

HOME

>

News and Society: Economics

Czech Nanotechnologies - Optaglio and the Others

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The Czech Republic is a country with a similar population as Belgium or Georgia. It is situated on the border between "new EU" and "old EU". You may know Czech beer, but the strength of the Czech Republic insist mainly in technological excellence. Buying a BMW car or other advanced European machine, it is very likely that most of the things inside were produced in the Czech Republic.

But not only exact and properly made components. The Czech Republic is strong also in nanotechnologies. Optaglio is a good example. This company with less than 100 employees regularly wins over giant global anti-counterfeit technologies producers. It is the dominant player in some market segments. From its newly built premises in the middle of forests some 30 kilometres from Prague, it sends its products to more than 50 countries. These products, security elements, protect passports, ID cards, stamps, other documents and different brand goods. However, there are also other recognised Czech nanotechnology companies, such as Tuscan (microscopes), Biotech Generi (tools for genetic analysis) and Nano via (nanofibrous material).

How was this technology advancement reached? It has existed from the very beginning but was partly forgotten. In the 19th century, Czech countries were the scientific and industrial centre of Austrian Monarchy. In the time of communist coup of 1948, Czechoslovakia had higher GNP per head than Switzerland. The country stagnated during the communist regime, but even Kremlin dedicated the most sophisticated technology and development tasks to Czech engineers. The regime ended with Velvet revolution, and competition of corporations started a few years later. They did not compete for Czech resources but Czech technicians.

Czechs still retain their currency. Czech population is more sceptical towards EU than any other country. They keep their technological abilities, Czech students win many international competitions, and this vital resource is available to global companies. It is the reason why relatively low number new Czech companies are founded. However, you can find Czech on positions such as the head of British National Center of advanced materials, in leadership in Siemens development units, in headquarters of Microsoft, Google and HP. Most of the successful local companies were established before corporations entered Czech market.

Optaglio is an example. A group of physicists from Czech Academy of Science established this company soon after Velvet Revolution. A British investor joined later. After several year experiences, the British decided to move all their activities around the world into the Czech Republic.

In the meantime, Optaglio introduced several breakthrough innovations. As the first commercial company in the world, it replaced laser with a narrow electron beam. Unique visual effects that cannot be reached through any other technology followed. Microholograms was the next step. Microholograms are tiny nickel particles, appearing like metallic dust to a naked eye. Detailed inspection reveals regular shape, engraved pictures and full hologram on each grain. Product family for seamless integration of holograms into polycarbonate was another milestone innovation from Optaglio. Some minor innovations

came as well: extremely high-resolution holograms, resistant microholograms, 3D animations in holograms etc.

"You shouldn't be surprised that we are a technology leader. It is normal for Czech companies. On the other hand, sales and marketing are often weak points," says senior research manager in Optaglio Tomas Karenský. "Luckily, we manage to win tenders and sell our products with reasonable effort."

A similar story can be told about other Czech technology companies, and also about other factories owned by internationals and managed by Czechs. You will not hear about them because you buy their products under German brands.

Do not expect fast building technical capacities in a region without long industrial history. Even the most advanced industrial sectors, such as nanotechnologies, need to be backed by strong technical and manufacturing tradition. Building such base needs at least a century, perhaps more. It is the reason why regions with strong industrial history are winning also in nanotechnologies. It is unlikely that such advantages can be eliminated by massive investment into recently built scientific capacities. The Czech Republic is a good example of this "tradition is king" principle.

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