Interpreting a Regional Knowledge Centre

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SUMMARY

The 21st century is the century of paradigm change*, the century of the development of completely* new structures*, and of the* rearrangement of the old ones. *The exponential development trends reach* points of breakthrough*, and the earlier quantity accumulation of the changes turns into qualitative leaps.* Contemporary times*, the initial, very first period of which is our times, project the future image of a new society and economy, in which* the material dimensions of products *and services keep* diminishing, the mass of knowledge *accumulated in them keeps* increasing*, and the ratio of added* value *rises steadily. Large industrial centres look more and more like large research institutes, and the qualification level of the labour force used in the production of goods is steadily increasing. Their locations tend to get closer and closer to large university campuses, and all the features suggest a dramatic increase in the demand for knowledge.* Knowledge centres *come into being, and become more and more attractive for capital investors as well. In the 21st century it is the* production, reproduction and distribution of knowledge *that is worth investing in.*

The 21st century is the century of paradigm change, the century of the development of completely *new structures*, and of the *rearrangement of the old ones.* The exponential development trends reach *points of breakthrough*, and the earlier quantity accumulation of the changes turns into qualitative leaps.

There appear new growth paths of scientific-technological and social-economic development, the driving forces of which include

- ➢ *information technology revolution,*
- ➢ *biological revolution and,*
- ➢ *creating a living space outside the Earth.*

We can witness new events and phenomena that so far have only appeared in science fiction.

The 21st century is the century of *knowledge-based society.*

Knowledge has never before been such a decisive factor in the history of mankind, and now it has become a direct production force, a factor that is exclusive in determining development. It follows that the „*production of knowledge*" is becoming the most important "industry", which implies that *lifelong learning* will become a fundamental condition for success, for carrier, for the livelihood of each and every individual.

The development of knowledge based society is an organic result of historical development, therefore I consider it important that we should recognise this objective tendency in a very early period, in the *embryonic form* of the phenomenon, in order to be among the first of those implementing it in practice.

In the course of my own examinations related to this field *I elaborated a historical development tendency,* together with a table summarising the factors of influence:

Table 1.

	Age	*Economic and political centre*	*Social foundation*	*Preferred capital investment*
I.	The Middle Ages	large estates in agriculture	agricultural society	investment in agriculture
II.	Modern times	industrial centres	industrial society	investment in industry
III.	Contemporary history	knowledge centre	knowledge based society	knowledge oriented investment

I. In the *Middle Ages* agricultural production ensured the economic power of the country, it played a decisive role in the then GDP, the population in active employment worked in the agricultural sector. This was where the members of the political and the management elite came from, and this was the most attractive and favourable area of capital investment.
Large estates ensured wealth, power and carrier for *individuals.* It is justified to consider this period to be that of the

agricultural society.

II. *The modern times* were the first really revolutionary period in technical-scientific and social-economic development. The industrial revolution pushed the section in the lower third of the exponential growth curve steeply upwards, which had an impact not only on production, but on every field of life as well. (This was the time when concerns about overpopulation first appeared in the history of mankind, let us just think about the tenets of Malthus, who claimed that epidemics and wars were the blessings of God to stop the rapid increase of the population.)
The real centres of the age representing economic-social power were *industrial centres.* The population left agriculture for the industry, and this sector was the origin of the masses of products and services representing the power and wealth of the nation; the demands of this sector induced scientific-technological development, this was where the members of the social and political elite came from. In terms of capital investment and capital attraction the industry offered the most favourable opportunities. It is justified to consider this period to be that of the

industrial society.

III. *Contemporary times*, the initial, very first period of which is our times, project the future image of a new society and economy, in which *the material dimensions of products* and services keep *diminishing*, *the mass of knowledge* accumulated in them keeps *increasing*, and the ratio of *added value* rises steadily. Large industrial centres look more and more like large research institutes, and the qualification level of the labour force used in the production of goods is steadily increasing. Their locations tend to get closer and closer to large university campuses, and all the features suggest a dramatic increase in the demand for knowledge. *Knowledge centres* come into being, and become more and more attractive for capital investors as well. In the 21st century it is the *production, reproduction and distribution of knowledge* that is worth investing in. This is

knowledge based society.

(There are debates in the social sciences about the definition of our age, and the definition as *information society* is also very frequently used. For our aspect – the aspect of a university – what is essential is that knowledge plays a crucial role in every interpretation.)
Consequently, *my image of the future in a long perspective* as related to the 21st century and projected to the time horizon of the middle of the century is that a *Knowledge based Globe* will emerge, giving rise to tornado-like storms in the developing countries. At the same time the agenda of the decades to come will include meeting the demand for knowledge in the order of billions. Approximately four fifths of the population of the Earth live in these countries, with an almost complete lack of education infrastructure.

Tens of millions of teachers will have to be trained, hundreds of millions of demands for university education will have to be satisfied, staff for scientific and research work will have to be trained. This results in concrete future tasks for the University of Miskolc at least for a time horizon of ten years.

REGIONAL KNOWLEDGE CENTRE

Concerning domestic relations, this is a novel scope of issues, although it has been on the agenda in the European Union for years now – together with its novel features following from the theoretical deduction. Concrete implementation is surely to be expected at about the middle or the end of the decade.
Establishing a Regional Knowledge Centre will represent an unprecedented and unhoped for *widening of the sources of funding* for the universities: the so far single channel financing system (Ministry of Education) will be supplemented with new channels. They will include the development opportunities provided by the European Union, which will ensure a background infrastructure and practical venue for technological-scientific research that will create new opportunities for the universities that they have never experienced before.
The realistic nature of the idea is substantiated by international experience. I have given particular attention to the example of *Ireland,* in view of the fact that this country – which today is one of the best in the EU as regards development parameters – was in a rather unfavourable situation similar to ours not very long ago, and as for R&D activities, it is still looking for solutions. Their ideas may be good models for our country as well.
For the period 2000-2006 the following have been recommended:

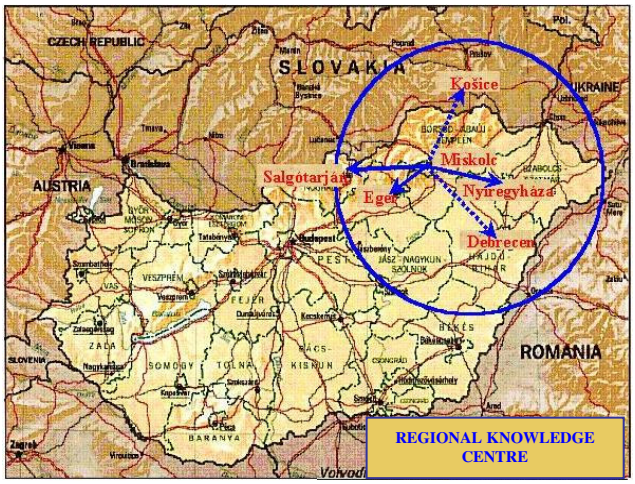
- *creating a technological knowledge network,*
- *state-of-the-art research centres,*
- *supporting research co-operation between universities and the industry.*

The investment supporting policy *is encouraging foreign investors to settle in the vicinity of universities*.
In 1994-1999 outstanding significance was given to the development of Regional Technology Centres, and which is essential for our standpoint: *separate funds were created for university research.*
The Irish example is very convincing in verifying the correctness of our ideas and supports the fact that they interpret regional knowledge centres including the role of

universities in them in international practice in the same way as we do. (In terms of forecasting modelling we can say that – Hungary being a follower nation – the Irish adoption of the historical analogy is expedient and justified.)
How do I imagine the implementation of a Regional Knowledge Centre at the University of Miskolc?

KNOWLEDGE CENTRE – SUB-CENTRE – PARTNER CENTRE

The following map gives a visual idea of the venue of our activities.



In my interpretation

the Regional Knowledge Centre of Northern Hungary has as its central unit the University of Miskolc,

with the connected *sub-centres (colleges)* in Eger, Gyöngyös and Salgótarján.
According to European Union interpretation, a region means an area across borders, at the same time a wider interpretation within a country is also to be taken into consideration. (This is all the more true because the so-called stastistical regions to be implemented at present will divide the country into 6 areas, however, we are aware of the "dissatisfaction" of the EU, which says that the regions are too small and Hungary should be divided into 3 regions. In this way Northern and Eastern Hungary would belong into the same region.) For the University of Miskolc the *University of Debrecen* is in all cases a strategic ally, and without and against which we could never achieve real results in the long term.
The centre of the region across the border is *Kosice*, Northern Hungary and Eastern Slovakia are natural geopolitical allies, it would be a mistake to talk about a knowledge centre without them after Hungary's accession to EU.
Thus our *partner centres are Debrecen and Kosice*.
In the line Kosice-Miskolc-Debrecen we have to establish the *Strategic Alliance of the Partner Centres*, and define within that the *strategic leading roles* of the individual centres.
This will require thorough consideration, negotiations and elaborationc, however, it cannot be doubted that the *University of Miskolc* will have to play a strategic leading role in

- ➢ *engineering earth sciences (mining),*
- ➢ *materials sciences (metallurgz),*
- ➢ *some fields of information technology and mechanical engineering,*
- ➢ *political and legal sciences,*
- ➢ *economics and*
- ➢ *some fields of the humanities (e.g. cultural anthropology, early and classical ages, etc.)*

The *University of Debrecen* possesses unchallenged strategic leading role in

- ➢ *health sciences,*
- ➢ *natural sciences,*
- ➢ *certain fields of the humanities,*
- ➢ *in fields of agriculatural sciences.*

After getting to know the research fields of the University (Universities) of Kosice, it will be possible to determine the fields counting as their areas of strength.
The establishment of the strategic alliance of the partner centres will prepare the way to satisfy the requirements at the middle or end of the decade. The member countries of the European Union are laying greater and greater emphasis on creating strategic alliances in business life, in which they see the most flexible form that can best adapt to fast changes and recomment it also for small and medium-sized enterprises. This is also making its appearance in the market for knowledge production.
Summing up what has been said so far:
The development of a knowledge centre is an *objective necessity* entailed by the economic-social and scientific-technological development.
In the decades to come the global competition will basically concentrate on the *renewable human capital,* and the
knowledge resulting from it, and the ratio of products with a high added value will increase.
Thus

Knowledge/Learning Regions

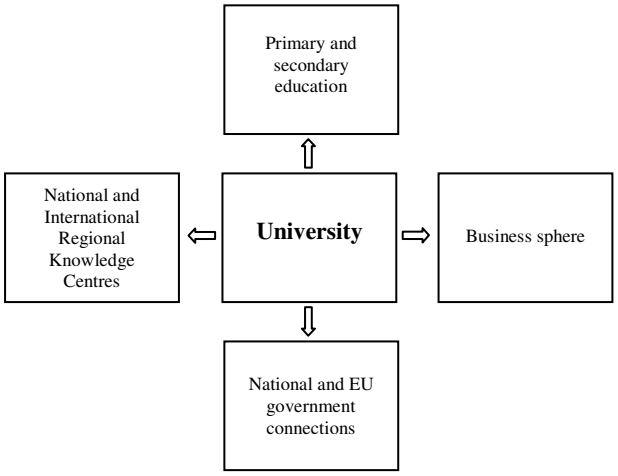
will come into being, where valuable, highly trained labour force,

knowledge workers

will be concentrated.
By the end of the decade, the Regional Knowledge Centre, with the University of Miskolc as its central element, will have been developed and strengthened.
The centre will attract ot itself and direct the sub-centres (Eger, Gyöngyös, Salgótarján) in the professional-scientific fields. Within the regional system of connections it will form a strategic alliance with the partner centres of Kosice and Debrecen.

INTERPRETATION AND STRUCTURE OF THE REGIONAL KNOWLEDGE CENTRE OF NORTHERN HUNGARY

The *central unit* of the knowledge centre is the *University of Miskolc*, where the intellectual capital is concentrated, which drives the centre itself, directs and coordinates the elements connected to it.
With some simplification, I imagine the structure of the knowledge centre according to the following scheme:



In my view there are four sub-systems connected to the university:

a) Primary and secondary education
The education system of the region has to constitute an integral whole, with the different levels connected organically to each other. The current compartmentalisation is harmful in many respects, with the pupils and students suffering the most of the negative effects. Developing the smooth *transitions* between the individual levels and their practical implementation are the most essential requirements, which naturally requires harmonisation between the curricula as well. (After the expected modifications in public education this will have the legislation background also guaranteed.)

b) Business sphere
It is an essential factor concerning the strength and viability of the Knowledge Centre. The *outputs* arising from here provide orientation for the university, and enhance the infrastructure of research and academic programs. They receive the effects coming from university research as *input.*
Small and medium sized enterprises do not have the capital necessary for technological-scientific research; they need a professional organisation providing *research service*, where they can purchase the required intellectual products, and where they can give orders related to their own professional fields.
The *role of the state* is considerable in this, and forms and organic part of the *Regional Development Programs*. The research and development background has to be realised with government support, but the operation will be based on own resources.
Thus the *University* will find a *favourable market* for its product of knowledge while indirectly contributing to the development of small and medium sized enterprises.
The experience of several small countries proves that large multi-national companies typically leave their technological-scientific research in the countries of their origin and small countries come sooner or later to realise that their small and medium size enterprises have to create the R&D background by establishing regional knowledge centers. Ireland, as mentioned above, is definitely going in this direction.
The first signs of the necessity of the university-business sphere connection have already appeared, and small and medium sized enterprises, various economic lobbies, chambers and societies raise the issue with increasing urgency that there should be an R&D infrastructure created in the vicinity of the university that will ensure for them the completion of research, development and measurement work required for marketability and competitiveness. The quantity of this work is such that individual enterprises cannot complete it on their own. So far the material and organisational background of these demands has not been formulated, however, the establishment of the Regional Knowledge Centres will create them.
In the system of connections between the business sphere and the university *the production and distribution of knowledge* receive new interpretation and reality. The university takes into consideration the requirements of the business sphere, even undertakes to elaborate curricula in specific programs, incorporates in university education the opportunity to acquire practical knowledge necessary for efficient work and at the same time the development of university education and of the academic-research infrastructure becomes a direct practical need.

c) Government and EU connections
In the years to come, concerning the funds arriving in Hungary and meant for development purposes some worries have already been formulated: we may have doubts as to whether there will be “absorbing channels” through which we will be able to use the funds available to us, that is whether we will be able to take advantage of the opportunities.
The fundamental objective of harmonising the community and national policies of the European Union and Hungary is social and economic cohesion and its instrument is the *Structural Funds*.
The mission of the Structural Funds is to

„moderate the regional inequalities of the community, to promote lasting and sustainable development.

Its objectives include

- ➢ promoting the development and structural transformation of regions lagging behind in development (this includes region a per capita GDP below 75% of the EU average),
- ➢ supporting the economic and social transformation of regions struggling with structural problems,
- ➢ assisting in the use and modernisation of educational, training and employment policies and systems.

I will neglect elaborating further details, it can, however, be estimated that in the years to come an annual amount of 20-30 billion HUF will be available for national development purposes and from which – based on the objective of the Structural Funds Funds – *our region and university* may obtain a significant share.

All the conditions are given for a substantial part of the assistance to come to us.

The basic requirement is that there should be well-prepared complex projects, that the Regional Knowledge Centre should be created, that regional development and university development should form an integral whole.

All this also means that in the history of our university and in that of Hungarian higher education it will be *the first time* that a concrete organisation is established in which the university plays the role of *financial reception point*, where *the material-financial funds of regional development are the sources for the scientific and technological development of the university at the same time.*

d) National and international Regional Knowledge Centres

The eastern border of the European Union and the development of the professional–scientific chain of connections within the country are intellectually organically connected to the *partnership relations* required and expected by the EU. We have to be aware that by European standards, Hungary and within in the six regional are an extraordinarily small geographical and economic unit. This applies even more to Slovakia.

The individual Regional Knowledge Centres have to be significant even by European standards and we have to find the strong points of the individual centres at European level. This makes it justified that in the chain of partner centres of *Kosice-Miskolc-Debrecen* the individual centres should have their own outstanding values and the organisational forms and frameworks should be provided for. The *mobility and connections* between the centres as well as the *joint program developed on the basis of the joint objectives* will create new opportunities that will further enhance the economic-scientific power of the centres and the universities leading them.

The connections along the border, the joint programs are already very popular today and in many cases represent the criterion for winning certain grants. In some years - around 2006 – the chain of centres will be of great importance for the then members of the EU and the countries outside the EU waiting for accession in another few years' time.

The Regional Knowledge Centre interpreted in the above mentality will provide *a completely new development path for the university*, which will offer the following novel advantages over the developments so far:

- ➢ the complex, many-sided relations between the university and its surroundings based on mutual advantages with the unambiguous leading role of the university,
- ➢ the enrichment of the financing channels of university academic and research work, in addition to current „single channel" system (Ministry of Education) a multi-channel system will develop in which academic programs and research work are not isolated but appear as parts of an „enterprise" producing knowledge and determining economic-social development .

In order to show the significance of what has been said so far I wish to mention that between 2004-2006 the funds for development purposes coming from the structural funds are expected to be around 1300 billion HUF.

All this incurs *enormous opportunities and enormous responsibility* for university managements.

Összefoglaló

A XXI. század a *paradigmaváltás* évszázada, merőben *új struktúrák* kialakulásának, a *régiek átrendeződésének* az évszázada. A XXI. század a *tudásalapú társadalom* százada, a „*tudástermelés*" a legjelentősebb „ágazattá" válik, s ehhez kapcsolódóan az *élethosszig tartó tanulás* minden ember számára a siker, a karrier, a megélhetés alapvető feltétele lesz. A *legújabb kor*, amelynek kezdeti, legelső szakaszában vagyunk, egy új társadalom és gazdaság jövőképét vetíti előre, a *termékek* és szolgáltatások *anyagi dimenziói* egyre *zsugorodnak*, a bennük felhalmozott *tudástömeg* egyre *növekszik*, a *hozzáadott érték* aránya folyamatosan emelkedik. A nagy ipari központok egyre inkább nagy kutatóintézetekre hasonlítanak, a javak előállítására felhasznált munkaerő képzettségi szintje egyre emelkedik. Elhelyezkedésük jellemzően egyre közelebb kerül a nagy egyetemi campusokhoz, minden jellemző a tudás iránti igény ugrásszerű növekedésére utal. *Tudásközpontok, tudáscentrumok* jönnek létre, melyek egyre vonzóbbak lesznek a tőkebefektetők számára is. A XXI. században már a *tudástermelésbe, újjátermelésbe és elosztásba* lesz leginkább érdemes befektetni.

Резюме

XXI столетие век изменений парагигм. В этом столетии формируются новые структуры, а старые переформировуются. XXI век - это век знаний в обществе, отрасль любознательности станет одной из самых мощных отраслей. Для каждого человека учение на всю жизнь станет основным критерием достижения успеха, карьеры и существования.

Самый новый век, в котором мы сейчас живём демонстрирует для нас новое экономическое и общественное будущее, в котором увеличевается часть добавленной стоимости, которая добавилась с помощью знания. Большие промышленные центры переформировуюься в научные центры, а уровень рабочей силы работающей в этих центрах неизменно растёт. Эти центры знаний стают привлеквтельными для инвесторов, которые с удовольствием вкладывают в них деньги. В XXI столетии наиболее выгодно будет вкладывать в производство, восспроизводство и расспределение знаний.