

# WE'RE ALL NEW TO THIS GAME

**PROFESSOR ELŻBIETA MACZYŃSKA**, President of the Polish Economic Society, talks to Jerzy Mosoń.

**PM** How much of a challenge does Economy 4.0 pose for the people of Poland? How much will they need to change?

It is worth recalling the definition of Economy 4.0. It's a derivative of the term Revolution 4.0. History proves that four technological breakthroughs have taken place so far. The first one was brought about by the introduction of the steam engine, which brought changes so profound that it was possible to switch over from single workshops to an entire industrial system. One of the consequences of modernisation in manufacturing were also systemic changes. Feudalism gave way to capitalism. Another symbol of that revolution was the weaving shuttle. Its invention resulted in a revolution in the textile industry.

Even greater changes took place at the turn of the 20th century, as a result of the introduction of electricity. Thus, the symbol of the second industrial revolution is the light bulb. In turn, the computer, which was developed in the late 1940s, became the symbol of the third industrial revolution. The fourth industrial revolution, which provides the basis for the development of Industry 4.0, or in the broader sense, of Economy 4.0, is something extraordinary, something we may not be fully aware of just yet. Its range is very broad, it is also comprehensive in nature. It consists in combining hard technology, for example the computer, with digital technologies and biotechnologies, including implantable devices. One example is the automotive industry - a driving assistance system will be able to capture eye movements to respond to hazardous situations with an alarm warning. In his book "The Inevitable," Kevin Kelly claims, and I agree with him, that we are all newcomers

to the depth of change, because we are not entirely able to grasp the extent of the industrial revolution. The current flow of information and knowledge creates just as many wonderful opportunities as problems. Take the recent case of Uber. At first, the reaction of most countries was to ban it. Now it turns out that all industries will need to have their own Uber, so to say. Those industries which will not open their door wide to the fourth industrial revolution, will be at the losing end.

**PM** Is science in Poland keeping up with these changes?

There is no simple answer to that. For instance, we have well-developed research in the fields of IT, physics, biology and mathematics, that is the sciences which underlie the fourth revolution. We pride ourselves on the excellent achievements of Polish scientists. On the other hand, cooperation between science and industry is much worse. Not many results of scientific research are translated into economic practice in Poland. As a result, the achievements of Polish R&D are more widely used in the West than in Poland. This country trails behind others in innovation rankings. The most perplexing are the results of the Global Talent Competitiveness Index ranking regarding the brain drain. Switzerland tops the list of countries which attract the most talent, while Poland is still a net talent supplier, which translates into its low level of innovation. So a lot needs to be done in this respect. It is a matter of the utmost importance, because countries which are the quickest to react to changes resulting from Revolution 4.0, will be the winners in the economic race. It is a challenge for both business and science, but



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also for the state, which should create a digital infrastructure for industry 4.0. The point is to be able to introduce artificial intelligence. However, for this to become an opportunity, you need education, especially targeted at people and institutions that remain in what is known as the digital gap. This includes senior citizens.

**PM** What do you think historians will recognise as the symbols of the ongoing Revolution 4.0?

The symbols of the fourth industrial revolution are artificial intelligence and robots, but these are different from the ones we have known so far. The new ones are able to learn, come up with new solutions and make decisions.