The alternative visions of Poland’s development are not forecasts; they have been constructed based on scenarios developed under the National Foresight Programme Poland 2020.

Edwin Bendyk: „Polityka” magazine commentator; director of Institute for Future Studies of Collegium Civitas; member of the Main Panel of the National Foresight Programme Poland 2020.
The challenge of the future

The future fuels modernity. It is the belief that human action can make tomorrow better than today that motivates individuals and communities to take on creative challenges. Poland too faces the challenge of the future. The combination of the benefits of the transformation from real socialism to liberal democracy and market economy on the one hand, and of the results of European integration on the other hand, provides a unique opportunity for rapid modernization. What country will Poles live in 2020? Will Poland of 2020 live up to their dreams and aspirations? What can and should be done to make these dreams come true?

Answers to these questions have been sought by the participants of the National Foresight Programme Poland 2020. Foresight, i.e. “a systematic and comprehensive process of identifying long-term development trends and areas of science and technology that are of key importance for maximizing social and economic benefits”, is a proven tool of long-term strategic reflection. It combines sophisticated statistical methods with techniques stimulating creative imagination in order to unveil likely future development scenarios. Foresight projects are used in the management of states, regions and corporations in order to support strategic decision making in an increasingly complex and difficult environment.

Almost three years of work, about three thousand experts and twenty research areas – this, in short, is the scope of the National Foresight Programme Poland 2020. It began in December 2006, long before anyone had thought about the possibility of a global economic crisis. The problems of the day were attributable to excessive growth rate of the global economy: the price of oil soared to US $ 150 a barrel, hunger riots broke out in Burkina Faso and many other countries as a result of an unprecedented rise in food prices, the IPCC (the UN Intergovernmental Panel on Climate Change) announced its Fourth Assessment Report, highlighting the seriousness of the climate crisis and the possible consequences of the failure to act, i.e. to reduce human-related greenhouse gas emissions.

When in the summer of 2007 the subprime mortgage bubble burst on the American financial market, few saw that as a sign of a looming disaster. That began a year later with the collapse of the Lehman Brothers bank and of the world financial system. Even today, it is still difficult to grasp the very scale of the crisis, let alone forecast its impact. Is there any point, under the circumstances, in trying to reflect on what might be beyond 2020? The answer is: definitely yes – the objective of the Foresight exercise is not so much to forecast the future as to help prepare for it, regardless of what it might bring.
The National Programme was designed to answer a number of questions, the most important of which were: How to ensure sustainable development of Poland until 2020? What scientific policy will best support this goal? What are the most promising economic sectors? What technologies and industries could Poland specialize in? This vast range of issues was divided into three research areas: Sustainable Development of Poland, Security and Information and Telecommunications Technologies.

Development scenarios for Poland until 2020 are the most important output of the NFP Poland 2020. They were developed as a result of analysis of possible development trajectories and of the interactions of key uncertainty factors that will have a crucial impact on Poland’s future. These factors include the following:

1. **International integration.** Will the world manage to overcome the present crisis and return to the path of peaceful integration, building new institutions that will help solve global problems and enhance sustainable development of the global economy?

2. **Internal reforms.** Will the Polish political class succeed in developing and implementing the necessary far-reaching reforms of public institutions so as to unlock the development potential of our country?

3. **Knowledge-based economy.** Will we manage to promptly pool today’s most important resource – knowledge, by developing intellectual capital, increasing our research and scientific potential, improving the efficiency with which the economy absorbs knowledge and innovations, and participating in the development of new forms of production and new ways of disseminating knowledge?

4. **Public acceptance.** Will the Polish society actively participate in the changes by supporting difficult but necessary reforms and mobilizing its potential for innovation and creativity?
Five scenarios were developed as a result of analysis of the possible ways in which the different key factors may evolve:

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These scenarios are not forecasts. They illustrate possible alternative shapes the future might take. They focus on revealing factors that may disrupt the continuity of development processes, and attempt to sketch events depending on which discontinuity factors change the course of history and in what way.

The main purpose of the scenarios is to prompt creative minds to reflect on the future. Therefore, in this paper we decided to present the NFP Poland 2020 scenarios in fictionalised form, so as to catch a glimpse of how Poland may appear from the perspective of 2020 and beyond. How will Polish and foreign journalists and analysts describe the decade 2010-2020? What will their readers in 2022 or 2025 learn about Poland’s achievements in that decade?

Here are four stories:

1 **Cool Polonia, i.e. the Civilizational Leap scenario.**

   A journalist of the South Korean website “International Courier” reports from Poland, presenting his analysis of “the Polish decade”, i.e. the hugely successful national modernization programme that took advantage of the favourable external situation and combined bold political measures with broad public participation. Poland of 2020 is a modern country with high-tech industries playing an increasing role in the economy and with a vibrant and attractive culture that is becoming an important asset in economic development and in building competitive advantage.

2 **The European Dream, i.e. the Demanding Adjustments scenario.**

   An interview with Krzysztof Rybacki, European Union Commissioner for Research and Education. “We could have done better” – Rybacki concludes, as, although Poland has been developing and modernizing itself steadily, it is now quite clear that low level of social capital is becoming a serious development barrier, as forecasted by some in the first decade of the 21st century. To some extent, this shortcoming is counterbalanced by the government’s determination to make the best of the good external situation, including European integration, and to implement development-oriented reforms that cover, among others, a major overhaul of the knowledge system.
3 The battle for Poland, i.e. the Difficult Modernization scenario.

In his letter to Oxford University Press, John Willis, a British journalist, presents an outline of his book about Poland. Despite the protracted crisis that began as an economic downturn, but after 2010 evolved into a global political crisis coupled with disintegration of international structures, the Polish society is preparing for a civilizational leap.

4 Lost illusions, i.e. the Declining Growth scenario.

Members of the “Poland’s Future” think tank publish a report on Poland’s wasted opportunity. Despite the global crisis of the first decade of the 21st century, the country’s economic situation was relatively good, but Poland failed to use it to implement development-oriented reforms. The abandonment of the transformation of the knowledge system has proved particularly costly. The education sector underwent purely cosmetic changes and the condition of Polish science is gradually deteriorating due to drainage of young staff. The old weaknesses of the Polish economy, such as the lack of innovation and poor cooperation with the R&D sector, persist, while factors that had traditionally been the driving force of development, such as cheap labour, have become irrelevant.
COOL POLONIA
The Civilizational Leap scenario
Poland, another stage in my tour of Europe. The way I travelled from Berlin to Warsaw shows just how much Poles have achieved in the past decade. The high speed train covers the 600 km distance in two and a half hours while twenty years ago a journey between the capitals of Poland and Germany took me almost 6 hours. But this is not all. As travel times have been cut, so has the political and economic distance between Poland and the richest EU countries. Although Poland’s per capita GDP of over 70% of the EU average indicates how much still remains to be done, our own Korean experience tells us that what really matters is not so much the absolute figures as the growth rate and that, in Poland’s case, has been two to three times higher than that of Europe’s “old” economies.

„Let’s Talk“, one of Europe’s leading mobile Internet instant messaging services, is among the icons of this new, dynamic Poland. Fifteen years ago we were still in the process of overcoming our complexes and fears against expansion to other markets. Capital was scarce. On the one hand, the relatively large Polish market offered opportunities for the development of new services, but on the other hand, the fact that it ensured fairly good earnings made it easy for businesses to settle for what they already had Jan Szymczyk, CEO of „Let’s Talk“, explains. Poland struggled with its label of a non-innovative country, we were always lagging behind everyone else on various international ranking lists. At the same time, we had scores of excellent young IT specialists, excelling in all of the world’s most important IT competitions. It was precisely their skills that motivated many global high-tech corporations, including Korean firms, to establish software and technology development centres in Poland. The only little thing that remained to be done was to redirect the country’s economy so that this human potential could bring about the success of the entire nation.

The sequence of positive changes was sparked off by the memorable global economic crisis that began in 2008. Poland’s economy proved to be relatively resistant to outside economic turmoil. The influx of tens of billions of euros from EU funds helped sustain local demand and finance infrastructural projects. Poland was not only building new roads, but also communications networks and research laboratories. When the crisis broke out, I was one of the many young Poles working in the United Kingdom, designing websites. When the boom on the Isles came to an end, I returned to home town with an idea for a business of my own, Szymczyk recalls. He timed his return perfectly, as mobile Internet in Poland was about to ride a great wave of popularity. At the same time the Government, implementing its information society strategy, decided to open up huge public databases, archives, scientific publications and digitized cultural heritage collections. Hundreds of industrious Poles joined the gold rush in digital Klondike. Every day new innovative firms emerged, offering cell phone internet services, and new IT companies developed cutting edge solutions in such fields as cryptography, network security, artificial intelligence.
and syntax analysis. Greater supply of attractive services led to greater interest in the Internet; growing demand continued to stimulate the supply side while the increasingly wealthy firms of the “mobile Internet boom” began to turn to research institutions with proposals of joint projects aimed at raising the technological level of their solutions.

As is often the case, Poland’s boom eventually turned into a speculation bubble which burst midway through the second decade of the century. The brief downturn spared those firms which had invested in new, outstanding technologies and expanded to foreign markets. Szymczyk’s „Let’s Talk” found itself among the forerunners who had made excellent use of the fledgling market and of the potential of Polish laboratories and then went international, benefiting from the integration of the huge European market. *Poland’s access to the eurozone in 2014 was another impulse that increased our competitiveness. The move from national to European scale proved to be as easy as the move from voivodship to national level*, Szymczyk remembers.

The “mobile Internet boom” was important not only because it turned Poland into an ICT and technological hub of global significance. The associated outburst of creative energy that quickly spread to other economic sectors proved equally consequential. The Poles discovered, in a similar way as we, in Korea, had discovered in the 1990s, that culture can drive development and be an important part of their country’s exports. When a new wave of artists took to making films, TV series and computer games, it turned out that not only do they sell very well abroad, but that they are an excellent way to promote the country. In 2004, when Poland joined the EU, it was personified abroad by the famous image of the Polish plumber, a symbol of Polish nomad specialists and artisans, roaming the world in search of well-paid jobs. Ten years later, the term “Cool Polonia” was coined to signify the popularity of New Poland’s products; Polish hybrid buses in cities across Europe and beyond, the inspired Euro 2012 Football Championships, organic food, high-tech firms like „Let’s Talk” and the country’s attractive cultural offer have changed Poland’s image. The backwater country in the frontier zone has become an attractive destination for tourists, businessmen and scientists.

This would not have been possible without the determination of Poles, combined with favourable circumstances. Young people like Szymczyk discovered that the Internet offers not only business success opportunities but also ways to bring people together and play a greater role in public life. Some of the more perceptive politicians quickly understood that it is better to have this great public energy on their side, as fighting it would be quite hopeless (remember the 2002 presidential election in our country). The success brought about by the opening up of databases, as well as digitized cultural heritage and scientific resources, encouraged the government to take still bolder steps in implementing innovative management methods. This in turn helped gain the political capital necessary for the building of a far reaching national development strategy.
Poland’s greatest challenge was, and continues to be, the modernization of its energy sector. The outdated, poorly funded and largely coal-based energy industry was a great threat to future development, especially after the EU adopted new greenhouse gas emission targets in 2008. The Poles decided that the billions of euros of investments needed to restructure the sector should not be spent exclusively on buying foreign technologies, but should also be used to develop local industries. Poland’s first nuclear power plant, put into operation last year, is but a part of a grand plan under which an international consortium, including Polish scientists, has been working on the development of a high-temperature nuclear reactor. Such reactors are soon to become the source of heat in chemical plants that use coal as raw material for organic synthesis. The Poles believe that this coal-nuclear synergy will be one of the green ways to utilize the country’s still plentiful coal deposits.

That was just one example of a holistic approach to problem solving. However, Poland’s success would not have been as spectacular, despite the whole array of other reforms covering science, education and public finance, if not for the favourable external circumstances, including, most importantly, further integration of the European Union which, having overcome the crisis of 15 years ago, began to eagerly search for new development stimuli, focusing on innovation and knowledge-based economy. As a new and less developed member of the EU, Poland was entitled to economic assistance until 2020. It used this time to remodel itself so that today Polish businessmen and scientists are able to compete with their peers from other countries for participation in the most advanced research and technological projects.

My journey comes to an end in Gdansk, where I took part in celebrations commemorating the 35th anniversary of the fall of communism. This seaport city, where the anti-communist Solidarity movement was born during the shipyard workers’ strike in 1980, forms, together with the neighbouring cities of Sopot and Gdynia, a bustling seaside metropolis that boldly competes with Stockholm and Helsinki. Twenty years ago, during my previous visit, it was cheap beer that gave the city competitive edge. Today is different, although I did have a beer to cool down after what I had seen in the city’s R&D centres working on green energy technologies.

YBK
THE EUROPEAN DREAM
The Demanding Adjustments scenario
Interview with professor Jan Rybacki, EU Commissioner for Research and Education

Professor, it has been almost twenty years since Poland’s accession to the European Union. How would you sum up these two decades?

Prof. Jan Rybacki: As an EU Commissioner I will begin with the European perspective. The Union has successfully passed the tough test it was put to by the great crisis of 2008-2010. As you remember, the crisis plunged many developed, strong economies into a recession deeper than any other since the end of World War II. Many analysts feared that European integration would fall victim to protectionist policies and national interests. Fortunately, these fears did not materialize as EU leaders chose to use the crisis as an opportunity to modernize the European economic system and as a signal for what I call a “green transformation” that is, a transformation that not only restructures the economy to make it compatible with the goals of the climate policy by reducing greenhouse gas emissions, but also promotes the development of new technologies and, consequently, new industries based on these technologies.

Naturally, we all know perfectly well that the European Union does not define the economic policies of the individual Member States. Rather, it sets certain boundary conditions, such as the climate and energy package adopted in 2008. The package defined the Member States’ commitments, but it was up to the Member States themselves to choose ways in which to face the new challenges. Poland lobbied very effectively to modify the final shape of the package so as to gain time needed to modernize its energy sector. Unfortunately, it did not make excellent use of that time.

Where did we go wrong?

I think our greatest failure was the lack of a long-term strategy aimed at achieving green transformation. Fifteen years ago we presented a defensive approach to climate policy problems, wasting time on idle sceptical discussions about the consequences of climate change and on the protection of the interests of the energy lobby. Had we actively joined the leaders of change, we would have had a better chance of participating in the development of new technologies. Instead, when carrying out the inevitable modernization of the energy sector, we had to basically rely on imported solutions, because by the time we understood the stakes underlying the climate and energy package it was too late for developing solutions of our own.

We also failed to recognize early enough that in a knowledge-based economy, culture-based industries are just as important as industries relying on pure technology. Today, culture contributes to economic development directly, as well as indirectly, by creating an environment conducive to innovation. On the other hand, although things could have gone better, the overall outcome of Poland’s two decades in the EU is not bad at all.
What were our greatest successes?

We did a great job with the way we absorbed EU structural funds. When travelling on Poland’s high speed trains, one should remember that many elements of this modern network would not have been built without EU assistance. These development projects allowed major Polish cities to integrate with the global inter-metropolitan exchange network. Their position in this network is determined by their intellectual potential, which has grown immensely thanks to both the deep reform of the higher education system and the unprecedented investments in the development of research infrastructure, financed mostly by European funds. This may not be politically correct, but I think the quality of Poland’s intellectual capital is higher than the country’s capacity to fully utilize that potential. This is why many talented young people decide to go abroad to pursue scientific and professional careers away from their homeland.

Let me then ask you a politically incorrect question: did it make sense to invest so much in the development of knowledge infrastructure and in the modernization of the science and education system, if most of the benefits are reaped not by Poland, but by others?

Well, even so, the building of the foundations of a knowledge-based economy must definitely be seen as one of the greatest achievements of the ruling class. It is true that the development potential thus created is not being fully utilized. But think where we would be now if reforms of the knowledge sector had been abandoned. That was a really tempting scenario at the turn of the first decade, as the crisis and the growing budget deficit did not encourage any radical reformatory steps. Many analysts argued at that time that the way forward should be to focus on developing conventional infrastructure, paid for by EU funds, and to attract foreign investors with prospects of cheap labour force. Had Poland listened to those advisors, today we would not be able to compete for European funds, as the rules for allocating them have changed. Today, the purpose of EU funding is first and foremost to improve the competitiveness of Europe’s economy, so it is only natural that the most innovative and scientifically advanced players are the key beneficiaries.

Despite these achievements, to say that Poland’s economy is truly knowledge-based would be an overstatement. It is still dominated by low and medium-tech industries, while businesses based on advanced technologies are limited to very specialized niches.

That’s true. This is because Poland has not been able to carry out sufficiently radical reforms of public finance and social security systems and the business environment is still less than satisfactory. In effect, the costs of economic activity are very high due to taxes and various social security premiums and instruments for promoting innovative businesses are still wanting. Poland’s progress regarding mobilization of its work force is still painfully slow and the percentage of working women is scandalously low. Women are more educated than men, but they have difficulties in accessing the job market. This is sheer wastefulness.
From what you say, it looks like Poland is working below par. Why is this so, if our intellectual capital or, simply speaking, our level of education and competence is constantly growing?

Unfortunately, this growth of intellectual capital has not been accompanied by a similar growth of social capital. Towards the end of the first decade, sociologists warned that the low level of social capital, reflected in people’s unwillingness to cooperate with each other, in mistrust and in the low level of social activity, would eventually become a serious obstacle to development. The Poles’ low level of social activity results in their invariable lack of interest in politics. Politicians who see how little support they are able to gather during elections are well aware of the weakness of their mandate to implement radical reforms. They are exposed to hostile reactions of organized interest groups whose demands are not counterbalanced by the voice of the civil society.

The low quality of social capital is also reflected in the low level of innovativeness, as innovation requires a climate of acceptance for risks and possible setbacks, as well as effective networking. This is all the more important in a world where development is driven by social, cultural and organizational innovation rather than by technological progress.

Are you suggesting that low innovativeness is our national weakness?

It is a weakness of the system. For decades, the education system had been doing very little to support social capital. Instead, it promoted individualism and rat-race attitudes. Fortunately, the educational reforms begun fifteen years ago, the Poles’ growing first-hand knowledge of the way other societies function, and the solid foundations laid by the reform of the knowledge infrastructure, offer good prospects of improvement of Poland’s development potential.

Once again the increasing integration of the European Union is of great help to Poland. We are an important, albeit not constructive enough, political player within the EU; on the other hand, Polish businessmen must compete ever more fiercely with their foreign counterparts on the common, open European market and on the increasingly integrated global market. Poland’s adoption of the euro a few years ago has consolidated economic growth and increased awareness that the key to competitiveness lies not only in lower production costs but also in innovation. It is thanks to innovation that European economies have been able to steadily increase work efficiency which enables them to sustain high living standards and the European social model, referred to twenty years ago by the American economist Jeremy Rifkin as the “European Dream”.
THE BATTLE FOR POLAND
The Difficult Modernization scenario
Dear John,

Thank you for sharing my enthusiasm and interest in the phenomenon which has been receiving an increasing amount of attention from our media. As most Londoners, I really got to meet my first Poles at the end of 2004, when, making use of their newly acquired EU membership and of our liberal labour market policies, they stormed the Isles in search of a better future. In no time, they took over our construction sites, unseated our home-grown plumbers and electricians, took to the steering wheels of our double-deckers and made themselves comfortable in front of the City’s computer screens. They grieved together with us after the 2005 London underground bombing. With the Poles came their beer, borsch, sour pickled cucumbers, pierogi, tripe and spoiled milk they call zsiadle, all of them available in London shops.

The tiny group of Polish students at my university began to grow rapidly. Soon I made friends with them and this encouraged me to take a few trips to Kraków, Wrocław and Warsaw. If I remember right, it was in 2005 that my Polish friends dragged me to a U2 concert on the Chorzów Stadium in Silesia. I went there just to be nice to them, as I had seen enough of Bono. But, as it turned out, the concert was not really about Bono but rather about an extraordinary happening that took place there. When Bono started singing „New Year’s Day”, tens of thousands of people in the audience suddenly took out scarves that turned into a gigantic white and red flag. I was stupefied and so was Bono. My friends later explained to me that Bono had written „New Year’s Day” in a gesture of solidarity following the imposition of martial law in Poland; the whole happening, the most beautiful flashmob I have ever seen, was organized by a little group of enthusiasts using the Internet and mobile phones. Later on the fans put together a film about the concert, compiled from a number of amateur videotapes. I have kept my copy to this day.

I decided to find out more about Poland, so I went to Warsaw to study there for one semester, as part of a student exchange programme. At university I was assigned to a group of students that had just been requested to write essays about their visions of Poland of 2020. When I asked my peers to give me copies of their papers I had no idea how useful they would be to me today, twenty years on. Anyway, in the years that followed, I spent more time in Poland than in the UK, witnessing, as a correspondent of a number of papers, the fascinating process of social awakening. Despite the difficulties associated with the lasting global economic downturn caused by the great crisis of 2008, the Poles had managed to mobilize their potential and, within a decade, transformed the country that we had long viewed as the outskirts of European civilization. “The Battle for Poland” is an analysis of this process as seen by an eyewitness. Please find attached a file containing a detailed outline of the book.

Sincerely Yours,
James Conrad
I. The Crisis

We can all still remember the crisis of the turn of the first decade of the 21st century. It began with the collapse of the financial system only to spread onto the entire global economy. The City witnessed massive job cuts, construction firms lost contracts overnight and pubs suddenly went a bit quiet. The swarms of Poles that had arrived in 2004 and 2005 were now leaving the Isles, some to seek fortune in Norway, others heading home with their savings, their knowledge and the newly acquired experience of the international job market. Unlike most Central European economies, Poland proved to be quite resistant to the effects of the global downturn, maintaining high exports thanks to the weak zloty, and implementing EU-funded infrastructural projects that helped keep up internal demand.

Months of economic turmoil and growing unemployment in the EU and the United States led to increasingly frequent outbreaks of public unrest. Many politicians decided to build their political capital by calling for protectionism, protection of national job markets and promotion of national industries. The question whether the European Union and its policies would last was no longer absurd. The Poles had to face a dilemma that became very real at the turn of the first decade: what if the EU turns into a debating society and abandons the idealistic policy of supporting less developed regions in favour of national egoisms?

II. Difficult modernization

Advocates of protectionist policies could also be found in Poland. Interest groups representing traditional economic sectors that were most threatened by the global recession, pressured the government to intervene on the market in much the same way as the governments of the United States and some European countries. The increasingly frequent rallies before the Parliament and demonstrations before the seat of the Government raised fears that the Polish political class would give in to those demands, as had often been the case in the country’s post-communist history.

Quite unexpectedly, however, a new brand of actors took to the political stage. One of Poland’s greatest achievements after 1989 was the so-called educational boom, reflected by the soaring numbers of students pursuing higher education. Every year, hundreds of thousands of Poles graduated from universities with high aspirations, but also with the understanding that most of them would not find jobs fitting their qualifications in Poland. Before the crisis, the mass emigration was the solution. At the end of the first decade, this safety valve became clogged. Now, the choice was either to look on, as hopes for a better future are being blown away with the smoke of tyres burning before the Parliament, or to take over the initiative and force the politicians to modernize the country.
Internet exploded with thousands of initiatives and message boards which eventually began to use a common slogan, “Movement for change”. The mobilization on the Internet was followed by actions in the real world. The seasoned traditional participants of demonstrations before the Parliament were astonished to see that they are now being confronted by huge crowds chanting “Give future a chance”. The ruling class realized that the stakes of the upcoming elections have changed dramatically, as has the electorate and its aspirations.

The noisy discussions and street confrontations soon turned into a structured public debate aimed at working out a social contract that would sanction a national modernization and sustainable development strategy. The Poles decided that, regardless of the international situation, the future lies in a knowledge-based economy that modernizes existing traditional sectors while developing new industries, including high-tech branches.

One of the strategy’s assumptions is that, regardless of the level of international integration, the world’s leading economies will continue the “green” transformation that began before the crisis. This is because the search for new energy generating technologies is driven by the need to reduce dependence on traditional crude oil and natural gas suppliers even more than it is necessitated by climatic and environmental challenges. This is why instruments such as the climate and energy package may be expected to remain relevant. Poland’s energy security is based on coal, which will continue to be an important raw material at least until the middle of the century. In order to control the costs of carbon dioxide emission fees, the energy sector is investing in more efficient power generating units while Polish scientists are working on clean coal technologies in cooperation with leading research centres in the US, Germany, China and South Africa. Poland itself has become an important research centre in this field. New coal gasification and liquefaction technologies, allowing to reduce the country’s dependence on imported crude oil and natural gas, are of particular relevance to the Polish economy.

Global problems have slowed down Poland’s economic growth. This means that demand for energy is also growing more slowly. Improving energy efficiency and alternative energy sources are enough to meet the growth of demand and, in effect, the “coal content” of the Polish Gross National Product is steadily falling while energy efficiency and renewable energy programmes are motivating people to act and establish new forms of entrepreneurship, such as the multitude of cooperatives which run local digester installations, wind farms and biomass processing plants. The growing demand for dispersed energy sources is fuelling demand for new technologies, many of which have been developed by Polish research labs.

It must be stressed that, besides energy security, the second key element of Poland’s modernization strategy has been a thorough remodelling of the education and research system. The “Movement for change”, dominated by young university graduates, has pointed out in no uncertain terms that Polish science and higher education reflect an era
that belongs to the past. And it is not just the poor level of research work and teaching, but also the inadequate knowledge management model. Now that virtually everyone has access to the Internet (Poland has wisely used EU funds to expand its ICT infrastructure) there is no reason to limit access to knowledge and culture resources developed thanks to public funding. By opening up these resources one opens up new perspectives for creative business and social initiatives.

III. Summary

Despite the difficult external circumstances, the Poles have won the battle for Poland. Towards the end of the second decade they began to reap the fruits of hard work done during the difficult period of modernization. The country’s fairly modern and diverse economy, based on a stable and diversified energy sector, is living up to the demands of the domestic market and is capable of competing abroad. Future development will be driven by the openness of Poland’s economy to innovations many of which already come from the domestic research and development sector. But the most important outcome of the Battle for Poland has been the generation of tremendous public enthusiasm and the channelling of that enthusiasm to respond united to the challenges of the future.
LOST ILLUSIONS

The Declining Growth scenario
Introduction to the report „The Wasted Decade” prepared by a reflection group associated with the “Poland’s Future” think tank

It is twenty years since Poland’s accession to the European Union. That memorable event marked the end of a period of transformation from real socialism to a liberal democracy and free-market capitalism, begun in 1989. Integration with the EU created new, extraordinary development opportunities that we so skilfully used in the early days of our membership. The great and open European market saw the expansion of Poland’s exporters. The legal and black labour markets attracted hundreds of thousands of Poles who looked for a better life than that they could find at home.

The influx of investment capital and European funds allowed to modernize the economy and develop modern infrastructure. During the global crisis, EU-financed development projects helped alleviate the consequences of the downturn. As a result, Poland was able to go through the turbulent times with far fewer problems than many other EU and Central European countries. This model of development had its climax during the Euro 2012 European Football Championship. Although we had not been able to build all of the highways we had intended to, the brand new stadiums, the football frenzy and the great atmosphere of the games refreshed the image of our country in Europe that was looking for a new political and economic identity in the aftermath of the great economic crisis and recession.

European economies were back on track and once again they were opening up to absorb Poles looking for jobs. The weak zloty which helped exporters during the crisis was now an additional incentive for those who considered working abroad. In the final stages of construction of the Euro 2012 stadiums we saw labour costs soar as skilled workers were leaving the country. Unfortunately, these early warning signs were ignored.

When the rowdy Euro 2012 party came to an end, the beautiful stadiums were left deserted. Built with a flourish, they now became a symbol of a new problem – oversized infrastructure. In the second half of the decade we began to realize that, as the river of EU funds turns into a trickle, the country is running short of money to maintain the new facilities. Many research labs equipped with state-of-the-art instruments are ticking over due to staff shortages; young scientists have gone abroad, the industry, as usual, is not interested in financing research, while the state, as usual, allocates funds for science in amounts inversely proportional to the number of declarations about the need to build a knowledge-based society.

However, even if the state really did want to strengthen the financing of Polish science, it would not be able to, as the long overdue public finance and social insurance reforms have never materialized, so the state budget is extremely tight due to annual fixed expenses as well as the need to service the public debt and make payments deferred during the crisis, when the budget deficit grew alarmingly.
The consequences of inaction began to pile up in the second decade, when the flow of foreign capital to Poland rapidly dwindled. Investors were discouraged by the growing labour costs and the realization that the relatively low production costs would soar once all of Poland’s commitments under the climate and energy package become enforceable. The costs increase could have been less dramatic if a long-term strategy for the modernization of the energy sector and national R&D infrastructure had been implemented soon enough.

To some extent, the energy crisis is being alleviated by the decline of the economic growth rate, which is far less impressive than in the beginning of the decade. Energy demand has fallen, and this includes demand from households which cannot afford paying the ever-rising bills. The nuclear power plant has been under construction for fifteen years now and is still far from ready to generate its first kilowatthours of electricity. And even if it was, there would be no domestic demand for it and we would not even be able to export the surplus energy, as the plans to build cross-border power transmission lines have never materialized.

The list of cases of inaction that have led to today’s crisis and earned Poland its reputation of “the sick man of Europe” is so long that one feels tempted to point the finger and put the blame on the political class which ruled the country in the past decade. After all it was the politicians’ responsibility to develop modernization policies and carry out reforms, but, as commentators point out, the politicians have been too busy analysing opinion polls, satisfying populist demands and using the state to redistribute resources to organized interest groups. No wonder the entire national modernization plan has come down to adopting to EU requirements.

Although the above assessment of the Polish political class is largely correct, the politicians are not the only ones to blame. One of the greatest failures of the past decade was the lack of determination in reforming the knowledge system. Cosmetic changes have not been enough to prevent Polish science from losing distance to the world’s main pack. The only change in the area of higher education is that many universities are going bankrupt as less populous cohorts reach university. Unfortunately, the quality of teaching in the remaining universities is not improving and that should be no surprise, considering that the quality of research, the foundation of all academic education, has not improved.

The politicians were not bold enough to transform the higher education system, which today is a self-sufficient industry that serves itself, i.e. the academics, instead of being the foundation of a knowledge-based economy and contributing to the improvement of the competitiveness of Polish businesses, as production costs are growing due to reasons explained above. But let us be frank, the politicians were not bold enough because they were faced with strong resistance from much of our own community. We find it much easier to complain about miners, who oppose restructuring, than
to restructure our own backyard. Another reason for the politicians’ lack of resolve was the fact that opinion polls always showed there was very little public support for any major reforms.

It is twenty years since Poland joined the European Union. In the middle of that period, we failed to notice that the best time for investing in the future was coming to an end. We were happy with that brief period of prosperity, unwilling to realize that it was the result of a set of favourable external circumstances and of mobilization of simple development potential, such as cheap labour and cheap energy.

Poland’s economy is heading towards stagnation, having recorded another consecutive year of declining growth. Emigration in search of work has kept us safe from mass unemployment and social unrest, but the Poles’ low level of economic activity and the slumping economic results lead to lower national budget income and higher expenditure, necessitating higher taxation. On the other hand, external conditions continue to be favourable. For twenty years, we have been a member of the EU, which is currently restoring its position in the global economic system by methodically implementing the “green transformation” programme, thanks to which many European countries are now world leaders in environment-friendly technologies. We are lucky to be in this exclusive club, even though we have marginalized ourselves and have only us to blame for it. But things do not have to stay this way; it may be late, but it is still not too late for change.

Warsaw, May 1st, 2024
RECOMMENDATIONS
Recommendations concerning science and innovation policy

We do not know what the future holds and which scenario will best fit the unfolding reality. Much will depend on what is done in Poland itself. The results of the National Foresight Programme “Poland 2020” allow to formulate some basic conclusions and recommendations for those responsible for development policies, and for science and innovation policies in particular. The implementation of these recommendations will not guarantee that the most optimistic scenario will materialize, but it will bring Poland closer to implementing that scenario.

- Poland has development potential, albeit very dispersed. In this initial phase, Poland has no significant advantages, economic sectors or areas of science and technology that would ensure that it has an outstanding starting position. Therefore, the country’s development policy must aim to skilfully mobilize many different resources and create a complex development platform. However, this approach involves many risks, the greatest of which is the risk of inaction, as the unlocking of development potential will require many difficult reforms and investments that will be key to the country’s sustainable development. The fruits of these investments, in the shape of permanent changes in Poland’s economic and social structure, will only ripen after a decade or so. In the meantime, there may be a difficult transition period during which the old development model will exhaust its potential while the new will be still in the making.

- Sustainable development requires positive feedback between many factors, including synergy between at least three of the key factors analyzed in the introduction to this paper.

- Sustainable development will rely heavily on the modernization of the knowledge generation and transfer system. In the knowledge society of today, this system reaches beyond science, higher education, schooling and industrial R&D. When modernizing it, one should be aware that the knowledge system itself will be a source of uncertainty due to dynamic changes in innovation models and innovation transfer (democratization of innovation processes, associated with the development of such models as Open Innovation, Open Access and Open Source), intellectual property rights, as well as globalization of research and development and growing role of the public in knowledge distribution.

- Knowledge based societies and economies require adequate technical and intellectual infrastructure supported by ICT solutions. Modern information communications technology, including digital networks and software, as well as the services and contents available in these networks, have become a universal, innovation-encouraging environment that penetrates all domains of life.
As a result, sustainable development depends not only on economic practices that rely on pure technology, but also, and increasingly so, on social and cultural practices that determine the general level of innovativeness and people’s readiness to accept innovation.

Therefore, development policy must be based on the following:

1) Development of research areas and technologies that create economic opportunities or are of strategic importance, such as:
   - advanced, waste-free material engineering technologies and biodegradable, environmentally safe materials for the manufacturing industry, transport and energy sectors
   - advanced biomedical engineering materials and technologies
   - biodegradable, recyclable construction materials
   - renewable and alternative energy source technologies, including technologies for generating electricity and heat in dispersed systems
   - nuclear energy technologies and their hybrids with advanced coal and renewable energy technologies
   - technologically and economically viable utilization of domestic mineral resources, including, in particular, clean and highly efficient new generation coal technologies that ensure environmental compliance and reduction of CO₂
   - highly specialized engineering equipment, as well as research and measuring equipment for use in advanced new generation technologies

2) Development of “horizontal” research areas and technologies (such as ICT) that create the basis for generating and transfer of innovation, including, in particular:
   - advanced information techniques and technologies that boost economic competitiveness, including advanced control systems for machinery, industrial processes, telecommunication networks and environmental monitoring systems
3) Supporting socio-economic studies designed to improve our understanding of the social context of the development policy, including:

- studies on popular culture preferences of Poles

- studies on the psychological, social and cultural aspects and consequences of the use of modern communication technologies and widespread use of digital information systems and new media, as well as on the position, model and role of public media in the new media environment

- studies on economic development models, including the role of classical capital investments and knowledge in stimulating economic growth

- studies on processes associated with the ageing of the society (impact on pension schemes, health care and labour market)

4) Systematic strategic reflection, supported by well-developed analytical, forecasting and foresight infrastructure
Basic information on the National Foresight Programme Poland 2020

Programme objectives and deadlines

The National Foresight Programme Poland 2020 was launched by the Minister of Science and Higher Education on May 9th, 2006. According to the ministerial decision, the objectives of the NFP included the following:

- identification of a development vision for Poland until 2020;
- convergence of Polish science policy with EU requirements;
- development of science and innovation policies conducive to knowledge-based economy

While the results of the Programme were to include:

- development of a common language of public debate and of a culture conducive to visionary reflection on the future, so as to help coordinate activities aimed at economic development and improvement of the quality of life in Poland.

The Programme was finalized on October 30th, 2008 while the first public presentation of the results took place on February 17th, 2009.

Organizational structure of the Programme

The NFP Poland 2020 was implemented by a consortium that included the Institute of Fundamental Technological Research of the Polish Academy of Sciences (PAS), Pentor Research International and the Institute of Economics of the PAS. Work under the project was supervised by the Main Panel, headed by professor Michał Kleiber, President of the Polish Academy of Sciences. The Ministry of Science and Higher Education was represented by the Steering Committee, headed by professor Danuta Koradecka, and the Foresight Unit under the leadership of Iwona Nowicka.
Research work was divided between the Research Area Panels, each of which was sub-divided into thematic panels, as follows:

<table>
<thead>
<tr>
<th>Sustainable Development of Poland</th>
<th>Information and Telecommunications Technologies</th>
<th>Security</th>
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<tr>
<td>• Quality of life</td>
<td>• Access to information</td>
<td>• Economic security (external and internal)</td>
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<td>• Sources and use of power resources</td>
<td>• ICT and the society</td>
<td>• Intellectual security</td>
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<td>• Key ecological problems</td>
<td>• ICT and education</td>
<td>• Social security</td>
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<td>• Environmental protection technologies</td>
<td>• e-business</td>
<td>• Technical and technological security</td>
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<tr>
<td>• Natural resources</td>
<td>• New media</td>
<td>• Development of civic society</td>
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<td>• New materials and technologies</td>
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<td>• Transport</td>
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<td>• Integration of environmental policy with sectoral policies</td>
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<td>• Product policy</td>
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<tr>
<td>• Sustainable development of regions and areas</td>
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In all, 335 experts took part in the work of the Research Area Panels and Thematic Panels
The Programme was implemented in the following stages:

- **Opening Conference**
  - Work of expert panels; analysis of existing knowledge; SWOT, brainstorm; cross-impact analysis; first research priority list; first version of development scenarios; development of Delphi questionnaire statements; selection of target groups

- **First Round of Delphi; Processing of Results**
  - Work of expert panels; analysis of Delphi results; PEST analysis; cross-impact analysis; second research priority list; preliminary version of development scenarios

- **Second Round of Delphi; Processing of Results**
  - Work of expert panels; analysis of Delphi results; draft Final Report

- **Debate and Public Consultations – Presentation of Delphi Results**
  - Work of expert panels; development of cluster map, final versions of development scenarios and Final Report; recommendations for the Minister of Science and Higher Education

- **Closing Conference**

In addition, a dedicated NFP Poland 2020 website was maintained and other information and promotion activities were implemented in the project period.
Methods

The following research methods were employed in the implementation of the National Foresight Programme Poland 2020:

a) Expert panels (brainstorming)

The work of the expert panels was focused on developing priority lists for the respective subject areas and on identifying niches that could be used by Poland’s science and economy. In the first phase, brainstorming exercises were carried out with the participation of professional moderators. The method involved generating as many ideas as possible (development of priority lists), without evaluation or pre-selection. Next, the participants proceeded with the evaluation and selection of the ideas, using defined evaluation criteria. This resulted in lists of key issues for each major subject area, lists of R&D priorities and in the formulation of Delphi questionnaire statements.

b) Delphi Method

This involved two rounds of anonymous polls among a selected group of experts who were not allowed to consult each other on the matter. In both rounds, the experts received the same questionnaire, in which they presented their long-term forecasts for their subject areas. In the second round, the respondents were shown the results of the second round in the form of summary statistics. The respondents were free to either change their positions in the light of these results, or to uphold their original views. This gave an opportunity to build some kind of consensus among the experts and to develop a more coherent picture of the envisaged development of the different subject areas.

The participants of the Delphi survey constituted the External Expert Body of the NFP Poland 2020. They included people from various environments (science, business, administration, mass media, NGOs), knowledgeable about the different research areas. Approximately 2500 external experts took part in both rounds of the Delphi survey.

c) PEST Analysis

PEST is a method of analyzing external (Political, Economic, Social, Technological) development factors. The purpose of the analysis was to find out which political, economic, social and technological factors may be of significance for the identified research and development priorities.
d) Cross-impact analysis

The method involved the construction of a cross-impact-matrix, in which political, economic, social and technological trends were presented in rows while events that might occur at some point in time were presented in columns. The analysis allowed to assess the probability of certain events and the expected interactions between these events and the analyzed trends. The analysis was very helpful in the formulation of the final development scenarios.

e) Development Scenarios Method

The method involved a description of future events in the individual subject areas, including the logical and chronological relationships between them, given a specified starting point. The result was a set of possible scenarios of the future, i.e. hypothetical situations and events that may either prevent these situations or provoke them. The scenarios were based on the results of the Delphi survey, the cross-impact analysis and SWOT analysis, carried out for each of the key R&D priorities.

Outputs of the National Foresight Programme Poland 2020

The Programme has resulted in the following:

- Five integrated development scenarios for Poland until 2020, including recommendations for science and innovation policies

- List of major subject areas (114) and research and development priorities (680)

- List of factors of key importance for Poland's future development

- List of priority technologies