users. MeluXina is considered one of the most powerful supercomputers in Europe. It is part of the EuroHPC European network, headquartered in Luxembourg, which aims to develop a world-class supercomputer ecosystem in Europe. MeluXina will enable high-speed calculations in areas such as modelling and simulation, analysis of substantial amounts of data and artificial intelligence. It will offer companies opportunities to innovate, and will above all be the main ally of sectors that require a lot of computing time, such as research, the economy, and personalised medicine.

Finally, by the end of September 2022, a High Committee for Digitalisation should be set up. Led by the Ministry of Digitalisation, it will bring together the various ministries concerned, experts in digital transformation, employers, the various professional chambers, trade unions and other representatives of civil society. Its mission will be to discuss the challenges of digital transformation for the public and private sectors.

In view of all these activities, it is therefore no coincidence that the country has risen to third position in the 2022 rankings of the eGovernment Benchmark which compares the maturity of digital public services in 35 countries (the 27 member countries of the European Union plus Iceland, Norway, Switzerland, Albania, Montenegro, North Macedonia, Serbia and Turkey). Luxembourg improved its position compared to 2021 (+ 2 places) and 2020 (+ 8 places).

A blurry long-term vision

While this very positive picture is cause for celebration, it remains very difficult to detect a real long-term vision in the hundreds of digitalisation projects launched by the government. These are so diverse that making a connection between them is a very delicate operation. To be convinced of this, it suffices to consider the promotion of digital inclusion, one of the four strategic axes of the Ministry of Digitalisation. The National Digital Inclusion Action Plan contains no fewer than 40 initiatives (see Gaston Schmit interview), 18 of which are directly supported by the Ministry of Digitalisation. These include a jumble of Internet portals like *Zesummendigital.lu*, which is dedicated to digital inclusion; Cybersecurity Luxembourg, and Digital Skills and Job Coalition (a platform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for exchanges between supply and demand for digital training); information sites such as spambee.lu (an application for analysing and denouncing potentially dangerous emails and websites) and *secure-iot.lu* (on the risks of connected objects); the *e-Governance 2021-2025* and digital education strategies; training on inclusion, accessibility and digital skills; didactic tools, as well as various awareness and information campaigns.

And that is not all! To conduct all of these projects, the budget allocated to the Ministry of Digitalisation is among the lowest (0.95% of the total state budget for 2022). However, the conclusions of the DESI report are clear: the acceleration of the digital transition cannot be achieved without both a clear strategy and solid investment. We are far from it.

A customer experience that has become primarily digital

Any slowdown in digital progress in Luxembourg is a cause for concern because there are still too few companies, particularly SMEs and VSEs, making use of information and communication technologies (ICT). According to the latest quantified portrait of Luxembourg companies published by Statec, only

'The Covid crisis has profoundly changed consumer buying habits and brought in new trends. Today, most customers have adopted a digital-first behaviour.

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one in five non-financial companies (19%) employing at least 10 people analysed big data in 2020.

And there is urgency. All companies will eventually have to adapt to future administrative standards such as e-invoicing (*for more information, a practical guide on the subject has been published by the Chamber of Commerce)*. It is also a question of economic survival. The Covid crisis has profoundly changed consumer buying habits and brought in new trends. Today, most customers have adopted a digital-first behaviour. They have become more demanding and want brands that are available at all times of the day, dependable in the information they communicate, authentic with regard to their image and above all innovative. The experience offered by a company now matters as much as its products or services. With the diversification of digital communication channels, from e-mail to social networks via telephone, online chats, mobile applications, messaging applications, SMS and online portals, this experience must be multi-channel and personalised. Whether in a B to C (business

01. Luxembourg is progressing in its digital transformation, but much more slowly than other European Union countries.

02. There are many public initiatives in Luxembourg to encourage businesses and citizens to use digital tools.

03. Luxembourg also actively participates in major European projects: in particular with the Luxembourg hub of Gaia-X and MeluXina, considered one of the most powerful supercomputers in Europe.

04. Too few companies, especially SMEs and VSEs, make use of information and communication technologies (ICT).

Arnaud Lambert
Director of Luxembourg Digital Innovation Hub (L-DIH)

'The key is combining the human and the digital in the interests of the customer '

The Luxembourg Digital Innovation Hub (L-DIH) aims to accelerate the digital transformation of Luxembourg's industrial SMEs. How does this mission translate on the ground?
This can be summed up in three words: information, inspiration and support. We first go out to meet SMEs by providing them with information adapted to their context. Then, we seek to broaden their field of reflection by putting them in a network with other actors already engaged in a digitalisation process. This is the case with our DIH Talks. Every month, we host a webinar on a particular topic where the main speakers are business leaders who come to talk about their experience. Finally, we guide them in their project, whether by helping them build a digital strategy, assessing their level of digital maturity or choosing technical solutions. If they want to go deeper, we put them in touch with service providers who are best able to meet their needs. We can also guide them towards the various financing possibilities according to their business sector and their project.

Even if they are aware of the importance of going digital, most companies are still reluctant to take the plunge. In your opinion, why?
The reasons given are always the same: they find it too expensive and too complex or do not see the usefulness of it for their business. Our work consists precisely in combating these prejudices and making SMEs understand that if they do not undergo a digital transformation, they will eventually be doomed to disappear. Customer expectations have changed. Today, they want a more personalised, more transparent and faster experience. Rather than enduring the digital transformation, industrial players must actively take it on, integrate it into their strategy and contribute to its development by constantly seeking what it could bring to their customers. A company can very well start small as long as the technical solution adopted creates value for the customer.

Digital transformation does not mean wiping the slate clean either.
Absolutely. Before embarking on a digital transformation, the company must above all change its mindset and become more customer oriented. Combining human experience and digital power in the interest of the customer is for me the key to competitiveness.

The metaverse, anything more than a fad?

Often presented as an innovative concept, the metaverse is in fact only the logical outcome of existing technologies such as virtual reality, cloud solutions and blockchain. In addition, the first virtual universe in 3D, Second Life, was released as far back as 2003 only to be quickly forgotten. Will the metaverse meet the same fate? Nothing is less sure. Many companies are already present on Metaverse Luxembourg, a virtual city launched in June 2022. This should be followed by 'The Duchy' (a micro-universe where companies, brands and people based in Luxembourg can meet) as well as an ambitious European metaverse hub project in the Grand Duchy. Produced in partnership with the Interdisciplinary Centre for Security, Reliability and Trust (SnT) of the University of Luxembourg, it wants to launch a 'sandbox' version by the end of 2022 which will allow local players to familiarise themselves with this technology.

The deskless, the great absentees of the digital transformation

Spending most of their time in the field, deskless people often remain invisible when it comes to digitalisation. Whether they are electro-mechanics, shopkeepers, cashiers, nurses, firefighters or salespeople, these essential workers rarely have a professional email address or access to a digital space at their workplace. In addition to digital discrimination, this imbalance presents many pitfalls. The deskless feel excluded, become demotivated, and even resign while their trades are currently experiencing a labour shortage. This digital exclusion also deprives organisations of valuable information in the field. Rather embarrassing when you know that data represents a competitive advantage for companies!

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to customer) or B to B (business to business) relationship, the customer also expects salespeople to show empathy, understand their specific needs and develop solutions for them without trying to sell them standard products or services.

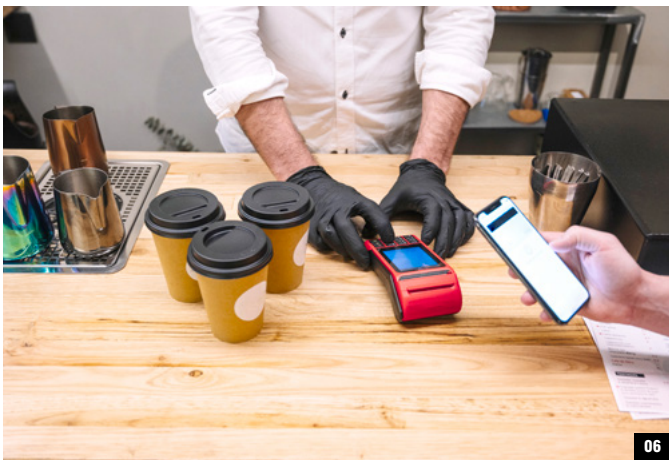
Data, a gift or a burden?

Optimising this digital customer relationship has become a fundamental challenge for all companies, regardless of their size. To better understand the needs of their customers and offer a fluid and enriched experience that brings them a real gain in competitiveness, they must imperatively master the art of collecting, processing and using data. This is far from easy. Poor evaluation of data risks to worsen the customer experience. Collecting too much data can very quickly become an unusable burden due to a lack of resources, skills or clear objectives. Too many companies find themselves stuck in a paradoxical situation where they are both lacking data and overwhelmed with information. According to a study by Forrester and Dell, conducted in 2021 by 4,036 experts in 45 countries, only 24% of Luxembourg companies attach paramount importance to the data they hold and value it, 58% collect data faster than they can analyse and exploit it, and 70% say they constantly need more data, but their current capacities do not allow them to process it in real time.

For many specialists, this situation could be avoided if companies went back to basics. There is no point in investing in technological solutions if you do not have the slightest idea of the result you want to achieve. Before conducting a digital transformation, it is still necessary to ask the right questions and find the right answers. How can we stand out from the competition? What values can we bring to our customers? What data could really be useful to us, given our strengths and market positioning?

The paradox of ultra-personalisation and confidentiality

There is also another paradox in data processing, that of ultra-personalisation and confidentiality. There is indeed a clear disconnect between customers' concerns about their privacy and their actual behaviour online. Customers want increasingly personalised services and products that require a finer exploitation of their personal data thanks to artificial intelligence, but they are, at the same time, very reluctant to share their personal data. For completely legitimate reasons, they want to know what use will be made of their personal data and how well they will be protected. The answer to this request can be summed up in two words: consent and trust. Since the application of the General Data Protection Regulation (GDPR), the consent of customers has become an essential condition for the use of their personal data. However, this consent can only be obtained if the company maintains a relationship of trust with their clients. The company must be completely transparent about the use of personal data, in a framework that complies with regulations, and not be too intrusive. Customers can very quickly walk away if they perceive manoeuvres aimed at extracting information



07. The experience offered by a company now matters as much as its products or services.

05. 06. Optimising this digital customer relationship has become a fundamental issue for all companies, regardless of their size.

that they do not really want to give or that they do not consider useful to personalise their shopping experience.

Cybersecurity, an issue of trust

Security also plays an essential role in establishing this relationship of trust. This is also a legal obligation: the GDPR has created a framework establishing that the company remains responsible for the personal data of its customers and any processing that is done, even if it is entrusted to third parties. And the regulatory pressure is likely to increase further in the years to come with the updated version of the NIS (Network and Information Security) Directive (NIS2) which should extend security obligations to ten times more organisations than previous Directives. To the sectors already concerned (energy, transport, banks, financial market bodies, health, drinking water and digital infrastructures) others will be added, such as governmental administrations, waste management, large-scale food distribution, suppliers of Internet access or postal services. Small structures will in principle be excluded, but not medium and large companies.

It's in the interest of every company to implement a solid approach to security without waiting to be forced to do so – preferably from the start of their digital transformation process. By proceeding in this way, investments are optimised, significant additional costs due to later integration avoided and possible vulnerabilities easier to correct. However, zero risk does not exist either. No company is spared. VSEs, just like large organisations, can be the target of hackers at any time. The cyberattacks suffered last July by the electricity supplier Enovos and the grid operator Creos are the best proof of this. Now, it is not just about protecting yourself, but also about thinking about responses in the event of an incident. How long can the business continue to operate following an incident? What measures must be taken to preserve activities. (*For more information, a practical guide was published by the Chamber of Commerce in November 2021: Cybersecurity: understanding, preparing and knowing how to react in the event of an attack.*')

'So, most players believe that Industry 4.0 requires significant investment, but thinking 'too big' from the outset is not necessarily the right approach.'

Industry 4.0: Right from wrong

The opportunities linked to the emergence of Industry 4.0 represent another major challenge in the digital transformation of the Luxembourg economy. But there too, a lot of work remains to be done, in particular for manufacturing SMEs. '*Of the 455 companies that we have listed, 72% have fewer than 50 people and many of them have not yet conducted their digital transformation*', lamented Arnaud Lambert (see interview). According to the Director of the Luxembourg Digital Innovation Hub, they still find it difficult to perceive the real benefits of digital transformation and their approach remains too focused on production tools.

So, most players believe that Industry 4.0 requires significant investment, but thinking 'too big' from the outset is not necessarily the right approach. Embarking on ambitious projects that optimise production without including the customers and suppliers generally leads to disappointing results. It is better to start with small projects that have an immediate impact on the customer experience. These are easier to implement and quickly increase the competitiveness of the company.

Another prejudice that has a durable lifespan: innovative technologies will lead to widespread unemployment. Nothing could be further from the truth. The appearance of digital tools such as the human-machine interface (Human Machine Interface or HMI), cobotics or collaborative robotics for simple and repetitive tasks, the control and data acquisition system (Supervisory Control and Data Acquisition or SCADA) or real-time production management (Manufacturing Execution System or MES) will completely change the situation. Operators working within a well-defined range of actions with a series of predefined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guidelines and procedures are now outdated. 4.0 operators will be multifaceted employees who will play a key role in the evolution of the company. They will be able to make objective decisions based on real-time data and will be able to solve problems thanks to their global understanding of the system and they will participate in driving change.

'I also think that we must stop this divide between technophiles and non-technophiles', continued Arnaud Lambert. *'Recently, we contacted an industrial SME in the north of the country. One of the employees there was firmly opposed to any form of digitalisation. One day, the company ordered a new automatic cutting machine. Unfortunately, as we were at that time in the middle of the Covid period, the trainer could not come until a few months later. The machine was delivered on Friday and by the following Monday, the employee in question was already controlling it with his smartphone. What happened? The employee simply scanned the QR code on the machine with his phone, downloaded the user manual, studied it during his weekend and was fully operational the following week. To improve the production process within a company, information must be made available to all employees. And this requires easy-to-use tools that people know, such as smartphones!'*

An informational challenge

In reality, the main challenge is neither financial nor human, but rather informational. How to make the data, emitted by production line sensors, more relevant so as to make the machines more efficient, more scalable, more intelligent and better able to meet the different expectations of customers? Generally, the machines that make up the production line come from different manufacturers and form a heterogeneous whole. Not to mention that the processing of information in industry is not just a computer problem. Here, it is not a question of collecting and processing simple binary data, but of information transmitted by the sensors. These veritable eyes and ears of the production apparatus measure all the physical parameters (temperature, pressure, position, flow rate, concentration, etc.) and transform them into signals, most often electrical. The art will lie in choosing the right sensors and

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08. 09. 10. Every business benefits from implementing a robust approach to security early in the digital transformation process.

Both small businesses and large organisations can be the target of cyberattacks at any time.

the right technological products based on artificial intelligence that can deliver precise predictive analyses, increase the efficiency of production lines and reduce costs. Thanks to these tools, operators, instead of being drowned in a deluge of information that is often impossible to interpret on a daily basis, will be able to easily identify problems and quickly take the right action.

'But to achieve such a result, you need in-house skills, even if only a generalist IT profile,' emphasised Arnaud Lambert. *'This is a message that is often difficult to get across to SMEs, because the majority of them tend to outsource everything. To tell a company if it is ready for digital transformation or not, I generally ask three questions: does the organisation employ a full-time IT person? Does this person report in any way to management? Is this person under 40? If the answers to these three questions are not all positive, the chances of a successful digital transformation are very slim, if not zero. The fact that this person is under 40 does not of course presuppose that the older generations are not competent, but they do not have the same state of mind as those who have grown up with digital.'*

The talent shortage – the eternal Achilles heel

Unfortunately, finding digital skills is not an easy task and this problem may well hinder

Gaston Schmit
First Counsellor,
Ministry of Digitalisation

'Digital public services will become more attractive and more reliable'

Your ministry is relying on open innovation to accelerate the digital development of public services. What do you mean by that?
Open innovation consists of using knowledge that is external to one's usual environment. Our ministry, in collaboration with the Government Information Technology Centre (Centre des technologies de l'information de l'État, CTIE), has established the GovTech Lab. Its mission is twofold. On the one hand, it is a question of developing a culture of innovation within public administrations through calls for challenges that make it possible to address the problems with which they are confronted. On the other hand, after identifying the priority challenges, the Lab calls for solutions from external players such as startups, researchers, freelancers, companies, and even students.

Can you remind us of the four strategic axes of the ministry?
The first axis concerns the development of e-Government. The Ministry and the CTIE are working continuously to offer new online administrative procedures as well as new functionalities on the MyGuichet.lu portal.

The second part concerns administrative simplification. Based on the latest technological advances, the department is part of the continuity of the government's commitment to offer a simple and predictable framework to citizens and businesses. To give an example, thanks to the national portal of public inquiries, interested parties can file their contributions electronically directly with the authorities concerned if the legal framework allows it.

Our ministry coordinated an interministerial working group responsible for developing the National Action Plan for Digital Inclusion. Three strategic levers comprising 40 concrete initiatives have been defined to avoid a digital divide: strengthening digital motivation and confidence, improving digital access, developing digital skills.

Finally, our ambition is to integrate innovative technologies within ministries and administrations. Calls for AI4Gov projects have been launched for public actors to promote artificial intelligence. We are also part of the project to integrate Luxembourg into the European Blockchain Services Infrastructure (EBSI). Called EBSILUX, this project aims to use blockchain to build cross-border services that will allow public administrations to verify information and make services more reliable.

Arthur Meulman
CEO, jobs.lu

'The future of work will not be fully digital, but hybrid'

How will the digital transformation change the way we work?
I think it is not a question of technology, but more of a state of mind. The coronavirus pandemic has been a telling example. To continue to operate, companies had to put in place new procedures, including teleworking. The paradox is that, before the health crisis, many of these companies were reluctant to allow the professional activities of their employees to be carried out remotely.

Why? Not for technical reasons – most companies quickly switched to teleworking – but for lack of confidence. Managers have always doubted the effectiveness of such a method because they felt that productivity would suffer. But the exact opposite has happened. In many cases, employees performed better at home than in the office… while regretting the lack of social contact with their colleagues! Working from home full-time is not the solution. The future will instead be built on a hybrid model, partially teleworking and partially in-office work.

Does remote work also imply a new way of working?
Transposing into the virtual world the way we work in the real world will not work. Judging the efficiency of an employee on the number of hours worked in a classic schedule is no longer appropriate. An approach based on common objectives will be much more effective. In this approach, no matter how each individual manages their time – whether they start work at 8 a.m. or 3 p.m. is their own choice – the bottom line is that they can complete the tasks assigned to them within the time allowed. But this requires a certain discipline on the part of the employees.

What are the essential behavioural skills that young people – and those not so young – must absolutely develop in order to flourish in the professional world of tomorrow?
Showing empathy, knowing how to understand the needs of others and being able to interact with them to achieve the same goals have become essential qualities. The will to evolve and keep learning will also be a key factor. Here again, the pandemic has proven that all colleagues, even the oldest, can adapt to IT tools when circumstances require.

'Preparing the digital skills of tomorrow is good, but it will take time and may not be enough to meet the strong demand of the Luxembourg labour market.'

11. The opportunities linked to the emergence of Industry 4.0 represent another major challenge in the digital transformation of the Luxembourg economy.

12.13. Companies are still struggling to perceive the real benefits of digital transformation and their approach remains too focused on production tools.

the long-term digital transformation of the Luxembourg economy. Even if the country has a proportion of graduates and IT specialists well above the EU average, 6.3% of total employment against 4.3% in Europe, like all other European countries, it experiences a serious shortage of talent in the field of ICT. The phenomenon is far from new, but it is now taking on worrying proportions as the demand for these types of profiles has exploded. In June 2022, they were still the most sought-after vacancies by the Agency for the Development of Employment (Adem).

To overcome this shortage, structural responses are being put in place. Among these is the 'Simply Code' approach initiated by the national Ministry of Education and intended to add the digital dimension to all levels of the education system. Since the 2021-2022 school year, coding has been present across the board in cycles 1 to 3 and is one of the skills evaluated in cycle 4 during the common tests organised as part of the procedure for guiding students towards their choice of secondary school. Since September 2021, a course in digital science has been given in 7th grade classes in secondary education (general and classic) and will be gradually extended to 5th grade classes.


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On 16 May 2022, the Ministry of National Education went a step further by launching the Digital Learning Hub. Installed in the Terres Rouges building in Belval, this continuing education centre aims to develop and deepen digital skills in professional life. It is aimed at all adults, resident or not, regardless of their qualifications and diplomas, young people who have just finished their secondary or university studies, dropouts from the education system and job seekers. The first four partners have agreed to provide free training: Securitymadein.lu (cybersecurity), the Luxembourg Blockchain Lab, the D-School of the Hasso-Plattner-Institut in Potsdam (design thinking, user experience and prototyping) and the school 42. This famous programming school, already present in 25 countries and 42 campuses, offers training spread over three years and leading to a certificate.

The need for a new corporate culture

Preparing the digital skills of tomorrow is good, but it will take time and may not be enough to meet the strong demand of the Luxembourg labour market. And nothing says that these future new talents will stay in Luxembourg. We can already see this

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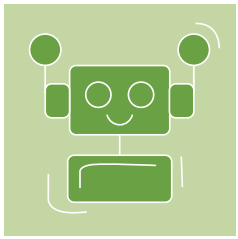

Robots would make better managers

Are robot managers, 'ro-bosses', more efficient than their human colleagues? Apparently yes. According to a study published by the IT company Oracle in 2021, 82% of employees surveyed in ten countries believed that robots could help them develop their careers better than flesh and blood managers. Robots would better meet their need for transparency and objectivity. Their recommendations would be impartial because they are unbiased by emotion. Robots would provide resources tailored to their skills and goals and provide faster answers to their questions. Are managers doomed to disappear? No, but perhaps it is time to seriously review our management methods.

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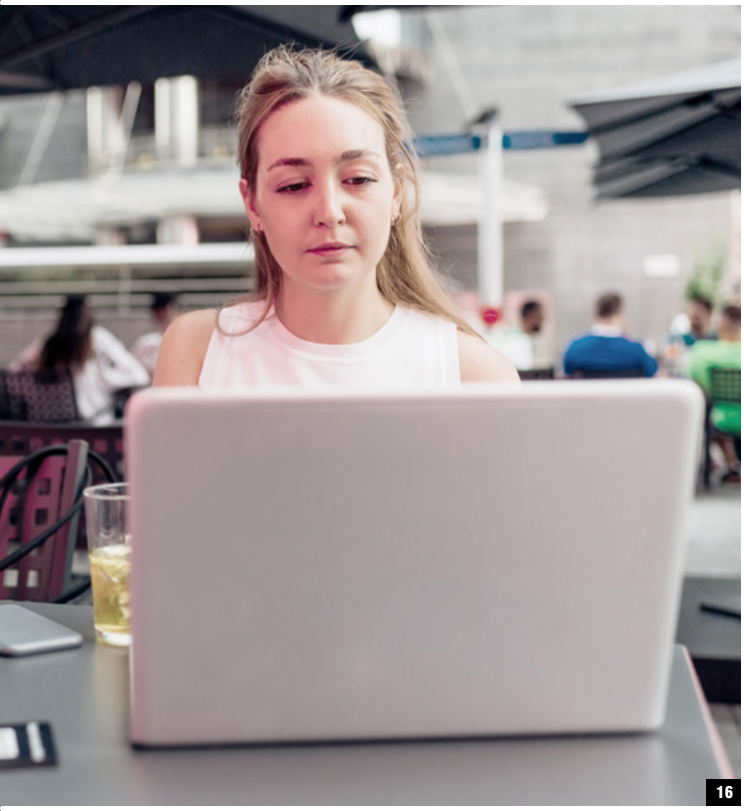
Do algorithms rule?

At the heart of digitalisation, algorithms are being increasingly questioned. The fact that most of them relate to statistics is pointed out. Often, they tend to homogenise everything, lock us into behavioural and ideological bubbles, prevent any capacity for innovation, be based mainly on transgression, and are unable to 'imagine a black swan' - a very rare situation never previously encountered. In the worst cases, they create gross injustices and are a source of racism. For numerical scientist Aurélie Jean, the culprits are not the algorithms themselves, but those who design them. For her, the owners of these tools need to show greater proof of pedagogy and ethics, and the users, critical thinking.

'Having a constant desire to learn; understanding change as an opportunity rather than a source of problems; and succeeding in circulating information within the company despite the differences in training, professions and languages are assets much more valuable than technical skills alone.'

today: a large number of students trained at the University of Luxembourg within the Interdisciplinary Centre for Security, Reliability and Trust (SnT) do not stay in the country, for lack of sufficiently attractive prospects. Massively attracting profiles from third countries will not be any easier either, for the same reasons. Witness the figures from the Global Talent Competitiveness Index 2021, an analytical report that compares how 134 countries around the world attract and retain talent. Admittedly, Luxembourg ranks eighth, but, on closer inspection, we see that it is struggling to fill its labour market with STEM (science, technology, engineering, mathematics) profiles. It is only in 57th place for availability of scientists and engineers.

Should we therefore conclude that a rapid digital transformation of the Luxembourg economy is doomed to failure? No, provided – as many experts have repeated time and time again – that all actors, whether large or small, public or private, change their modus operandi. What organisations need to conduct their digital transformation are not only incentives such as more accessible financial aid – the best known are *Fit4Digital* and *Fit4Innovation* – and possible tax advantages, but above all a new corporate culture. This means emphasising behavioural skills such as curiosity or teamwork. Having a constant



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desire to learn; understanding change as an opportunity rather than a source of problems; and succeeding in circulating information within the company despite the differences in training, professions and languages are assets much more valuable than technical skills alone. It also means a different management more focused on empathy, encouragement, coaching and trust rather than monitoring and coercion. Finally, this implies more room for women. According to the latest DESI report, only 20% of ICT specialists in Luxembourg are women (see Marina Andrieu interview). As for digital entrepreneurs, they can be counted almost on the fingers of one hand in Luxembourg. ▬

14. 15. Many initiatives and approaches are being put in place to make up for the lack of talent - for the youngest and for those already with an active professional life.

16. Involving the business world in digital transformation also means giving more space to women. Female digital entrepreneurs can almost be counted on the fingers of one hand in Luxembourg.

Marina Andrieu
Co-founder
of WIDE ANDCO

'The digital world is sorely lacking in female talent'

Since January 2022, your organisation, Women in Digital Empowerment (WIDE), has become a societal impact company. Why this change?
We wanted to go beyond raising awareness of 'Women and IT' by developing a new service offer focused on our areas of expertise: digital skills for all, inclusive entrepreneurship and gender equality. We address the public sector as well as companies and individuals, whether men or women. We also aim to encourage more men to follow our training courses on equality.

Despite the efforts made in recent years, women are still not very present in information and communication technologies (ICT). How do you explain the persistence of this inequality?
Stereotypes around women are still deeply rooted in our societies, right from early childhood. According to the testimonials we have collected from female entrepreneurs, they all tell us that they have had a lot of trouble being taken seriously and establishing themselves in a predominantly male sector. It is also a cultural issue. In Asia, there are almost more women than men in ICT because science and IT are considered fields of excellence that allow you to rise socially.

In addition to the problem of inequality that we have just raised, why do you think the IT sector should be more open to diversity?
For several reasons. Since women have to prove their worth more than men, they are often over-informed. I am always surprised to see that the participants in our training have already gathered a lot of information before coming to see us! Women also have a lot to contribute to product design. I am thinking in particular of artificial intelligence. Most algorithms are created by men and gender biases are often amplified by technology. Some applications or technologies are underused. This is the case for the FemTech dedicated to women's health. Finally, we at WIDE have long believed that greater parity in digital professions would be one of the solutions to the talent shortage. This is why we also want to facilitate the retraining of women by allowing them to gain experience in the service of projects with societal impact.