

ASSOCIATION OF HUNGARIAN INVENTORS (MAFE)

www.inventor.hu ✉ genius@inventor.hu ☎ +361 220 3040, +3620 945 8078

András VEDRES:

The necessity of patents on computer implemented inventions

Introduction

Inventions – novel and un-obvious technical creations – are necessary for our day-to-day life. The motto of recently deceased Arpad Bogsch, inscribed on the cupola of the World Intellectual Property Organization, is the best expression of this idea:

HUMAN GENIUS IS THE SOURCE OF ALL WORKS OF ART AND INVENTION THESE WORKS ARE THE GUARANTEE OF A LIFE WORTHY OF MEN IT IS THE DUTY OF THE STATE TO ENSURE WITH DILIGENCE THE PROTECTION OF THE ARTS AND INVENTIONS

Protection with diligence is guaranteed by patent laws. In the beginning, when the first patent law was created in 1474, inventions were mechanical machines. As technologies advanced, further areas were included in patentable inventions: such as processes, plants, drugs, animals, etc. Forms of artistic creations are expanding as well. Think about photography, film, or even computer algorithms. The development of technology is a process of science and inventions interacting – the interaction of knowledge and creativity. Knowledge accumulated in a given area leads to inventions, and inventions can generate new scientific areas. One example for this is computer technology that started from the scientific achievements of Janos Neumann, among others. Several inventions were born out of this scientific specialty, such as the computer itself, and several original works were authored, such as computer programs.

Creations are in an interaction with one-another. Inventions can start new branches of art, as photography started cinema. The flipside of this is when creative works open up new areas of science. The best example of this is when computer programs become organic parts of technical creations – and here we already arrive to the question of the patentability of computer-implemented inventions.

It is easy to see that computer implemented invention is a new form of technical creations, and thus its legal protection is a necessity. There are two elements to these inventions: a more “classical” invention part, and a copyright part, namely a piece of software. The question is which aspect should dominate in legal protection. In order to simplify legal regulations and to eliminate ambiguities, the trend in legislation is to follow the US in making computer implemented inventions patentable. These inventions will become patentable all around the world together with their software parts. This is an objective necessity.

The effects of changing the patent law

Effects on innovation

Innovation is an accelerating process all over the world. This is indicated by the increasing number of patent applications. The number of technical creations per year was four hundred thousand thirty years ago, while now is close to one million. The drop in this curve between 1990 and 1995 is due to the collapse of the socialist regimes in Eastern Europe.

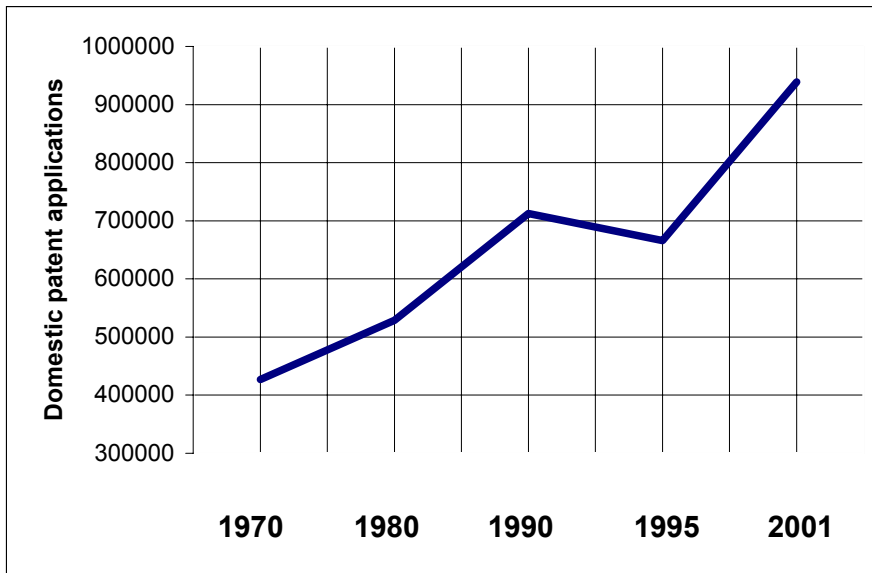


Figure 1. – The number of inventions in the world.

The most important weapon of global economic competition is innovation. In the nineteenth century Europe was the leading world power in innovation, then the US, Japan, and South-Korea overtook it.

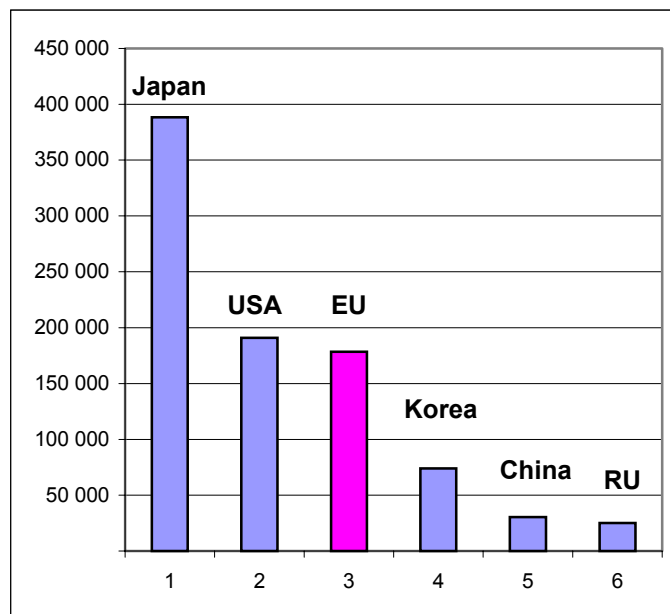


Figure 2. – The number of domestic inventions in 2001 in leading countries.

In the US there were more than one hundred ninety thousand inventions created in 2001, while there were one hundred seventy eight thousand in the EU. The EU decided in 1985 that increasing innovation potential should be a priority in order to compete with the US. There were several plans to accomplish this, and much money was spent. In spite of this the EU Commission state that the innovation potential of the Union did not improve by 2000. The expansion of the Union did not help this, the contribution of the newly admitted countries to innovation is still small.

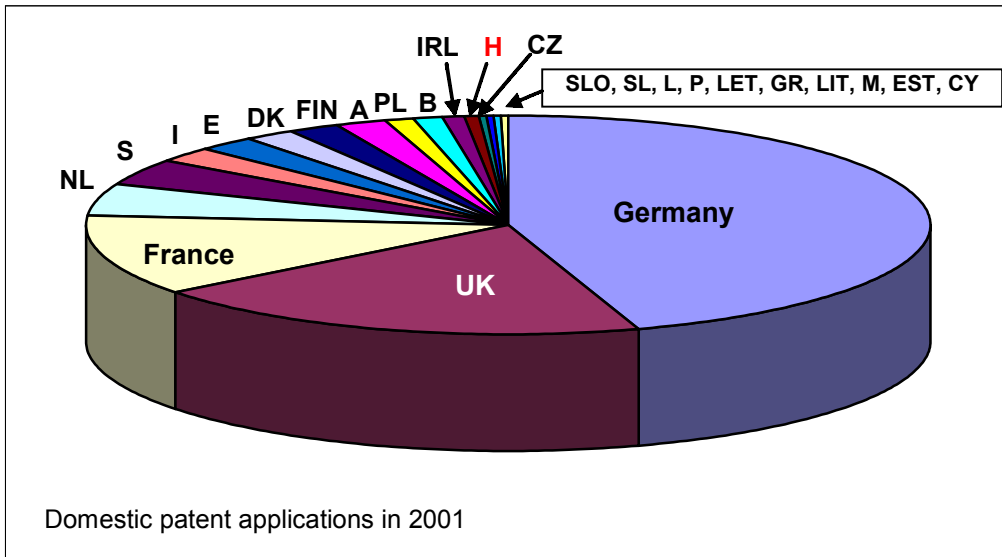


Figure 3. – EU “innovation cake”

In order to increase EU innovation potential, the EU should unify its patenting practices, creating the “EU patent”. Member states should implement measures that proved to be successful in the US in boosting innovativeness. This can be measured by the number of inventions in US compared to Japan.

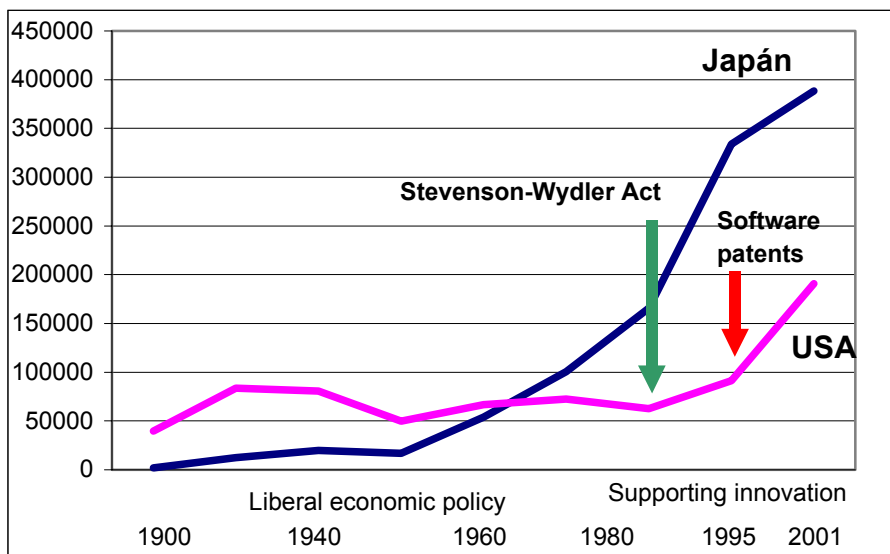


Figure 4. – The development of innovativeness in the USA between 1900 and 2001

The tools applied in the US were the following: a good law on innovations (Stevenson-Wydler Act), support for the innovativeness of small and medium size enterprises, and the introduction of patentability for computer implemented inventions. The innovation potential of the US started to increase rapidly due to this last measure. (As it is indicated by the slope of the US curve on figure 3.)

The patentability of computer implemented inventions opened up business opportunities in the US. According to estimates there were almost forty thousand patent applications for computer implemented patents in the US over the last five years. This number is well above the total number of patents in Hungary over the last 25 years.

I attempted to have an exact count of the patents that concern computer implemented inventions. I used the database of the European Patent Office (EPO). This contains more than thirty million documents, a real treasure trove of the patents of the world. The result of my searches show that the phrase “computer program” appears in 17 966 documents, while the word “software” appears in 12 924 patent descriptions. There are 210 texts containing both. This means that there are 30 680 patents that are potentially about computer implemented inventions. 70 percent of these were created in the USA, and the beneficiaries are Americans. Two thirds of the rest are of far-eastern origin. Only five percent are of European origin.

The fastest growth in computer implemented inventions is in Asian countries. For example, the majority of Malaysian inventions on display at the IENA international exhibition in Nuremberg were computer implemented.

We can be certain that computer implemented inventions will be decisive elements in the progress of technology.

Expected effects in Hungary

Following changes in technology, as computer technology diffused Hungarian inventors created computer implemented inventions. Patent applications for several of these were made at the Hungarian Patent Office, and then at patent offices of the US and several other countries.

I made searches in the Hungarian patent database to find out the number of such patent applications, and to draw the trends of computer implemented inventions.

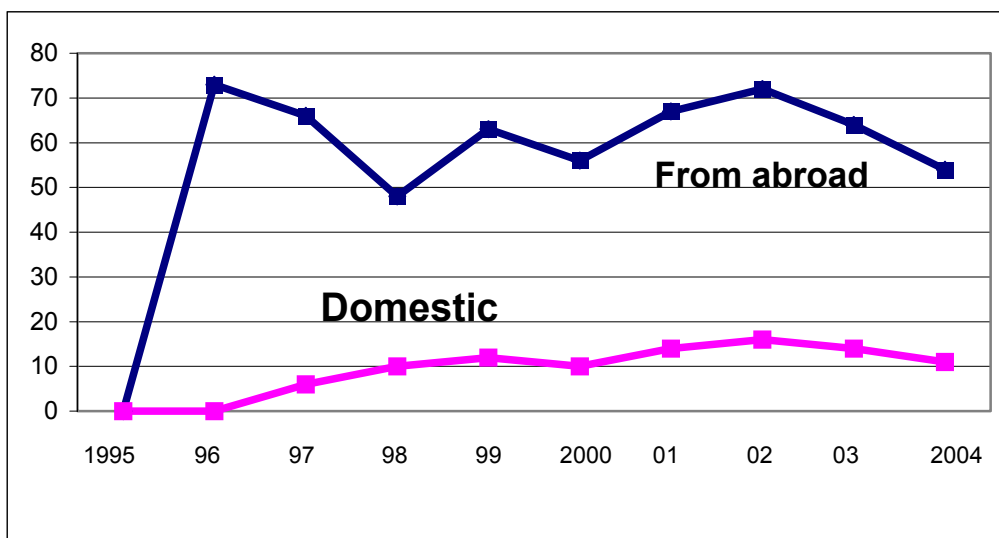


Figure 5. – The number of computer implemented inventions in Hungary

The first year of patent applications for computer implemented invention from abroad was 1996. There were 73 such applications. Hungarian inventors started in 1997 with 6 applications. Up to today there are 225 applications from abroad, and 61 applications from Hungary.

There are about 10 inventions from Hungary every year, and most of these were successful outside Hungary as well, and were implemented.

The activity in Hungary regarding computer implemented inventions is low. Such patent applications are only about 1% annually. There are some signs for an increasing trend. We can also state that computer implemented inventions are more successful, about 30% of them are already implemented.

Hungarian inventing is at its lowest point of the last one hundred years. In this situation all tools should be used to increase innovativeness. Computer implemented inventions could be a new area where Hungary can take a leading role, instead of being a follower of others. It would be important to activate creative powers in this area, that needs first of all the security of legal protection. This was an important factor in the USA as well.

Innovation offensive from abroad and a chance to break out

Patents from abroad can block markets and limit domestic production. The number patents from abroad indicate the size of the innovation offensive.

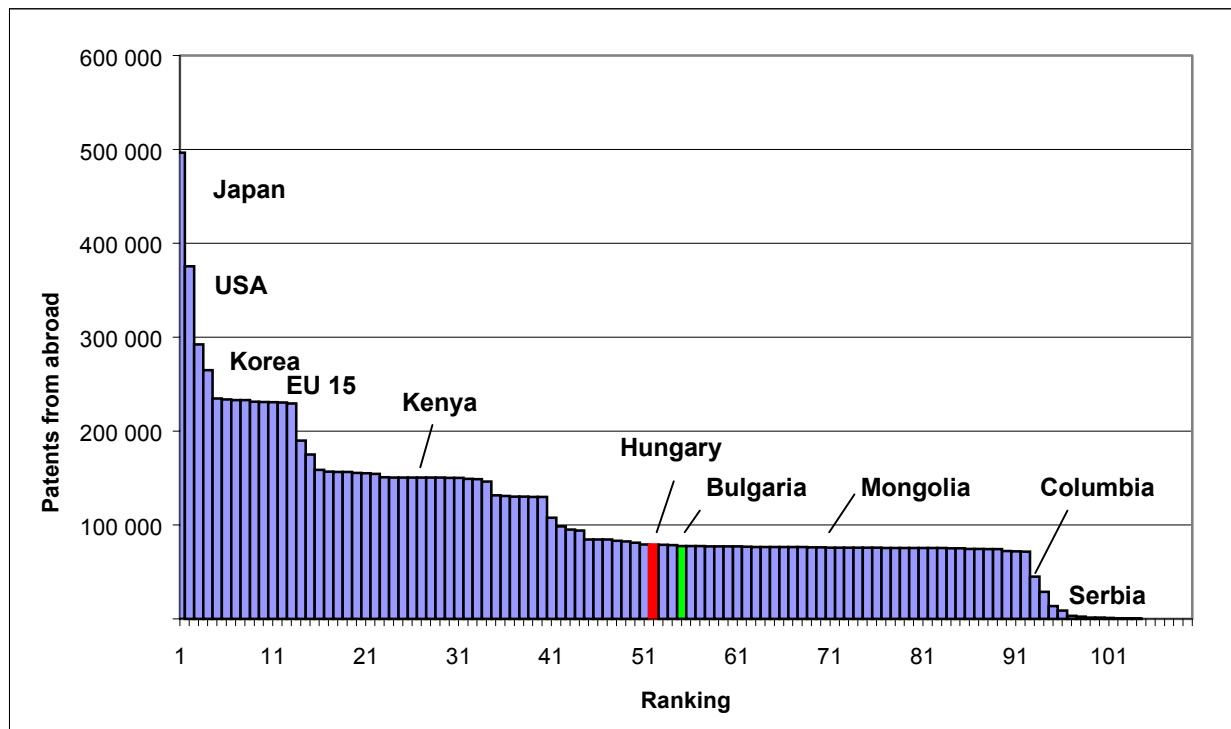


Figure 6. – The size of innovation offensive in various countries.

Between 500 thousand and 200 thousand patent applications from abroad characterizes the most important countries with respect to innovation (Japan, US, South-Korea, EU-15), while between 150 thousand and 100 thousand applications go to countries with still considerable economic importance.

Such countries typically have important resources, or have large domestic markets (such as Kenya, and some Asian and Latin-American countries). Countries of lesser importance, such as Hungary receive about 70 thousand patent applications from abroad.

The only way to fend off the innovation offensive is to invent domestically. This ability to respond by domestic innovativeness is shown on the next figure, that indicates the ratio of domestic to foreign patent applications in 2001.

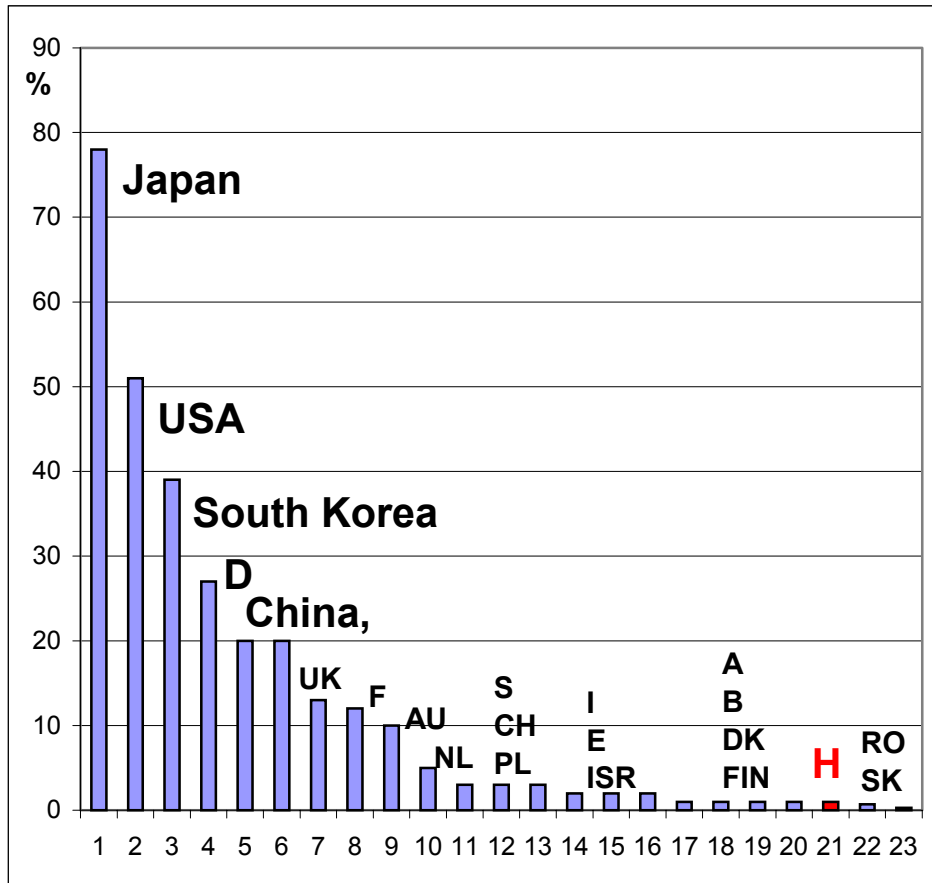


Figure 7. – The ability to fend off the innovation offensive.

It is only a handful of countries where domestic inventors can create a number of inventions comparable to applications from abroad (with domestic applications reaching at least 20% of the applications from abroad).

Some countries (UK, France, Australia, Netherlands, Sweden, Switzerland, and Poland) are able to respond with a smaller but still significant portion of domestic inventions (4 to 15%), but the other countries – with Hungary included – are colonized in terms of innovation. In these economies the response to the innovation offensive is less than 2% domestic applications.

Figure 8 shows that domestic inventors create an insignificant number of inventions, compared to applications from abroad.

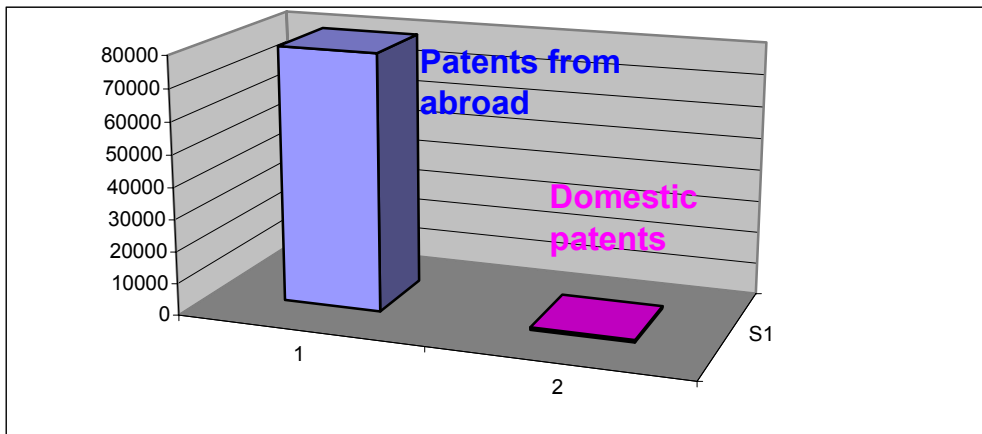


Figure 8. – Domestic and foreign applications in Hungary.

The following figure indicates that in computer implemented inventions, the domestic share is much bigger.

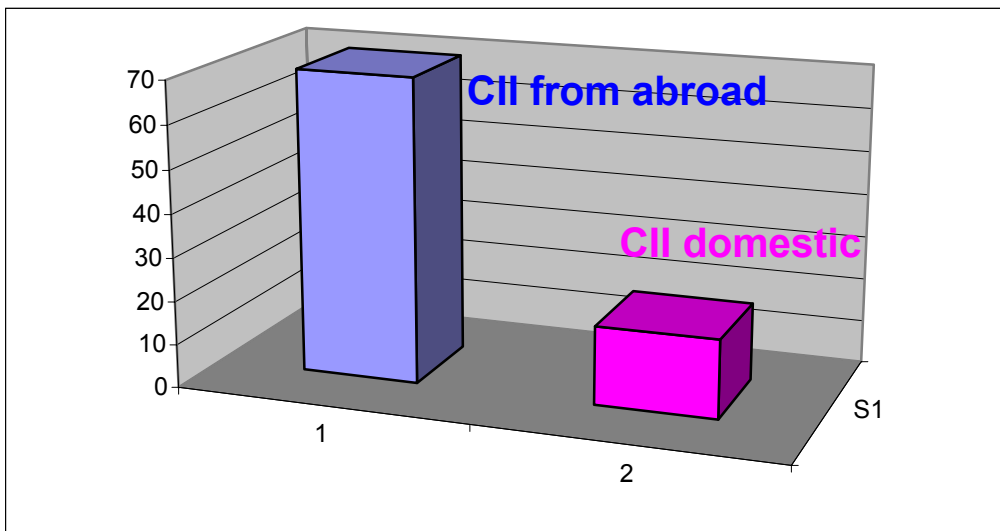


Figure 9. – Domestic and foreign computer implemented inventions patent applications in Hungary.

This larger proportion indicates the talent and creativeness of domestic inventors and programmers in this area – a chance for breaking out.

Relations in the world are shaped by “big players”, but we should not think of these relations as inevitable. There are examples over the last 25-30 years that goal-oriented and conscious economic policy can help a country to get to the top – and it can lead to its demise as well. An example that is relevant here is the comparison of South-Korean and Hungarian innovation and economic output.

Figure 10 shows patenting and GDP per capita for these two countries between 1986 and 2001.

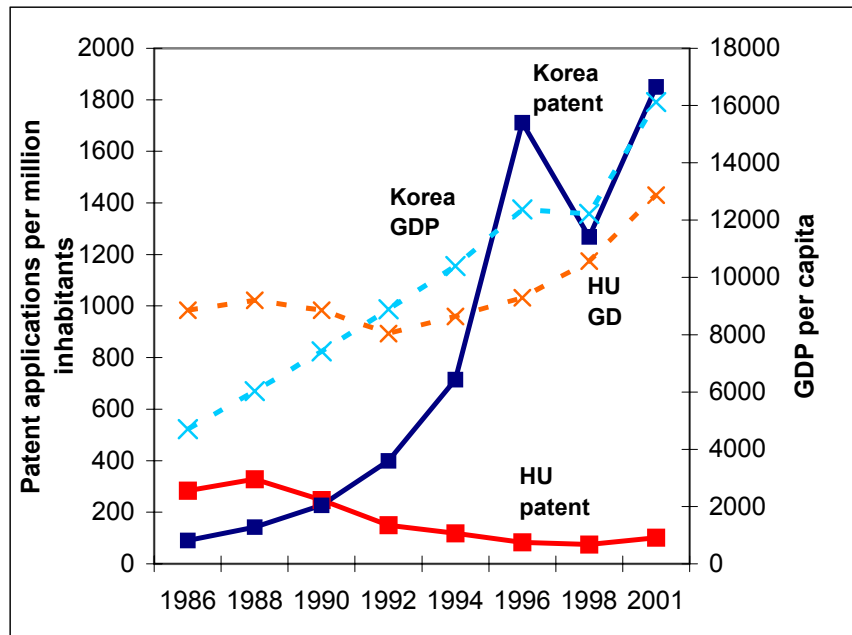


Figure 10. – Hungary being overtaken by South-Korea

The economy of Hungary was superior in both respects to the South-Korean until the nineties. Then Korean inventors “got enlightened” while in Hungary the sources of creativity ran dry. South Korea is now one of the most developed countries, while Hungary fell back. This was achieved by the support of inventing in South-Korea, with little spending on science. In Hungary innovation was supported “in general”, and much was spent on science, compared to the little support to inventing. Korea reached a state where innovation processes support themselves, become automatic, and lead to further innovation.

The example of South-Korea shows that there is a chance to break out even in a globally linked world economy. The recipe is simple: inventing – patenting – application (these together are the innovation process), and then newer inventions, and so on.

There are inventions that more in line with the technology of the day than others. The realization and application of these inventions have better chances, compared to outdated, or too futuristic inventions. The technology of our age is in line with computer implemented inventions. The combination of a computer and a specialized computer program creates such novel technological applications, that – if patentable – create opportunities for breaking out. These inventions can empower countries that have little weight in the global economy. This leads to the necessity of patenting computer implemented inventions.

Conclusion

The advance of technology makes it necessary to introduce patent protection to computer implemented inventions in the EU. This patent protection would increase the competitiveness of the EU and Hungary. Computer implemented inventions offer a chance for Hungary to break out from a peripheral position.