Head of the Polish Government's Industry 4.0 Project: “Our Goal is to Replace the System of Disparate Strategies with an Ecosystem Approach”

Andrzej Soldaty on why business in Eastern Europe is not in a hurry to get out of its comfort zone, whether we should be afraid of the robot invasion, and when the human brain retires

The fourth industrial revolution (also known as Industry 4.0) is already a reality for many countries around the world. According to a McKinsey report, 40% of the world's companies have switched to Industry 4.0. This means that cyber-physical systems, the Industrial Internet of Things (IIoT), 3D printing, augmented reality, and artificial intelligence are already being used in production, with artificial intelligence making some decisions in real time.

By 2025, McKinsey predicts that the annual contribution of the Internet of Things to the global economy will be $4-11 trillion. Additionally, Allied Market Research estimates that the industrial automation market size will reach $368.37 billion.

The transition of Ukraine to the fourth industrial revolution is still in its initial stage. Only a few companies have real cases of implementation, and nothing is happening at the state level in the direction of Industry 4.0. In contrast, the situation in Poland is quite different.

In 2016, the then Minister of Finance and Development of Poland, Mateusz Morawiecki, published the country's “economic roadmap” for the next 25 years.

The so-called “Morawiecki Plan” envisages investments of about 350 billion euros by 2040, with the goal of “strengthening Polish capital and increasing the innovativeness of Polish firms so that they are competitive in foreign markets.” A separate part of Morawiecki's “plan” is the creation of a platform for the implementation of Industry 4.0 in Poland - The Future Industry Platform, for which funds have already been allocated.

At the Trans4mation Forum, the first forum in Eastern Europe dedicated to Industry 4.0, Mind.ua talked to the Head of the board of The Future Industry Platform, Mr. Andrzej Soldaty. His responsibilities in the Polish government include matters of the fourth industrial revolution. We asked him how he managed to implement Industry 4.0 at Polish enterprises, what contributed to the success of this large-scale project with state participation, and what he thinks Ukraine needs to do in this direction.

- From the perspective of the fourth industrial revolution, what is happening in Poland? And how different is the situation in Ukraine?

- At the Trans4mation forum, I saw very good examples of understanding the fourth industrial revolution in Ukraine, as well as good practices. But it is always a question of what we observe. The picture can be quite different when you are directly inside the market.

In every country, most small and medium-sized enterprises are in the so-called comfort zone: they have good wealth, a big market, and fixed orders. The problem is that this comfort zone becomes their business goal, meaning they want to stay in this zone permanently.

In Poland and other Eastern European countries, most of the small and medium-sized businesses were started 25 years ago. It was very hard work for the owners and founders. They have spent their whole lives creating these businesses, and once they have achieved stabilization, they no longer want to change anything.

In Germany, for example, there are companies that have been around for at least three generations. This is a completely different approach. If a company has a long-term strategy, it is open to change. Such a company analyzes trends and makes decisions about further development based on them. This was the case with one international company I was involved in, and I am very proud of it. Its owner, who was 75 years old, told me, “I am looking for development trends until 2050.” So you can see how important a long-term perspective in business is to him.

Twenty years ago, he started to digitalize and create solutions in line with what we now call Industry 4.0. But he was not the first owner; he was from the second generation.

And now it's time for a generational change in owners. Because after 20-25 years in the company, they turn 60 and are looking for new managers for their business. These could be their relatives, heirs, or professional managers. This is an opportunity for Eastern European countries, which I would describe as follows: the change will be utilized by people who think in new ways. Those who can move beyond the operational to the strategic. This is exactly what I observe in Poland.

In other countries, the situation is similar, but not due to a lack of long-term planning, but again because of the aforementioned comfort zone. The business is developed, and the owners have reached a level that can sometimes be characterized as a “hidden champion.”

- A “Hidden Champion?”

- German professor Hermann Simon in his famous book “Hidden Champions” described companies that have a very specific culture. They focus on leadership in a certain area without strong brand recognition in the market. Such businesses excel in a specialized niche. They specialize in a narrow area, working with a single component, the importance of which few people are aware of.

These companies are satisfied with their results. They think along the lines of, “Digitalization is great, but at this point, we have everything we need to run our business.” So we return to the comfort zone problem. And I think that's a problem that stems from the top of the company. But there also is a reaction from people lower down in the hierarchy. Robotics, AI, automation, RPA (robotic process and factory automation) - these are the things that are perceived as threats to job security.

- And it scares them.

Yes. We have the problem of an aging population. My presentation at the forum showed two curves: one showed the change in the number of people over 65 years of age, revealing a dramatic increase (from 5% to 15%) over 100 years. That's an increase of 10%. On the other side, we see a decline in the number of children under 5.

What does this mean for industry and the economy? A decline in the labor force. By labor force, I mean workers in heavy, physical labor. People need to realize that new solutions create opportunities that will help them, not replace them.

For example, when an experienced worker performs repetitive work and has to move something constantly, his skeleton, muscles, and body suffer from the constant stress. Artificial skeletons are

created for such people. The human body just transmits signals, but does not do the work. The exoskeleton does it.

- But we know that's only half of the story. And the next step is a robot. Because a robot does not need to be paid, does not need to take care of its health...

- The robotization of repetitive labor, which I mentioned earlier, is typical of the third industrial revolution. In the fourth, we're talking about flexible robotization, where all mechanical components are controlled by AI and humans.

- AI only.

- Maybe, but that means that in this case the orientation is towards the brain. If we look at the current situation of the physical labor worker, it's simple: if the worker is not strong enough, a robot will replace him. But if you look at the human being from the perspective of brain power, then the potential of people is much wider.

And the analysis of the workforce of the future (while these are just simulations and calculations, I do not claim that they are necessarily correct) shows that 70 million people will lose their jobs because of robotization, but 170 million new jobs will be created. We need to think about how to prepare people for these jobs.

It turns out that the question is not about replacing humans with robots, but about openness of thinking and getting out of the comfort zone. People are in the comfort zone because they are strong, young, and ready to work. But we should also realize that in the future we need to stay active as long as possible. Activity should not stop at the age of 60. The main knowledge and experience are accumulated in the brain, which means that it is possible to work and operate a computer with the help of knowledge even at this age.

- How would you assess the level of implementation of Industry 4.0 in Poland as of today?

- It seems to me that it is the same as in other countries. To answer this question, we have to define what we mean by “the fourth industrial revolution.” If we focus on technology only, I can say that most companies already use technologies typical of Industry 4.0. Why? Because they were developed a few years ago. The companies have remote management, automated enterprise management systems (ERP), etc. Basically, these are already production standards.

- What is the outdated way of thinking?

- In eastern countries, there was a lot of investment in manufacturing, specifically assembly manufacturing, particularly because of the low wages and well-developed infrastructure. This is when someone created the idea for a product, and then mass production is set up.

Usually, the main criterion is productivity. But looking at the results of the so-called benchmarks of Industry 4.0 - the companies that have maximized their adoption of the latest technologies, such as the impact of digitalization on the product value chain... Are you following me?

- Not really…

- Digitalization gives companies advantages in every business cycle. Namely, in the research and development phase, the economic effect is 8%; in the production phase, it equals 28%. Then 48% in marketing and sales and 15% during after-sales service. It is important to note that Industry 4.0 gives much more benefits in the post-production phase (marketing and sales, after-sales service).

So you realize how big its indirect impact is on production and each specific sphere. Because this is a great opportunity for companies in the eastern region that have previously positioned themselves only as manufacturers. These companies can become even richer with their product because they have contacts with their product. They can learn about the customer experience of interacting with their product. For example, car bumper manufacturers who are now trying to produce those bumpers more efficiently, reducing costs, etc.

- But they don't know anything about the other parts of the car.

- Exactly. And now they can put a sensor in the bumper and get a huge amount of information. And they can cut costs, not on resources, but by improving production through deep knowledge of the product and its functionality. They will have better knowledge about the bumper than the manufacturer of an entire car. This is a great opportunity to reposition the production facilities here in the global value chain.

- But that doesn't mean a bumper manufacturer becomes a car manufacturer, does it?

- The manufacturer is not an expert at producing bumpers; he's an expert at making them functional. He supplies the function. He has sensors in all the bumpers, and he can identify their lifespan. He will have access to the information about their current state, and he can avoid problems in advance.

I will answer your question about the degree of implementation of the fourth industrial revolution in Poland today in this way: in terms of technology, most enterprises can say that they have implemented some of those. But from the organizational point of view, they are still in the comfort zone. They think: I have everything in perfect order, I don't need to think about it.

- Mateusz Morawiecki announced investments in the implementation of Industry 4.0 in the amount of 350 billion euros...

- I consider "Morawiecki's plan" as a guide for the re-industrialization of Poland. Industrial restructuring is about creating a new generation of industrial capabilities. Also, in the "Morawiecki plan," there is a platform for integrating all planned activities. I would call this plan the main axis of implementing reform activities both bottom-up and top-down. And in Ukraine, for example, the initiatives to implement Industry 4.0 come from the bottom up.

- Is Poland's plan for implementing Industry 4.0 working?

- I would say that from a practical standpoint, it is being realized. A platform was created based on a special law and a fixed budget for 10 years. Each year, a certain amount of 5 million euros is allocated. However, this money is meant to support the start.

- 10 years is a great start.

- Do not take the phrase about the start literally. The start of initiatives corresponds to the current development status. This means that this year, 5 million euros are directed towards measures to attract public attention. Our experts helped prepare a workshop program for managers. This program was commissioned by the platform for implementation in a specialized center.

- In which one? Your internal center?

- Yes, internal. The specialized center was created based on a bottom-up initiative. We announced this program and stated that it would be carried out by specific specialized centers. You can go there, test, verify, and see for yourself. I expect that in 2020 these centers will provide their services and also receive funds for startups.

We need to open the credit market for this initiative. I think next year we will not be paying the specialized centers but instead, we will invest money in consulting, and then in training, and later in infrastructure and testing. It is quite challenging to launch a new initiative in the market, so we need support from suppliers. The value they bring to the market is not yet recognized by anyone.

- Returning to your idea about the comfort zone… You can offer knowledge, but people are in their comfort zone. These people come to learn new things, like how to change a business model. Are they interested in this information?

- We have to consider the psychological impact. We don't say, "Hey! We have something for you." We try to convince them by saying, "Look how well your neighbor is doing."

- Typical Slavic thinking.

- They are very interested in success stories. This is not good because they should be interested in failure stories. Do you know what market participants in developed countries value? Managers will come to listen when another top manager describes their failure. That’s the big difference.

Based on my experience participating in various forums, I can say that here we are open to listening to success stories. He was successful – I will follow his example. In developed countries, managers pay big money to attend conferences where speakers talk about their failures. But this is the difference in levels of development.

- What do you think is the ideal balance of effort between the government and business in implementing Industry 4.0? Who should be responsible for what?

- The government should always provide support in the very beginning. When we talk about such major changes, they require market preparation. The government is responsible for raising awareness. No single company, even the largest, can achieve such influence. For example, in Poland, small and medium-sized businesses create 50% of the country's GDP, while the contribution of large technology suppliers is only 5%.

- But if the government's role is to provide support, then what is the role of business?

- To create public-private partnerships. In developed countries, initiatives typically begin with government funding and then progress through PPPs (public-private partnerships) and venture capital involvement, engaging the private sector.

- Why should they finance the growth of their competitors?

- This is a common question in Eastern Europe. Our goal is to shift from a segmented thinking system to an ecosystem approach: shared goals and a larger pie. With a bigger pie, everyone gets a larger piece.

- Is there anything that can replace the usual competition?

- The phenomenon of "co-opetition" (cooperation among competitors) is well-established in developed markets. It's a blend of cooperation and competition, aimed at expanding the pie so each participant gets a bigger slice.

- But the pie is not infinite. We have one planet and a certain number of people.

- Of course, but the current economy focuses on creating needs. Co-opetition can drive innovation and market potential through collaboration.

- How does this relate to Industry 4.0?

- A key aspect is interoperability. Have you heard of the "smart" factory in Kaiserslautern, Germany? It's a production line built by competitors. Technology and module suppliers like Siemens and Bosch collaborated, demonstrating solutions that are adaptable and optimal for various tasks.

- Does this "smart" factory produce such solutions?

- No, it's a demonstration factory used for testing as well. For instance, if you manufacture sensors, you could visit and propose installing them in a specific production line, leveraging the proven interoperability of your sensors with all necessary components.

- So, they don't produce anything but demonstrate technological possibilities?

- Production does occur, but it's part of a broader purpose. The main message is: a consortium of companies decided to establish new standards to foster market development. We need to change the approach from fragmented strategies. If Eastern Europe can do it, others can too. It's our future opportunity.

- What does Ukraine need to implement the Fourth Industrial Revolution?

- Your country already has well-established bottom-up initiatives. However, synergistic government support is crucial to scale these initiatives nationwide and influence the market. Professional associations could play a role but require governmental backing.