# THE HUNGARIAN EDUCATION SECTOR RESEARCH, DEVELOPMENT AND INNOVATION SYSTEM (ERDIS)

# AN INTERNATIONAL PERSPECTIVE

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## Contents

# ERDIS International Examination[1]

**EXECUTIVE SUMMARY**

### 1. Context

*Background and aims*

This report is one component of the initiative to produce a strategy for research, development and innovation in the education sector, part of the National Development Plan of Hungary for the period 2007-2013. The report should be read alongside two closely related components: a 'knowledge map', and an internal country background report on the current state of the education sector's RDI.

The aims of this report, which is written from the perspective of a single international expert, are:

a)  to analyse the strengths and weaknesses of the current system in an international context;
b)  to identify possible ways for improving the Hungarian education sector's research, development, innovation and knowledge management.

The report draws strongly on international approaches to innovation, notably those in OECD and the European Union. Both are engaged in developing innovation strategies, with education playing a central role.

The report is based primarily on two sources: a) documentation provided by the Hungarian authorities; and b) a week-long series of individual and group interviews (see Annex A and B).

Innovation in the education sector itself is part of a general concern with innovation. Education generates the *human capital* needed to *produce* other innovations. Secondly, education helps to improve the *capacity* of the population to *absorb* innovation and put it to good use. Thirdly, innovation is essential for educational investment to be as *efficient and effective* as possible. R&D is an essential route to innovation, in education as in other sectors of the economy.

The Hungarian authorities are to be congratulated on the breadth of their approach, and on their commitment to taking an overall systems approach.  This has made the overall task a challenging one, but hopefully with its rewards.  It is an approach which deserves to be replicated in other countries.

*Concepts*

This review is of the education *sector's* research, development and innovation *system* (ERDIS). The sectoral label indicates that it covers a range of institutions and processes: schools, higher education and vocational education and training.  Clearly RDI practice and performance varies between different parts of the sector, but the focus is on the sector as a whole. We have not been able to cover the different parts in equal measure, notably in respect of adult education and training.

Each of the key concepts – research, development, innovation and system – is open to various interpretations. These are discussed in the full report.  Research is broadly understood to include basic and applied investigation; development entails purposive activity which takes forward policy or practice;  innovation refers to new products or processes, with a normative dimension of progress.  System refers to processes and the relationships between actors, in particular to the quality and volume of knowledge flows between them.  Linking R and D and I means that the experience gained in new developments should be analysed and reflected upon, and the lessons drawn from it used more widely in the system.

2. **Key features of the Hungarian ERDIS**

Drawing on both the Country Background Report and the specific work of this review, we identify the following relevant background features:

- the high level of decentralization, which began years before the fall of communism, with schools as largely autonomous units;
- the pressures of demographic change and falling school headcounts;
- the impact of performance studies, especially at international level;
- frequent changes in responsibility for different fields, eg in respect of adult education and VET;
- a teacher labour force with high formal training but low pay and morale.
- An absence of mechanisms for policy evaluation

- The presence of an active private sector in education-related services, including consultancy activity on development projects
- A system of higher education governance which remains highly traditional
- Links between education and labour market agencies which are evolving but still underdeveloped
- The very significant role played by EU funds in supporting change in education, but at the same time sucking resource away from the system's natural functioning.

Against this background, the review points to these key systemic features:

a. There is a great deal of activity and energy in the system. In particular, the influx of EU funds has led to a huge range of projects, in schools, HE and adult education. There is certainly a lot of good innovation. However there is a strong sense that overall progress does not reflect the level of input and energy. There is a lot of 'churn', with projects and policies happening without sustained effect.

b. The system lacks full articulation. By articulation we do not mean top-down coordination, but connecting pipes of information, communication and knowledge. Successful innovation demands learning from many sources. In the case of education this means learning from internal and external experience: within the sector, from other sectors, and from experience in other countries. The main report gives some examples of articulating mechanisms in other countries.

c. Within the traditional research part of the system – mainly universities - educational research capacity is low, in both the pure and applied senses. Building this capacity is a major challenge and opportunity. Hungary is far from unique in this. Hungary has an unusually large and active body of consultancies, who contribute to the knowledge base and could potentially do more so. Greater partnership between the consultancy and traditional research parts of the sector should be a fruitful way forward.

d. There is plentiful information on performance at institutional and student level, with good plans for extending the capacity of participants to make use of the information. However the lack of systematic analysis and evaluation of development projects and policies is a major weakness. As a result, much of the energy and potential knowledge generated is lost to the system. This is particularly the case in respect of the vast range of EU-funded projects. Both formative and summative evaluation is ripe for upscaling. This should be done flexibly, without imposing rigid structures or undue costs.

e. The project world is characterized by an excessive amount of tendering, at many different points in the process: from designing the programme to inviting and assessing bids to the implementation and assessment. It is almost certain that this wastes time, money and, most precious of all, human skills.

### 3. Recommendations

Our primary recommendations are:

#### a. *Understanding and steering the system*
We recommend:
- Building a comprehensive map of relevant RDI activities
- Reviving the regular review of Hungarian education, to set a longer-term agenda and priorities especially for research, development and innovation
- Introducing a national scorecard system, building on Canadian and European Learning Index initiatives
- Setting an objective of working towards a set of national research priorities for education
- a Council for Educational RDI (CERDI).

#### b. *Engineering a stronger knowledge base*
We recommend:
- Raising the aspirations of  educational researchers, with clearer incentives for performance
- A clearly focused drive to take forward the training of doctoral students
- A decision by the Hungarian Academy of Science on how it should encourage educational research, either as a discrete discipline or as a theme featuring in other disciplines
- Closer integration of consultants into the RDI system, as active researchers
- Reform of teacher training to make the profession more capable of absorbing research.  This includes both initial and in-service training.  It will require significant review of the existing teacher training staff
- Strengthening leadership within the sector.   The management structures of higher education should be reformed to promote a more strategic approach to knowledge management in the sector.

#### c. *Focussing clearly on outcomes*
We recommend:
- Serious attention to improving evaluation at all levels, but especially of programmes and policies

- Paying more attention to substantive outcomes, rather than fulfilling procedural requirements
- Earmarking adequate resources for formative and summative evaluation
- Developing appropriate mechanisms for systematic learning from the outcomes, through better dissemination and debate.

### d. *Using external experience to ensure continuing systemic learning*
We recommend:
- Systematic use of external and international experience, for instance in brokerage agencies or in institutional management
- Closer integration with international research
- Establishing a peer group of appropriate countries as an ongoing source of reflection and benchmarking.

## 1. CONTEXT OF THE REPORT

This report was commissioned by Oktatáskutató és Fejleszto Intézet (the Hungarian Institute for Educational Research and Development- OFI).  It is one sub-component of the Social Renewal Operational Program (SROP) of the National Development Plan of Hungary for the period 2007-2013.

The overall project aims at elaborating a *national education sector research, development, innovation and knowledge management strategy*.  The 'sector' includes higher education and VET as well as schools.  Details on the project are given in Annex A.  It has the following four main components :

1. Analysis of non-education sector R&D&I systems and the exploration of relevant international examples and practices
2. Overall evaluation of the existing Hungarian education sector research, development, innovation and knowledge management system
3. Participation in the OECD education sector innovation strategy program
4. Elaboration of a strategy proposal.

This report (ERDIS International) forms one part of the second component, the evaluation of the existing system.  The other two parts are a 'knowledge map' (KM, Kovacs 2010), and an internal country background report (CBR, Lannert 2009) on the current state of the education sector's RDI.  The KM and CBR documents should be read alongside this one in order to gain a proper perspective on the issue.

The aims of this report are:

a) to analyse the strengths and weaknesses of the current system in an international context;
b) to identify possible ways for improving the Hungarian education sector's research, development, innovation and knowledge management.

Figure 1.  A strategy for the Hungarian national education sector research, development, innovation and knowledge management system

1.1. Five non-education sector studies

1.2. Two organisational cases studies

1.3. International literature review

1.4. Supplementary analyses

2.1 Education sector knowledge map

2.2. Education sector R&D&I system study

2.3 Evaluation of the education sector R&D&I system by the international expert

3. Participation in the OECD innovation strategy project

4. Elaboration of a strategy proposal
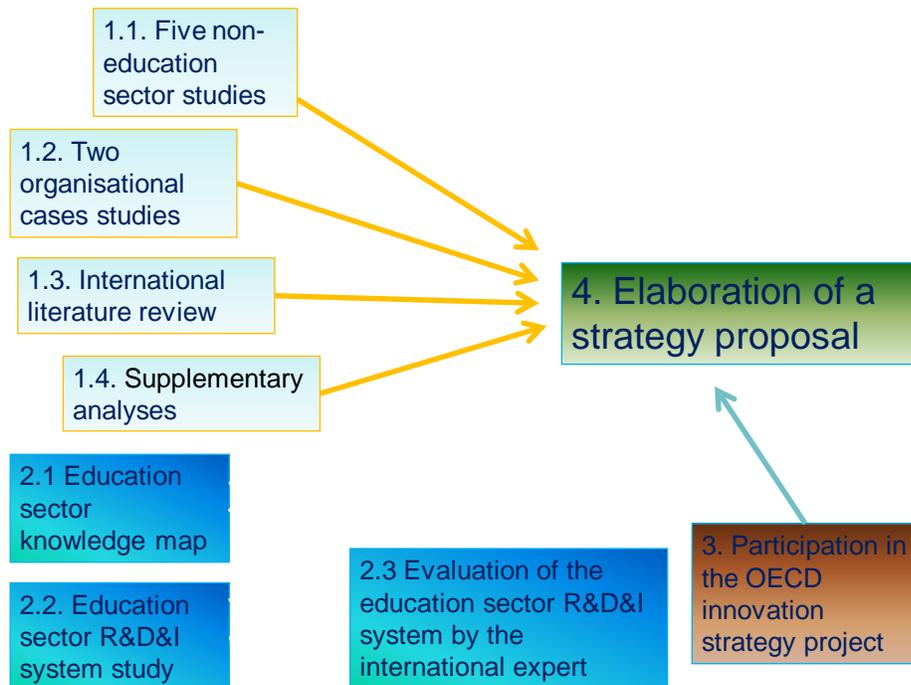
Source: **National education sector research, development, innovation and knowledge management strategy in Hungary - project description (Hungarian Institute for Educational Research and Development)**

*International context*

The broad context of the project is a growing international concern with innovation (OECD/World Bank 2009).  OECD and other countries see innovation as an essential part of their economic competitiveness, and their capacity to maintain open, democratic economies. An increasing, supranational, concern is with innovations which can help to resolve the global environmental challenge.

The *OECD* has carried out national innovation reviews, including an important review of Hungary[2]. It is currently working on an Innovation Strategy[3], focusing on the following priorities:

- Empowering people to innovate
- Unleashing innovation in firms
- Creating and applying knowledge

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[2] Background report on National Innovation System in Hungary (2007).
[3] See here: http://www.oecd.org/pages/0,3417,en_41462537_41454856_1_1_1_1_1,00.html

- Applying innovation to address global and social challenges
- Improving the governance of policies for innovation.

Significantly, the work includes both public and private sectors. It aims towards a Ministerial policy document presenting the key Policy Principles of the Strategy; a synthesis report bringing together the OECD state-of-the-art on innovation; a compendium of indicators which will help position countries in the context of "broader innovation"; a toolkit/handbook to help countries operationalise the policy principles (paperback and online); and a series of detailed individual thematic reports.

A special contribution to this strategy by the OECD's Centre for Educational Research and Innovation (CERI) is the elaboration of a specific education sector innovation strategy. The work on an "Innovation Strategy for Education and Training" has two tracks: one is about the human resources for innovation in general, and the other is about innovation within the education sector. This second track has already produced a number of outcomes that might be highly relevant for the Hungarian ERDIS project. [4]

The *European Union* launched its Innovation Strategy in 2006.[5] In its latest communiqué on the innovation theme, 'Reviewing Community innovation policy in a changing world'[6] it confirms the place of education:

"*excellence in education, skills and training* is a pre-requisite for innovation. Lifelong learning has become a policy priority, and reforms in education and training systems in Member States aim to increase investment in human capital, facilitate innovation and promote a more entrepreneurial culture."

2009 was the EU Year of Creativity and Innovation. The Manifesto for this theme read as follows:

**EU Manifesto for Creativity and Innovation**
1. Nurture creativity in a **lifelong learning** process where theory and practice go hand in hand.
2. Make **schools and universities** places where students and teachers engage in creative thinking and learning by doing.
3. Transform **workplaces** into learning sites.
4. Promote a strong, independent and diverse **cultural sector** that can sustain intercultural dialogue.
5. Promote **scientific research** to understand the world, improve people's lives and stimulate innovation.
6. Promote **design** processes, thinking and tools, understanding the needs, emotions, aspirations and abilities of users.
7. Support **business innovation** that contributes to prosperity and sustainability.[7]

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[4] See here: http://www.oecd.org/document/2/0,3343,en_2649_35845581_40814978_1_1_1_1,00.html
[5] See here: http://ec.europa.eu/enterprise/policies/innovation/
[6] See here: http://ec.europa.eu/enterprise/policies/innovation/files/com(2009)442final_en.pdf
[7] See here: http://www.create2009.europa.eu/fileadmin/Content/Downloads/PDF/Manifesto/manifesto.en.pdf

Many of these Manifesto points apply well to our theme.

Innovation in the education sector itself is an integral part of this general concern with innovation. It contributes in several ways.  First, education generates the *human capital* needed to *produce* other innovations, in products and processes.  Secondly, education helps to improve the *capacity* of the population to *absorb* innovation and put it to good use.  Thirdly, education in all countries is a major part of public services in which large amounts of public money is invested; innovation is essential for this investment to be as *efficient and effective* as possible.

R&D is generally an essential route to innovation.  This applies as much to education as to other sectors of the economy;  in other words, research and development is essential for enhancing innovation in education, and therefore in turn enabling education to contribute to the broader processes of economic, technological and social innovation.  This is one reason why OECD's Centre for Educational Research and Innovation has over the years carried out a number of reviews of educational research (OECD 2003), and has analysed the links between educational research and policy (OECD 2007).[8]  These have in turn led to the European Union developing its own policy on education research, with a similar goal of building a stronger knowledge base for educational policy.[9]  In short, there is a growing recognition across many countries that education needs to have a stronger and more direct link with research, evidence and knowledge if it is to be capable of faster and better innovation.

*National context*

ERDIS is not a review of the whole Hungarian education system as such, but of research, development and innovation within education.  So the focus is on how knowledge and understanding of education are created, communicated and applied, and policies and institutions are addressed only in so far as they contribute to this focus.   Description and analysis of the education system can be found in documents listed in Annex B.

The 'national context' of RDI of course goes beyond the education system.  As we indicate below, it includes historical and cultural aspects of the economy, society and public administration.  There is no doubt that these broader factors impinge, sometimes quite strongly, on the education system, and on the factors which shape RDI, but we cannot describe them here in any detail.   It is simply worth noting that issues such as risk management; incentives for and attitudes to organizational

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[8] This study on Hungarian Education Sector Research, Development and Innovation (ERDIS) is not formally part of the CERI series of reviews, but it was directly inspired by them.

[9] See for example : http://www.bmbf.de/en/7245.php .

change in the public sector; and communication across levels and sectors are characteristics of the wider polity, and not only of education.

The links between education and society have been powerfully expressed in a recent major investigation commissioned by the President of Hungary.  Its report linked together, as its only two topics, a) reforming the education system and b) eliminating corruption; and in this way it strongly emphasises the links between education and issues of value:

"Education can do more than enable our economic performance to climb – as we have seen happen in the countries in the education vanguard such as Finland and South Korea – for our ability to live together, our general social mood can take a turn for the better if our people are well educated and have a well-founded order of values."          (*Wings and Weights*, report written for the Hungarian President, 2009).

Turning now specifically to EDRIS, the Country Background Report goes into detail on relevant features of the education system.   These include:

- the high level of decentralization,  with schools as largely autonomous units;
- the pressures of demographic change and falling school headcounts;
- the impact of studies of the performance of the education system, especially at international level;
- frequent changes in responsibility for different fields, eg in respect of adult education and VET;
- a teacher labour force with high formal training but low pay anda lack of effective practical preparation.

To this we can add some further relevant features observed in the course of this study:

- an absence of mechanisms for policy evaluation
- the presence of an active private sector in education-related services, including consultancy activity on development projects
- a system of higher education governance which remains highly traditional
- links between education and labour market agencies which are evolving but still underdeveloped
- the very significant role played by EU funds in supporting change in education, but at the same time taking resource away from the system's natural functioning.

More detailed analysis of relevant aspects of the Hungarian RDI system is provided in Section 4.

*Structure of report*

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Following these brief contextual remarks, the next section contains an account of the methodology used in the review; and the main audiences for the report.  Section 3 briefly discusses certain key terms in the debate, without attempting to impose fixed definitions.  Section 4 analyses the strengths and weaknesses of ERDIS, and the challenges and opportunities which spring from them.  Section 5 deals specifically with resources, including the SROP/TAMOP[10] programme.  Section 6 introduces and comments on evidence and judgments from other components of the knowledge management strategy initiative (see above).  Section 7 presents conclusions and recommendations.

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[10] TAMOP stands for the Hungarian name of the "Social Renewal Operational Program" (SROP) which is a major human resource development program financed from the *European Social Fund*. Beyond education and training it also supports development in the employment and health sector. The *European Regional Development Fund* is also used for infrastructure development in the framework of another Operational Program targeted to the education sector called "TIOP".

## 2. METHODOLOGY

This report draws on the following components:

a. In *building its approach*:
- OECD work on innovation and R&D generally
- The template used in the OECD/CERI reviews of educational research.[11]  The template covered issues to do with quality, priorities, funding, coordination, knowledge transfer and capacity-building
- The approach and model developed for the subsequent OECD/CERI analysis of systemic innovation.  This was initially applied to vocational education and training in a 6-country study, which included Hungary, but has general application.  The model is reproduced in the protocol;  it conceives of innovation as a dynamic, non-linear process with multiple stakeholders
- Other relevant literature on innovation, notably work on public sector innovation.


b. As background *empirical material*:
- An extensive documentation set on the Hungarian education system, and actual or proposed innovation in it (see Annex B)
- Description of TAMOP,  the major human resource development programme designed to enable Hungary to manage the consequences of its entry into the European Union
- Internal documents, notably a detailed Country Background Report and a Knowledge Map[12]
- A social and cognitive mapping of educational policy in Hungary prepared by Ivan Bajomi as part of the EU Knowpol project.[13]


c. *Interviews with a wide range of stakeholders in ERDIS.*
   This is the principal source of original information for the review.
   Stakeholders included researchers, programme managers, consultants, practitioners, policy-makers, politicians, social partners and academicians.  A

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[11] The countries examined were New Zealand, England, Mexico, Denmark and Switzerland.
[12] The Country Background Report has been prepared by Judit Lannert, the Knowledge Map by Istvan Vilmos Kovacs
[13] See:
http://www.knowandpol.eu/fileadmin/KaP/content/Scientific_reports/Orientation1/O1_Final_Report_Hungary_educ1.pdf

protocol was circulated beforehand, explaining the aims of the review and setting out some key issues for discussion (see Annex C).

More than 60 people participated in individual or group interviews. Some contributed further comments after the interview. All participants were sent a copy of the report in draft and invited to comment further. This process has been designed to be formative, ie the process itself has involved learning and development, whatever the final analysis and recommendations may be.

Annex D gives a list of those who took part.

The report therefore follows the traditional OECD review approach . This is inevitably a compressed and intensive exercise. The reviewers (in this case a single person) are quite heavily dependent on the host country for the selection of people to be interviewed, as well as in what it chooses to supply as documentation. A major unavoidable limitation is one of time – but then all research is bounded.

The task of the international expert was to look at Hungarian RDI from an international perspective. This involves drawing on experience, evidence and approaches from other countries to guide analysis of the Hungarian system. The purpose is not to rank or rate Hungary against other countries in its performance, but to use the broader experience to gain insights into the Hungarian position on RDI. Obviously, several of the challenges facing Hungary are common to other countries. There are no absolute international standards or league tables.

*Audiences*

The intended audiences for the report are:

- The participants referred to above
- Hungarian educational policy-makers, researchers, practitioners, consultants and any other actors of the Hungarian education sector research, development and innovation system who were not able to take part in the interview process
- Similar actors in other countries, especially in those with similar backgrounds to Hungary in respect of political trajectory and European context (Poland, CR, etc)
- International bodies interested in educational innovation, notably EU and OECD.[14]
- Comparative researchers interested in public policy formation.

**3. CONCEPTS: R and D and I …**

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[14] This report will form part of the Hungarian contribution to a major cross-sectoral OECD activity on Innovation Strategy.

The CBR considers research, development and innovation systems in education to be "the sum total of institutions, regulatory mechanisms, resources, processes and other constituents that create, manage, disseminate and apply the knowledge that serves for continuous improvement of the professional activity in the educational system (i.e. organisation of learning) and the public policy addressing the education system." (Lannert 2010 p4).

All of the terms involved in this review are open to various interpretations. One purpose of this section is to provide a brief statement of how they have been used in the ERDIS. But it does not have primarily a semantic or conceptual purpose. By examining these terms in the Hungarian context we can show how their different meanings have concrete implications for the way the system operates. This section therefore is the *bridge into the substantive body of the report*: by discussing the way the terms are used it also begins to address the specific features of the Hungarian RDI system. All four of these terms – research, development, innovation and system itself – play out in particular ways in the Hungarian context.

### a.  Research

In a very general sense research can be understood as the systematic creation of knowledge. This allows an enormous range of activities to be included. It covers both theoretical and empirical knowledge. It ranges from large-scale studies at national or international level to small investigations carried out locally. The degree of professionalism involved can vary: some accounts of research refer primarily to investigations carried out by university staff or designated research institutes, whilst others extend to include work by practitioners reflecting on their own practice.

The most common distinction is between *basic* and *applied* research. This distinction has been refined or elaborated in a number of ways. The CERI review of England's educational research drew on the so-called Pasteur's Quadrant, which distinguished 'pure' basic research – sometimes also called 'curiosity-driven' - from '*use-inspired*' basic research. The addition of use-inspired as a category suggests that actual problems and issues (in education as in other domains) can stimulate research which extends fundamental understanding, ie going beyond the immediate problem or issue.

Categorising and defining educational research has practical significance. On the one hand educational research could be treated as a *discrete discipline* of the same kind as, for example, psychology, physics or philosophy. The questions then are how to strengthen it as a discipline in its own right, and how to forge links with the other disciplines it is closest to. Alternatively its claim to be a separate discipline might be abandoned, or at least downplayed, so that education

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becomes a theme or topic which occurs within other disciplines; the issue then is how to draw on other disciplines in order to improve the knowledge base for educational policy and practice.

Behind this is the challenge of a more general paradigm change in research. To take an influential example: Gibbons et al (1994) sketched out a shift from traditional academic, discipline-based and investigator-initiated (Mode 1) to problem-oriented, cross-disciplinary and team-based work (Mode 2). The tension between the two modes is to be found in respect of educational research, in Hungary and elsewhere.

These questions as phrased above may seem quite theoretical, even epistemological. But they are of direct practical relevance to the current situation in Hungary. The answers given to them will shape the directions to be taken in allocating resources, in defining the purpose and profile of research institutions and in the overall strategy for improving policy and practice in education.


### b. Development


The phrase 'R&D' links research and development very closely. Sometimes the two are reversed, to become D&R, signalling that it is progress in the field which should take priority, and challenging the assumption of a linear path from the creation of knowledge to its application. The nature and quality of the links between development and research are central topics.

What is being 'developed'? Development may be of policy, of institutional management or of professional practice. The relationship between these three is itself a matter of significance. It is possible to have high levels of developmental activity in schools, universities or other institutions without this spreading beyond the single institution to become part of good policy.

In one sense, development is a process which simply happens continuously. Policies, institutions and practice are always developing, in one direction or another. But development here implies a sense of *purposive intention*: developmental activity has a stated goal, and in principle progress towards that goal can be assessed in order to estimate how well the development is working. Again, this is not just a theoretical issue in the Hungarian context. As we shall see below, the extent to which development activity is purposive, explicit and open to assessment or evaluation is a key challenge.

Moreover, individual developments may occur without this adding up to anything more than a single episode of progress. The essential point of linking research and development – whichever of the two takes priority – is that the development should be related to other parts of the system, and therefore be the source of knowledge which is more widely applicable, in a cumulative

process.  In other words, *linking R and D means that the experience gained in the development should be digested and used more widely*.  The experience may be negative – a development which does not work – and still be of use to the system.    One perception is that Hungary is seeing a lot of activity at various points within the system, but this is not organized to provide commensurate improvement in knowledge and understanding of the system.

A specific feature of the Hungarian scene – perhaps similar to other countries using significant EU funds for educational development – is the need to make a distinction between "development" in the *narrow sense* (as part of the "classic" R+D pairing) and "development" in a *broad sense* (describing the education related measures of a overall national development policy).


**c.   Innovation**


Innovation implies newness.  The OECD's Oslo Manual defines it as the implementation of a new or significantly improved product or process.  The Hungarian government's 2005 strategy on lifelong learning refers to it as 'a constant renewal of the methods, technologies and tools of sharing knowledge.'   Innovation contains novelty, but is distinct from invention and from research.  It should, in principle at least, bring benefits.

 In any society levels of innovation reflect a number of different factors:  historical, cultural, financial and personal.     How far is the population, and the institutions which serve it, attuned to innovation, and capable of generating innovation or absorbing it from others, inside or outside their community?   These factors will even shape what counts as innovation:  what to some people appears as a major change may to others be a minor adjustment.


Innovation in the public sector presents particular challenges, in every country.  The public sector has to respond to many different expectations and pressures, and the incentives are less clear-cut than in the private sector.    There are fewer built-in sources of feedback and performance evaluation than in activities where the market rules and there is a clear bottom line.[15]

These issues are certainly as relevant to Hungary as anywhere else, especially in the context of a public service such as education.  The nature of the administration, the expectation of change and the system of incentives and rewards are highly relevant to the level of innovation that can be expected.   To analyse these is beyond the scope of this review, but they are strongly present.

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[15] Even if this 'bottom line' is open to considerable manipulation, as recent financial scandals reveal.

In short, innovation has a *normative* component – it suggests positive progress.  It needs to be *sustainable* – ie it is not a matter of a brief episode of change which dies away.  And it should be seen as *part of a system*, such that innovation in one part of the system affects and is affected by other parts.

### d.  System

Finally, a few words are needed on the notion of 'system'.  This review is not primarily of research or development or innovation as such in Hungarian education.  It is of the Hungarian position in respect of all three, considered as a system:  in other words, how they connect with each other (or do not).   Our focus is thus on the *interrelations* between different parts of the RDI system, not on the institutions themselves.[16]

An RDI system is not the same as an education syste .   This review concentrates largely on schooling and higher education, not in their capacity as educational institutions, but as the vehicles for innovation and the agents of innovation.  But there are other major institutional components of an RDI system:  research institutions, private consultants, governmental agencies, producers of educational materials; and so on;  and we should not forget international agencies as significant external drivers.[17]

For our purposes these interrelationships between these different players are characterized primarily by the *quality of information flows*, the nature of *communication* between different parts of the system and the extent to which they face in roughly the same direction in their *orientations and values.*   To put it in less abstract terms, there is a primary emphasis in this review on how far all the stakeholders - researchers, teachers (at all levels in the sector), trainers, policy-makers, administrators, consultants and others  - *generate and share knowledge* about how education might change, and how far they *work together to improve the knowledge base and its utilisation.* The emphasis is therefore as much on *relationships between different agents* as on specific categories of agents or institutions.

EDRIS focuses on RDI applied to education as a sector.   A sectoral approach to innovation is needed to complement geographical or national approaches.  A sectoral approach can be seen in

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[16]  The CBR includes a useful map of the institutional structure of the innovation system, see Lannert 2009 p16-17.

[17] A particularly important question - and one which we have, frankly, not been able to give sufficient attention in this report -  is the extent to which innovation in vocational training and the labour market is regarded as part of the system.  We argue below that better links between education and the world of work are essential to progress in innovation.

terms of sector-specific knowledge, the key role of networks and actors, and the need to define institutional roles and their interactions (Malerba 2005). These are important analytical and political challenges.

Parts of the education sector are not touched by the RDI system. At the same time RDI, even when its primary focus is on education, naturally draws on sectors other than education for its concepts, methodologies, evidence and analyses. A major challenge, to research and to policy, is to achieve the right level of openness to ideas from outside. This means that current ideas and habits are brought into question, sometimes to the point of Schumpeterian disruption. But the process must allow the system some stability if it is to change fruitfully; otherwise excessive perturbation leads to stasis or loss of trust.

Finally, the whole approach should be seen as part of a drive to improve knowledge management (KM). KM as a concept arches over the other components: it requires a systems approach, taking into account the different components briefly discussed above.

**4. FEATURES OF THE HUNGARIAN EDUCATION SECTOR RESEARCH, DEVELOPMENT AND INNOVATION SYSTEM (ERDIS)**

This section does not an attempt to describe the system in its totality.[18]   The account given here derives partly from the selected documentation referred to above, but mainly from discussions held with participants in the interviews.  In the tradition of OECD reviews it cannot claim to be comprehensive, and the selection of people to be interviewed was very largely in the hands of the Hungarian authorities, so this is not an objective analysis in the classic sense.   It distils the testimony gathered in the course of the interviews, and holds it against the evidence from the documentation.

One option was to present this section as a SWOT analysis, identifying strengths, weaknesses, opportunities and threats.  We have chosen not to follow that path as an overt structure for this report.   SWOT analysis is helpful as an exploratory technique, but less so in presenting conclusions, at least in this context.  Nevertheless, the SWOT approach is often implicit in what follows, as we analyse different aspects and explore possible future directions.  We also add a commentary on the SWOT analysis of the CBR in Section 6.

## *A system in motion, but what direction?*

There is a lot going on in Hungarian education.  The TAMOP  (see Section 5) has injected very considerable 'energies' into the system, with its massive input of resources – even though it is not guaranteed that those resources are harnessed to optimal effect.  We heard, for example, about the 'competence tsunami' as a description of the change involved in introducing competence-based teaching programs and assessment, potentially overwhelming some of the participants.  Other shocks to the system have come externally from the Bologna reforms to higher education, from international benchmarking (eg PISA results) and internally from the passing of the 2004 legislation on Innovation (covering R&D & Technological innovation, not confined to education).

In addition to legislation and resources, impetus is also derived from political leadership and individuals.  Here too we should not mistake energy for actual progress, since over-activity can actually slow down system change.   The CBR observes that the efficiency of the system is greatly diminished by its instability;  for instance, the post of minister for R&D existed only for 8 months

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[18] The Country Background Report (CBR, Lannert 2009) does an impressive job in achieving this task; it goes well beyond description and identifies critical aspects.

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(CBR p16).  As in any country, this will vary, both in terms of the political parties involved and in terms of the individuals who assume responsibility for education research and innovation.   In Hungary as elsewhere there is a political cycle which affects the rhythm of innovation and development; this is normal.   However there may be an unusual level of dependence on personal sponsorship, ie the power of an individual to make things happen – and the corresponding loss of impetus when that individual moves on.[19]

We heard several times that there is so much change in the system that many of the participants choose to sit back and wait for the current initiative to fade away.   This 'churn' is seen as responsible for low-trust relations between schools and policy-makers.  Such innovation fatigue occurs in other countries.  Does excessive noise about change in fact produce stasis – the illusion of change rather than change itself? This perception exists, and it is important to judge  whether this perception is a) true, and b) if it is, whether the response is one motivated by cynicism or not. It makes a big difference whether people genuinely sense that change is needed, but cannot manage with the short timeframes;  or alternatively are indifferent to change, and use the short cycles of many initiatives/projects to avoid more lasting change.

One obvious reaction to this continuous 'churn' would be to call for a steadier vision of the future, with a longer timeframe and greater consistency in planning for it.  The building of a better knowledge basis, and improving the flow of knowledge around the education system, depend in part on such a longer-term vision. Lack of it reduces the credibility of the policy-makers, and the capacity of the system.  Some of our recommendations aim at strengthening longer-term, more consistent and more knowledge-based priority-setting, based on a clear diagnosis of key issues. But visions need adequate mechanisms to turn them into reality.

Institutional stability is relevant here. For example, it appears that the research capacity of OFI, the national research & development institute, was very well developed in past years.  In recent years, however,  many of the staff, including the director, have moved on, and this capacity has shrunk, or at least changed in character, so that OFI, although it continues conducting direct research is no long seen as a genuine research institute but rather as an agency for managing research and development contracts.  Other institutions have emerged, but there has been no corresponding surge in research capacity elsewhere in the system.  Movement of personnel between institutions or sectors can be an important positive component of innovation, as individuals carry ideas across boundaries;  but it is not a guarantee.

*Coordination, articulation and fragmentation*

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[19] The reported lack of impact of the Green Book, despite its origins in a Round Table initiated by the Prime Minister, is said to be because there was no sponsor for it to link it to policy.

Coordination and articulation are closely related, but different. Coordination is the purposeful oversight and joining together of different strands, policies, activities. Articulation means that different parts of the system are linked together, but do not necessarily have to move together in the same rhythm. Innovation does not necessarily need coordination but it is much more likely to flourish where there is good articulation.

It is, frankly, hard to estimate from the outside the degree of coordination or articulation in the Hungarian education sector RDI system. This would be true of most systems in other countries – though we can point to examples where there are evident mechanisms for continuous improvement (see boxes below). But there was some relevant testimony on how well the different parts of ERDIS are articulated.

First, the link between *education and employment*. Work is an important source of knowledge, learning and innovation, relevant to education. The Green Book offers strong criticism of the low standing of vocational schools, and the tendency for these to be marginalized in the system (Lisko 2009). This is common to several OECD countries, especially those without an established dual system (which has its own problems). The divide between the educational and the vocational runs deeper, however. The links between education and labour market agencies do not appear to be well developed in terms of the information flows between the two sectors. Certainly there was no sense of a strong knowledge base linking the two sectors, such as a good research tradition exploring the impact of education on people's employment chances and careers (though this might be helped by the Szeged cohort studies now in place). And development work which looked as if it might form such a link did not demonstrate it very strongly.

The apparent insulation of the work of the National Institute for Vocational and Adult Education (NSZFI) from the education system is a further example of the weakness of links between innovation in the education and the world of work. This Institute is strongly led and well-funded from the national Employment Fund, via a payroll tax. It does important work on vocational training, for instance on curriculum and methodology, and is involved in a substantial TAMOP project on the quality of VET. Yet there appears to be little connection between the work of this institute and that of other R&D agencies.

A second aspect is linkage *across policy sectors*. How far does knowledge flow between the different sectors, and what impact if any does it have in improving connections between policies and practices? We heard powerful statements on the inbuilt tendency of the administration to remain within its own sector, or sub-sector. Even within the formal education part of the system there appeared to be both weak coordination and low articulation. The ERDIS strategy project itself (in the framework of which this report has been prepared) reaches out across sectoral boundaries, with its studies of innovation in health and in the commercial sector. These are admirable, but minor examples.

This lack of articulation is compounded by a quite high degree of *administrative fragmentation*. There is a high degree of autonomy, both in public education and in higher education, and this is reflected in considerable fragmentation. Schools operate as often very small units, without the benefit of significant local infrastructure. This is the subject of some considerable activity, as people seek to establish groupings and networks to counter this fragmentation. But it is an important issue, especially given the volume of tender-based activity referred to elsewhere.

Coordination problems in the broader education system are reflected in the sector's innovation system. It is not clear who has primary responsibility for the performance and the development ERDIS in Hungary. Those responsible for national innovation policies and for the overall performance of the national innovation system seem not to pay much attention to innovation within the education sector (their main concern is how education can support innovation in other sectors). The responsibility for development is shared between the government agency responsible for overall development policy and the Ministry of Education and Culture, which has some advantages but also creates coordination problems. The Ministry of Education and Culture has some formal responsibility for fostering educational research, but this seems not to be well connected with its efforts to implement national development policies in the education sector. As research and development in the VET sector is the remit of the Ministry of Social Affairs and Labour, R&D in this sector is rather poorly connected to R&D in other parts of the education system.

## *Knowledge creation: research capacity*

In Section 3 above we discussed the variable nature of 'research', and how it can be understood in many different ways. This includes the range between pure or curiosity-driven and use-inspired; it also includes the possible paradigm shift from Mode 1 to Mode 2, with an emphasis on interdisciplinary, applied and problem-solving work. Whatever the definition it is clear that in Hungary, as elsewhere, educational research is weak, especially if the standard criteria of research quality are applied. This is accepted internally (Csapó 2009). Its overall profile within the professional world of research is low. Educational researchers win a tiny proportion of overall research funding[20], and on most conventional dimensions research outputs rate poorly. There are some outstanding educational researchers, but they are relatively few and there are very few concentrations of research excellence. Opening up the field to international comparisons and linkages has begun to happen, and this should continue to have a positive effect.

The challenge of raising quality prompts two interrelated questions, both relevant to the RDI theme:

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[20] See the estimates provided in the CBR.

a.   how far educational research is to be seen as a discipline alongside other scientific disciplines (using the term 'scientific' in a general sense, not defined only in terms of natural sciences) as opposed to a field or theme of professional study and expertise ;  and

b.   Irrespective of whether it is itself a discipline, how it relates to these other scientific disciplines.  Is it most closely allied with the humanities, social sciences or the natural sciences?

As in many countries, educational research in Hungary is distributed across different types of institution, notably universities and research institutes.  A particular feature of the Hungarian education sector RDI system is the role played by independent consultants, but this section deals only with more traditional forms of research.

*University research* on education can be seen in three ways[21].  First, there are the academic staff employed in education faculties.  In most countries, research is seen as part of the individual academic contract.  However this is less clearly established in Hungary, and we were told that many of those in pedagogic faculties allocated no time for research.  This is in part a function of their historic primary role as trainers of teachers rather than exponents of a particular discipline.  The integration of teacher trainers into mainstream academic life, including research, is an issue encountered elsewhere in OECD countries.

It is clear, in any case, that both the volume and the quality of research carried out as part of the normal individual academic function are low in education faculties.   Where it exists at all, it takes the form of scholarship more than research, ie there is little emphasis on the creation of new knowledge.   Secondly, there are relatively few research centres which draw together anything like a critical mass of researchers.  The Faculty at Szeged appears to be the exception here, with a high-quality, respected and internationally connected research team.

The university education research profile is also heavily skewed, towards history.  This is worth stressing, not only for what it says about the research itself, but because of its impact on the training of teachers.   A large proportion of the university education researchers are historians, and this is reflected in the teaching training syllabus.  Important though historical perspectives are, this weighting looks seriously inappropriate in today's world, given the range of competences which a modern teacher needs to acquire.  There is a direct parallel here with the profile of educational research in Switzerland.

The third potential university educational research component is research carried out in other departments or disciplines that is relevant to education, for example in economics, philosophy or neuroscience, even though the researchers may not see themselves as educational researchers, or

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[21] The Hungarian government's 2007-13 strategy document on science, technology and innovation has much relevant analysis on the role of higher education in innovation generally.

be seen as such by those in education. Increasingly these disciplines have major contributions to make to educational innovation, in their different ways. It is never easy to gather information on this, but we received no indication that contributions from other disciplines are a significant feature in the educational research map, at least for universities (see below on Hungarian Academy of Science). The recent initiative to create a limited number of outstanding "research universities" might have a positive impact but this requires that education research is defined as a priority are in institutional research strategies at least in some of the universities.
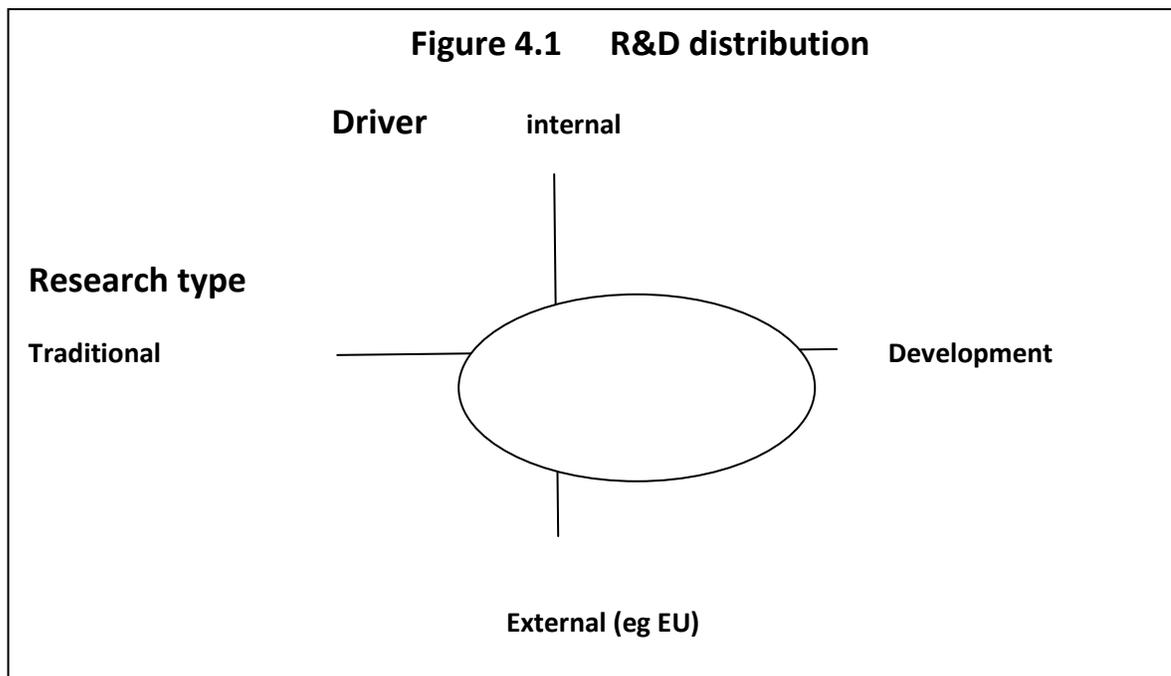
The second component is the *Hungarian Academy of Sciences*. This is an august institution which sponsors research across all disciplines, from the humanities to the natural sciences. Interestingly, education is in a discipline group which includes philosophy, history, archaeology and psychology. However the basic fact is that it barely registers in the HAS overall profile. None of the HAS institutes deal with education, and the vicious circle of low reputation-low resourcing-low achievement is reproduced here as elsewhere.

On a more positive note the panel of interviewees from HAS demonstrated the potential for education, in the broader sense, to play a more prominent role; they came from neuroscience and linguistics as well as education. HAS has at least the scope to give new momentum by integrating education into interdisciplinary research. This would bring a double benefit: in addition to the intrinsic value of interdisciplinary work, it could energise educational research in its own right through its interactions with other disciplines.

The third source of educational research is that of *research institutes*. In the recent past the National Institute for Educational Research and Development (Oktatáskutató és Fejlesztő Intezet - OFI) played a prominent role in executing substantive research. However it now appears to have lost that function, retreating to a more administrative role. This seems to be one of the casualties of the growth of contractual R&D work, where administrative functions have to some extent displaced substantive ones.

The preceding paragraphs have taken an institutional approach. It is time to locate that in a wider systemic context, linking traditional research with development and suggesting the overall profile which this generates for knowledge creation in Hungary. Figure 4.1 below[22] uses two dimensions: one runs from traditional research as a discrete activity to development work with a minimal research component; the other indicates the extent to which the impulse to knowledge creation is generated internally or externally.

**Figure 4.1    R&D distribution**

**Driver**    internal

**Research type**

**Traditional**                                    **Development**

**External (eg EU)**

The diagram suggests that R&D activity is strongly skewed towards the development side, and is largely driven by external resources (ie EU funding, principally the TAMOP).  It is important to stress that there is no single ideal distribution of research type or driver, and that the profile necessarily changes over time.  So it could well be that at a given point in time, such as today, the system in fact benefits from this apparently lopsided distribution.   In the coming years, it could well mature into a more balanced profile, as it gains its own internal momentum and the research component becomes stronger (and itself better-balanced, away from history).  This, arguably, is exactly the perspective to be adopted when thinking about the medium-term future, ie for when the structural funds dry up.

Given the amount of development work, it might be thought that the issue is one of the balance between basic and applied research, with the balance tilted heavily towards the latter.   However, we heard that there is generally in Hungary a lack of genuinely applied research, except that which is of industrial application.   In the public services, there is no strong tradition of applied research.  In so far as this is the case, it has major implications for how far 'development' work meshes with research to produce innovation and progress.  In other words, it suggests a *dislocation between R and D*.

*Knowledge creation:  analysis and evaluation*

We can take R&D together as a single entity, but this makes two challenges all the more important:  a) that research has some application to real problems (even though, as we noted in Section 3 above, it can still be basic research and do this); and b) conversely, that development work contains within it analysis and evaluation.  If it does not, then it will make little contribution to the wider system of innovation, because it will not be generating new knowledge and making that available to others.

Analysis means applying frameworks, however simple, that enable experience to be distilled and understood.  Evaluation means reaching judgments on the effects of a given activity.  This includes the extent to which it has reached its objectives, but also other, perhaps unintended outcomes which result.

In respect of policy and of development activities, both analysis and evaluation appear to be in short supply.  (This is not the same in respect of assessments of individual and school performance, which are well developed.)  This conclusion is especially strong in relation to evaluation.

Evaluation is a crucial component of the system, for several reasons.   The inclusion of evaluation as a full component means that goals have to be meaningfully specified from the outset. Evaluation provides the means by which progress can be monitored, so that corrections and improvements can be made as projects progress.  It is essential for accountability, so that value for money can be assessed.  Most important of all, however, from the point of view of an innovation system:  evaluation provides feedback into the system so that it can improve, taking lessons from a particular activity and feeding them into the wider system.  Without this, the system is starved of the essential fuel for progress.

Evaluation can be highly formalised, but it does not need to be.  It can be helpful to have recognised procedures which are applied across the range of R&D activities in some common format, for instance to give an idea of what activities give good value for money.  But it would be dangerous to move too far in that direction – especially in the light of what has been said above about the tender culture currently prevailing in Hungary.   Evaluations cost time and money.  If inappropriately designed, they can distort the activity and provide the wrong incentives.  We do not want to trigger a wave of rigidly applied evaluation work which is a burden rather than a help. So if the point about the relative absence of evaluation is accepted the response should be to *move carefully to build up appropriate forms, supported by the necessary skills and suitable procedures*.

The distinction between *formative* and *summative* evaluation is particularly important when we think about the RDI system:  both forms are crucial ways on which the system gains its necessary information fuel.   Formative evaluation – providing feedback which helps an activity to modify its progress as it goes along – is more relevant to development work than to pure research.   We did

Page

not have much scope for probing this directly, but there do not appear to be strong mechanisms for delivering formative evaluation, formally or informally.

It is a common complaint, in many countries, that insufficient time is given to evaluation, so in one sense it was no surprise to hear this voiced in Hungary.  However it does appear that this is a particularly significant weakness.   It is accentuated by the issue of project scheduling referred to elsewhere:  we heard that the competence reform applied to all 12 years of schooling, but the 2.5 years timescale given for completing this entire programme was such as to exclude piloting and evaluation.  Even the goals of some activities are not clearly articulated, making analysis and evaluation very difficult.

Lack of proper evaluation is therefore a major issue.   It affects the structure of individual activities, and the accountability of activities and programmes.   It deprives the participants of the opportunity to develop.   But the key point from the perspective of an innovation system is that it *drastically reduces the information flowing around the system*.  The evaluations do not have all to conform to the same model;  in fact it is better if there is a range of approaches to evaluation.  But it should be seen as an essential component of research and development, without which innovation cannot flourish.

We say more on these issues in relation to TAMOP in Section 5 below.


BOX    23

**ONTARIO INSTITUTE FOR THE STUDY OF EDUCATION ((CANADA)**

**RESEARCH SUPPORTING PRACTICE IN EDUCATION**

This illustration is of an academic research institution which has set out to involve stakeholders in the education system with the explicit aim of drawing knowledge together from different sources in order to improve innovation and development.


OISE is Canada's largest educational research unit, and has a strong commitment to enabling research to drive innovation. The OISE *Knowledge Mobilization* initiative deals in the creation of products such as reports, events such as conferences and networks to sustain ongoing interactions among different groups.  The KMwebsite provides a number of items intended to be useful to those seeking to link research and practice.   It aims to

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23 The boxed examples are drawn from the author's personal contacts.  They are therefore not wholly objective;  but on the other hand have the merit of some direct familiarity with their quality.

reach a broad set of stakeholders, encouraging different sources of knowledge mobilization.

The KM site provides a range of key products:

a. A *terminology chart*, which provides definitions and insights into the way key terms such as knowledge management or knowledge brokering are used, within and beyond education
b. *Conceptual frameworks*: a discussion of important frameworks used in the literature on knowledge mobilization, such as 'knowledge to action' or 'dissemination and implementation', drawing on different disciplines
c. *An annotated bibliography*, guiding stakeholders to a range of relevant publications
d. *Website links*, which give the reader quick access to relevant sites.
e. *E-Bulletins*, with updates of knowledge creation.

See http://www.oise.utoronto.ca/rspe/

END BOX

## *Innovation, capacity and networks*

To repeat, this review is about the RDI system of education, not about the education sector as a whole. So if we identify teacher capacity as a major issue, this is not a comment on the overall quality or professionalism of teachers, but on their capacity to absorb, or create, knowledge.

*Teacher training* continues to be major reform issue in most OECD countries. The timespan involved from reforming teacher training to seeing change in the achievements of students is a long one. The chain also has many links: those who train teachers themselves come mainly from a background where research and innovation have not figured strongly. They therefore cannot be expected to equip new teachers with the capacity to engage actively with research. This is said to be changing, and needs to, at a faster pace. The Green Book chapter on teachers observes that teacher training in Hungary is not adequately research-oriented and that Hungarian teachers do not have adequate possibilities to reflect on their own work as they are not in possession of the required scientific tools (Kárpáti, 2009).

An important challenge is the relation between initial and in-service training. We heard that change is driven more by in-service than initial training, because the former is less in the hands of traditional university staff. It is likely that innovation can come more quickly through in-service provision, because it is shorter, more flexible and can be more closely directed to current issues and needs. But it is essential that initial training reform also keeps pace, so that teachers have genuine capacity to engage with research.

A crucial factor here is the *incentive system*. Why should teachers, or other players in the system, commit themselves to engaging with research and to promoting innovation? Why should university staff reform their own teaching programmes? Why should the staff of national agencies such as the National Development Agency (NFÜ) commit themselves to seeing through development work effectively? We suspect that incentives for change (both positive – rewards – and negative – sanctions) are relatively weak. More developed evaluation would help to address this issue.

An obvious mechanism for improving communication is networking, across institutions or levels. One of the major changes in the Hungarian school system in recent years has been the introduction of competence-based curricula and assessment (this is the focus of one of the biggest components of TAMOP). Some 800 schools, one third of the total, are involved in the implementation of competence-based teaching, and this has led to the setting up of innovation networks across schools. The 800 schools fall into clusters, sometimes according to municipal structures, sometimes not. These clusters have been supported by human resource planning to

help them develop capacity for innovation.  The rationale, and actual experience, is that the energy for curriculum development comes mainly from the schools themselves.  This existing network, dealing with a major change in the system, is a very significant base for future development and innovation.


BOX

**ITERATIVE BEST EVIDENCE SYNTHESIS (BES) PROGRAMME (NEW ZEALAND)**

*This illustration is of a government-sponsored initiative which pays particular attention to valuing different forms of research  that explain influences on valued outcomes for diverse learners.*


The Iterative BES Programme brokers collaborative knowledge building and use across policy, research and practice in education.  It is based on a view of R & D as an essential route to productive innovation in education.

A BES is a synthesis of research evidence about influences on valued education outcomes in areas of major educational influence including teaching, leadership, teacher professional learning and family and community influences. Each BES draws upon educational research from New Zealand and overseas to explain what works, what makes a bigger difference and what doesn't work. Each BES celebrates the work of educators and the inquiry processes that enable educators and researchers to bring about continuous improvement in education. Each is part of an iterative process that anticipates future research and development informing educational practice.

BES links three different forms of brokerage: *policy¸ research and practice.*

Examples of issues dealt with include:

-The high level of decentralisation in the self-managing school system in New Zealand

- Need for systemic improvements in responsiveness to the diversity of students in New Zealand schools.

-  Rapid demographic change increasing populations of students who have been underserved.

See http://www.educationcounts.govt.nz/goto/BES

Source: Adrienne Alton-Lee.

End Box

At the same time, researchers in the Educational Authority (Oktatási Hivatal - OH) are producing important and potentially valuable results from their assessment studies. This work has been directly inspired by Hungarian participation in international studies, notably PISA and PIRLS, which produced results that were not very favourable. The OH researchers produce highly sophisticated analyses. The challenge is to enable schools to use this information. It was encouraging to hear that the OH team continues to work on systematic capacity development. They are planning this either through in-depth training for particular schools, or for workshops for teachers from a broader range of institutions. These are important steps in improving the system's flow of information; hopefully this will allow feedback and discussion, as distinct from one-way dissemination of results.

The challenge of *capacity-building* refers to macro as well as micro levels. At the micro level, it is important that teachers and schools understand the outcomes of analyses such as those provided by OH, and recognise their potential application. At the macro level, policy-makers need to be able to extract the implications for their own work; it is not clear that this is being done in any systematic way. This suggests a need for better *intermediary mechanisms*.

There is also the issue of managerial capacity and leadership, at different levels in the system. School leadership is just emerging as a challenge for Hungarian education; in the ERDIS context, this is about building professional capacity to use research knowledge. Too many local authorities are too small to exercise effective leadership. In higher education, the governance system depends heavily on the power of rectors, who are accountable to their academic colleagues, and of student representatives, who were seen by some of our interlocutors as a strongly conservative force. With some exceptions, therefore, universities are not managed in a proactive way, and their growth has often meant the squeezing of research. But there is evidence of innovation occurring in some universities, and clear signs of good ideas for how things might change.

International experience is likely to be particularly relevant here: exposure to HE management practices elsewhere; the use of intermediaries to strengthen communication, and more generally the impact of openness to international practices inside and outside the public sector. This is a fast-changing field, where there is much practical experience to be tapped in other countries.

## *Dissemination and knowledge utilisation*

The issue of dissemination follows naturally from evaluation. Its importance has much of the same rationale; indeed the two are closely intertwined, since without dissemination the extent to which evaluation provides fuel for the system is greatly reduced.

As with evaluation there is no single method for dissemination.  Today there are multiple methods available, with websites and electronic means of dissemination having increasing importance. Ideally dissemination should be built in from the outset as part of the planning process.  In reality this is only likely to be partially the case, especially where the outcomes are not predictable.  So opportunistic dissemination will often be important, which cannot be planned ahead.  That said, from the system point of view there is plenty of scope for a consistent and systematic approach.

An important question which dissemination forces us to address is the audience or audiences: who do we think should be interested in the outcomes?  Audience needs will vary greatly:  from methodologically sophisticated professional researchers to impatient policy-makers or busy teachers.   Good dissemination is not necessarily about using the latest design or impressive technology, but about selecting the approach most likely to capture the attention of the intended audience, and then fulfilling their needs.

Our sense is that dissemination is not taken seriously enough.   Little evidence was produced of how research is disseminated and used.   There was very little discussion of how activity outcomes are published, and of different means of dissemination as a way of enhancing impact.   The CBR covers a number of websites , and concluded that this medium is only used patchily to disseminate: "there are numerous webpages with inadequate structures….it is not yet clear if the information [on these sites] constitutes valid knowledge." (CBR p35).

We were told that due to financial restrictions some of the channels of communication (eg. professional conferences, periodicals) that used to play an important role in dissemination and in knowledge transfer between researchers and practitioners have been narrowed down. At the same time, TAMOP has intensified activities of networking or professional development as part of specific innovation projects and it also contains a separate program for developing knowledge management in the education system. However, the problems of coordination and coherence mentioned above seem to apply also to dissemination and knowledge utilisation.


## Broader communication: intermediaries and consultation

A potentially important part of the RDI system is the existence and role of 'intermediary' functions, operating as brokers between the creators of knowledge and users.  Users can be policy-makers, practitioners or the public.  Intermediary functions are there to improve communication , for instance between researchers and practitioners by making research results more easily accessible, in form and in language.   The process need not – indeed should not – be one way only, so that a dialogue is established between different stakeholders.

Intermediaries may be individuals with an explicit duty to improve communication. But intermediary functions include mechanisms such as research syntheses which bring together research results into a non-technical form which can be easily digested and discussed, or web-based tools designed to make access to knowledge easier and quicker. The simplest, traditional form is the well-written abstract of a research paper; but the function extends across many levels, through to building extensive networks which bring together different agents in ways that encourage innovation and knowledge transfer, but also provides feedback on research and allows practitioners to make their own inputs to R&D.

BOX

## CUREE: CENTRE FOR RESEARCH AND USE OF EVIDENCE IN EDUCATION (UK)

This illustration is of an independent organisation which acts as an intermediary between different stakeholders.  It puts particular emphasis on innovative methods of involving practitioners.

CUREE's core purpose is to translate large scale and technical research findings and resources into materials teachers and policy makers can use in their day-to-day work. using evidence about effective learning processes to inform and enhance teaching and learning.

It does this through



a. *Research reviews and syntheses*.  These make research accessible to practitioners by summarising academic research and sharing outcomes from practitioner-led research
b. *Interactive tools, protocols and resources.* These translate research into web- and paper-based tools which can be used in action research
c. *Professional and organisational development*.  Exploring and sharing knowledge through continuing professional development, developing mentoring and coaching capability
d. *Policy analysis and development.*  Case studies, focus groups, surveys, ,evaluating effectiveness of government initiatives and policies.

http://www.curee-paccts.com

End box

The Hungarian education system has a range of consultative bodies, for schools, higher education and vocational training. These are designed to supply ministers and policy-makers with professionally-informed viewpoints. Members are nominated by the professional bodies, chambers of commerce and universities as well as the ministry. One such body, the National Council for Vocational and Adult Education (NSZFT), related to vocational training, has a substantial budget to allocate, for training but also for research and development; the overall figure is some HUF 27bn, and before the current crisis the research component amounted to some HUF 100m. It therefore has significant power. Overall, these consultative arrangements offer useful advice on issues such as examinations and contribute to information flows, but there are varying views on the extent to which they influence policy decisions or practice, and there is little communication across them. There is therefore a question mark against the extent to which they currently perform an effective function for the system as a whole, and there is scope for refashioning the consultative process.

A related factor which can shape the broader debate on education is the quality of public information and debate. Where there is a vibrant and informed level of public discussion of educational issues, this can help to push forward progress. Where the debate is either absent or – very different – is driven by short-term and populist considerations, it can be a brake on innovation.

The media therefore have potentially an important role in making people aware of educational issues, including research issues and international developments. A session with three journalists was scheduled in the programme, but for different reasons none of them was able to participate. We are therefore not able to offer any view of the level of public debate; there is no reason to think it is any less good than elsewhere, but if it is no better then there is probably a case for aiming to improve it.

Finally, there is the question of whether there exists an adequate common and public understanding of the state of educational R&D, ie the main agents (as knowledge providers and consumers), the resources which flow through them, and the mechanisms which link the different parts of the system. Section 5 below above makes an attempt to sketch the inputs. But a more comprehensive, though simple, mapping of the overall system would be a powerful instrument.

## *Educational products*

Educational materials – textbooks, tools, software – are one of the products of innovation; they also can drive (or impede) the process of innovation, in curriculum and pedagogy. How such materials are developed and distributed varies greatly in different countries: centralized systems

will tend to use fewer products, as the curriculum is more determined, whilst others will use market mechanisms closer to the private sector, with a greater range of options open to the consumer (the teacher or the relevant education authority).

There is much developmental work, resulting in textbooks and other study materials. The CBR gives detail on this (p29). It is sure that amongst these are many good products, as well as some not so good. But there seems to be no strong system by which products can be tested and kitemarked, either by a centrally assured quality system, or through consumer preferences mediated by price. The Hungarian market, at least at school level, appears fairly immature.

In effect, this point is closely linked to the previous one on evaluation: there seems to be little in the way of mechanisms to build in evaluation of quality or value for money into the development and distribution of educational products.


BOX

Using New Technology to Share Knowledge Across Disciplines and Between Institutions

*Unlike the other boxes, this is not an illustration of a particular initiative but of a tool which can be used to build up and disseminate knowledge in a collective fashion. The example originates not in education but in a basic scientific field.*

A top Ivy League University has one of only two LRSMs in the USA (Laboratory for Research into the Structure of Matter). Nanotechnology research brings together disciplines that had limited contact up to this point such as physics, biology, medicine, engineering, computer science and mathematics. Many more can benefit from the output of the LRSM, than can work in the small and highly specialised Lab. In order to maximize the impact of the LRSM, it was decided to establish limited access wikis within that wider community. The wikis are now at the heart of a vibrant multi-disciplinary community of scholars who instantly benefit from research happening at a location, sometimes, hundreds of kilometres away from the LRSM base.

Wikis are living documents that be accessed by a defined group of people, each of whom has editing rights. Each document is 'owned' by one person, who can override or consolidate edits, but the aim is to allow free access to the documents by a defined community. Each document, thereby, becomes a living up-to-the-minute vehicle for knowledge exchange.

Thus the multi-million dollar investment in the LRSM is at the hub of a wide, multi-disciplinary network of researchers taking information from the centre, but putting back ideas and analyses that can generate massive leverage. It is as if the group is in a permanent academic conference debating and sharing ideas.

This solution is cheap to implement, secure and very effective.  It ensures the broadest dissemination of research, and the fastest development and testing of innovative products based on that research.  There are low set-up costs to establish a wiki, a fast learning curve, and it can deliver transparent benefits very quickly.

Source: Nigel Paine

(Afternote: A Dutch initiative, WikiWijs – WikiWise - is now pioneering an open, internet-based platform for educational resources, based on open source software, open content and open standards.)

END BOX

## 5. SYSTEM RESOURCES: EU FUNDING IN CONTEXT

We have attempted to take an overall view of the Hungarian education sector RDI system. This overall perspective includes some view on the distribution of resources – bearing in mind that there is no simple input-output model for the system. In this section, we first give an overview , and then focus more specifically on the TAMOP, because of its current dominance in the system.

Diagram 5.1 provides an overview of the sources of inputs to ERDIS. It is important to emphasise that this is a crude first attempt to map out these sources, but however provisional they may be this is an important step towards a systemic analysis. The CBR contains some estimates on the amount spent on educational R&D in Hungary but given the complexity of the allocation mechanisms, the problems of statistical data collection and the fact that it is not always possible to distinguish educational R&D in the narrower sense from development in the broader sense, it was not possible to establish accurate figures.

Some very tentative figures can be attached, however, to some of the sources (annual expenditure; where sums are allocated overall several years, these are averaged). For example the European Social Funded TAMOP programme (via National Development Agency) allocates €140m for schools, €70m for higher education and €230m for vocational and adult training. It is not possible to establish what proportion of this money for overall educational development is spent on research and development in the narrower sense of the term (R&D). In the schools development program, for example, there is a sub-program for education sector research (appr. €50 000 for two years) but there are several other sub-programs also containing research components. The higher education program contains a major sub-program for research development but probably only an insignificant part of this will be spent on educational research. The Hungarian Scientific Research Fund (OTKA) spends around €20m on funding research: 80% of this going to natural sciences and 20% to social sciences, but only a very small fraction of this goes to education. NSZFI receives €17m for research and development from the Vocational Training Fund (via the Ministry of Social Affairs and Labour) but again only a small fraction of this is spent on research in the proper sense of the term.

## Diagram 5.1
## Rough organigram of funding lines for ERDIS
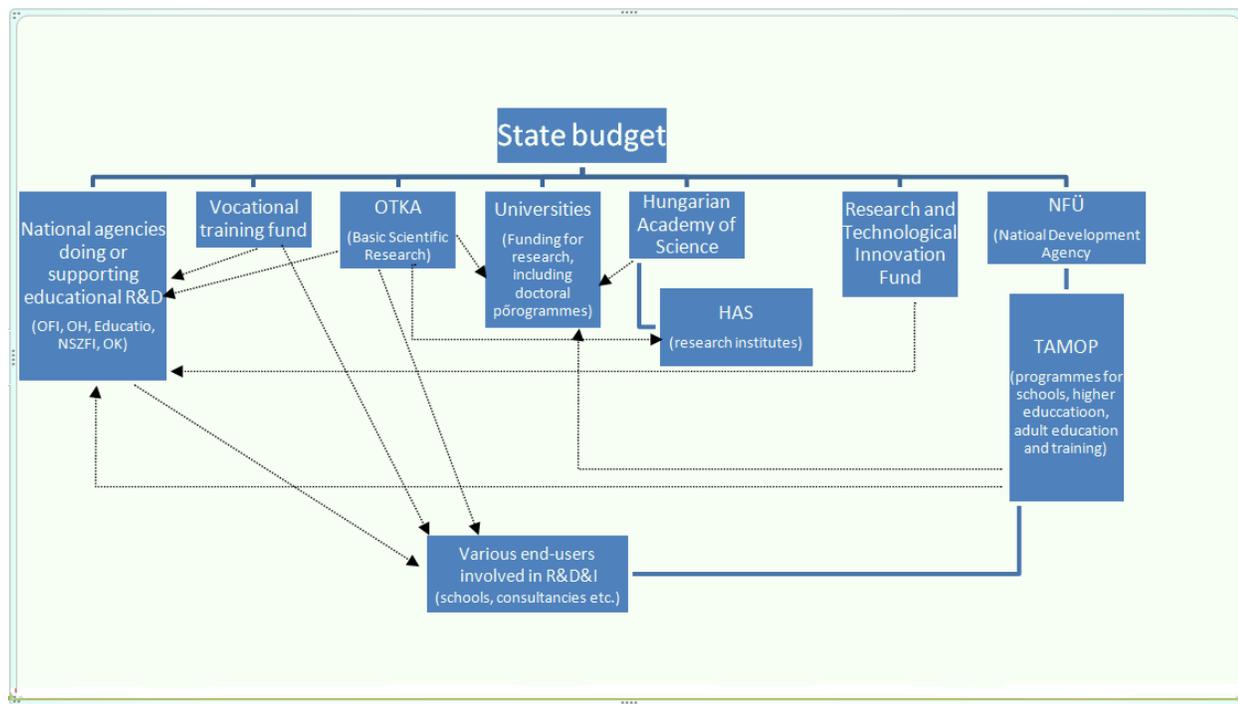


It is important to emphasise that these figures are a) very provisional, and b) **not** directly comparable with each other.  In particular, some refer only to research, and some to development as well as research.  This is notably the case in respect of TAMOP, where only subsection 4.2 refers specifically to research (amounting to some HUF 86bn out of the total), and the rest is more appropriately classified as development.   So this is not a consistent map of the knowledge base for Hungarian RDI;  nevertheless, it should be a very useful tool, if only for heuristic purposes, to provoke the different stakeholders into developing and refining it as a map, and completing it on a fuller and more accurate basis.

The most significant source is undoubtedly TAMOP.  Its Section 3 is headed 'Access to quality education for all' and refers mainly to school reform; it includes sub-sections referring to research on schooling.   Section 4 refers to higher education, both teaching and research.

The scale of the programme is enormous, in its own right and especially in relation to the Hungarian education system.   TAMOP Section 3 amounts to some HUF 254 billion, and Section 4 to HUF 153 bn – a total of over HUF 400bn, ie c. € 1.5 billion.  The main sub-programmes within Section 3 relate to competence-based education (55bn) and teacher development (35 bn); and within Section 4 to support for innovative research (25bn) and to the National Excellence Programme (41 bn).   The funds are to be spent over seven years, but these are still very

substantial sums for a system to absorb;  indeed, a central question is just how capable the system is of absorbing and making good use of these huge inputs in the time available.

## *Resource distribution*

However approximate the figures supplied with Diagram 5.1 may be, it is very clear that TAMOP dominates the resourcing of change in Hungarian education.   The resources involved dwarf other sources of funds.   The most robust system in the world would have difficulty in smoothly absorbing resources on such a scale without careful preparation and a solid capacity for managing change and for handling knowledge.

The resources offer massive potential for change, and are indeed bringing about change which could not possibly have occurred without this input.  It is inevitable that these changes cause discomfort, often acute; this is in the nature of systemic innovation, as Schumpeter forcefully observed with his notion of creative destruction.  Moreover it would be impossible for every activity financed under such a programme to be fully successful.  Even a low level of risk-taking means that some innovations will fail, and mistakes will be made.

The first issue under this heading is whether TAMOP has a distorting effect on the education sector RDI system.  Or rather, given its scale the question is not so much whether but to what extent it distorts the system, and with what consequences.   Two different systemic aspects can be identified where distortion might take place:  priorities and implementation.

On *priorities*, we heard no strong evidence of overall distortion.   This was not the place to examine the way priorities are set within the structural programmes as part of EU/Hungary negotiation.  We heard some statements that the balance of funding had been skewed towards higher education at the expense of public education, but these were not strongly supported.

On *implementation/planning* the picture was very different.  One of the most consistent criticisms of the system was the compression of scheduling, with activities having to be carried through at short notice and to unrealistic deadlines.  Typically, an activity would be delayed at the start, for a variety of reasons, but no corresponding leeway would be given at the end.  A key consequence, from the point of view of the system, was the squeezing out of evaluation and dissemination.

One further critical aspect was reported:  that on the one hand research – basic or applied – was being displaced by the resources flowing into development work;  and at the same time the development work supposedly funded by these resources was in fact maintenance work – in other words, it was expenditure on items such as school buildings which should have been made as part of routine maintenance of the public education system, and not as innovative development.  This

is counterbalanced by the fact that local authorities can have access to sources for renovating buildings only if they win resources also for innovation programs.

## *Tendering and public procurement*

One very striking feature of the system is the extent to which tendering is used, at almost every stage of the process.  Thus tenders might be called for the contracts at any or all of the following stages:

- advising on a programme so that bids can be invited
- assessing the bids for funding, for instance from schools or municipalities
- validating the consultants to be used to assist with the successful bids
- assessing the reports on progress/completion of the work
- evaluation of the project.
All of these are in addition to the main contract itself.

Tendering is designed to ensure transparency and accountability, so that contracts are properly awarded and implemented, in open competition.   However, there are costs associated with this process:

- preparing and submitting bids, at each stage (including, of course, those of unsuccessful as well as successful bids)
- assessing and judging the bids
- putting together the machinery/organization for administering the process.

But perhaps most significant is the opportunity cost:  the time and skills which go into the various stages of the process.  In other words, intelligent and qualified people spend a lot of time on preparing or judging tenders, time which might usefully have been spent on actual research, development or innovation.

Of course tendering and competition are an important part of any system.  No figures are available on the scale of these costs, so it is not possible to give a wholly objective judgment on exactly how far they are excessive as a proportion of the whole.  But from the descriptions of the process and the views expressed by participants there can be little doubt about the conclusion:  tendering occupies an unnecessarily large part of the process, and is not seen to be fulfilling its purpose.  As one participant put it:  "Tendering is about transparency.  Well, here it's like a giant spider's web: transparent, but you all get stuck in it."

Finally, the tendering process could itself be the source of considerable systemic learning.  In other words, the process of putting bids together, assessing them and then performing some degree of

evaluation (however limited) could allow some valuable specific lessons to be learnt , and generate a useful overview of the system.  However there was no indication that the major agencies engaged in channelling the resources had this as part of their remit.

Related to the tendering is the issue of how contracts are commissioned and managed.  Where there is such a large number of tenders, the quality of the procurement process is important.  The way the contracts are written affects who applies for them.  Secondly, the contracts are managed and monitored over time, in order to ensure that those involved deliver as agreed.  Both these processes affect  what kind of capacity is developed in the system.

It is essential that good procurement procedures are in place, transparent and efficient.   Some doubts were expressed about the capacity of public authorities, especially at local level, when it comes to managing these processes.  This may be particularly true in relation to contracts which involve the delivery of innovative services, as opposed to buildings and equipment.

## *Evaluation*

There was a very clear view from many participants that evaluation was inadequate.   This has several dimensions:

- In some cases, evaluation was excluded from the whole process, because of poor scheduling and lack of time.  The lifespan of an activity would be curtailed, usually because of difficulties in getting it started, and as a result insufficient weight or space would be given to measuring the results.
- Formal reporting of outcomes is of course present for every activity.  However this was often confined to the requirements of accountancy.  In other words, there were reports of how resources were spent, and whether the planned activities had indeed occurred.  But this falls well short of evaluation as the analysis of outcomes.
- Even where good summative evaluation occurs it was very unclear how much attention if any is being paid to formative evaluation.   Measuring outcomes at the end of an activity is important, but only part of the story.   There is increasing recognition of the value of feeding back information during the course of an activity, but little evidence of this happening in practice, or of mechanisms and procedures to enable it to happen.

This was, however, an area where there was some divergence of views.  Notably, the consultants interviewed were more positive about the level of evaluation achieved, saying that evaluations were carried out, often to very good standards.  Even within the consultancy community, however, there was some disagreement:  one position was that evaluations were done but not used,

whereas another held that they were indeed used.  However there was consensus that evaluations related to individual projects, and not to a programme as a whole or to policy.

## 6. COMPLEMENTARY ANGLES: THE KNOWLEDGE MAP, THE CBR SWOT, AND THE CERI TEMPLATE

In this section we cite and comment on the two major internal pieces of work which complement this internal study. We use the research done as part of the Knowledge Map exercise of the ERDIS project; and then we reproduce the SWOT analysis from the Country Background Report, and comment on it from an external person's viewpoint. Finally we apply the template used in the CERI/OECD reviews of educational R&D, referred to in Section 1.

## *Knowledge mapping*

The graph below indicates the responses given to an original investigation of how different categories of people perceive the state of educational knowledge currently in Hungary. 10 'knowledge areas' were defined, ranging from 'what to teach' and 'how to teach' through to 'human resources for education' and 'education in the international space' (see Kovacs 2010 for detail). The research is of interest because it captures several different dimensions:

- The perceived relative importance of different knowledge areas [list]
- How big the perceived gap is in the available knowledge
- The quality of the knowledge
- Its application to practice.

Moreover it enables a contrast to be made between the views of the general sample; a sub-group who can be counted more professionally competent on these issues; and then a smaller sub-group of those with specific interest in ERDIS. This is an innovative piece of research. It should help to draw in different groups into the wider debate. It could usefully be replicated in other contexts and countries.

The multi-dimensional nature of the study means its result cannot be captured on a single table. Figure 6.1 gives the most general overview. In summary the results show:

- a. A high level of agreement between the different respondent categories on most issues;
- b. The largest disagreement is on the importance of knowledge of the international educational picture, where the HESRDIS community not surprisingly ranked this more important than the others, and also saw the gap as greater

c. The highest importance rankings were given to knowledge of how to teach and to human resource issues, ie the quality of teachers and headteachers. It is striking that the former of these was also the area where the biggest knowledge gap was perceived

d. The area of policy knowledge was one where the quality of the accessible knowledge was generally perceived to be lowest.

This research will be valuable as a platform for discussion and debate, at different levels in the HESRDIS community. It will also, it should be said, be helpful as a methodological innovation which could be used in other countries.

## Figure 6.1 Overview from Knowledge Map

| | What | How | Ext.Imp | Demand | Perform | Sys.Ind. | Policy | HR | Inst. | Intern. |
|---|---|---|---|---|---|---|---|---|---|---|
| All resp. Importance | 3,556377 | 3,661496 | 3,55275 | 3,4211 | 3,349321 | 3,188919 | 3,426244 | 3,629663 | 3,499546 | 3,105647 |
| All resp. Missing knowledge | 2,824264 | 3,012378 | 3,005348 | 2,896303 | 2,750449 | 2,695731 | 2,95471 | 2,890498 | 2,727518 | 2,526027 |
| All resp. Quality | 2,365572 | 2,23266 | 1,896797 | 1,929021 | 2,142218 | 2,076018 | 1,693141 | 1,98733 | 2,186655 | 1,931756 |
| All resp. Knowledge and practice | 1,839192 | 1,83304 | 1,658385 | 1,67899 | 1,853812 | 1,751135 | 1,496364 | 1,676364 | 1,872843 | 1,605672 |



Source: Kovacs 2010.

*CBR: SWOT analysis*

The Country Background Report contained an analysis of the strengths, weaknesses, opportunities and threats seen as characterizing the current ERDIS position. This is reproduced below. The commentary which follows it indicates where we can offer confirmation, comment or disagreement from the interviews and document-reading undertaken as part of this study.

*SWOT table (CBR, Lannert 2010)*

| Strengths | Weaknesses |
|---|---|
| - professional tradition<br>- existing institutions<br>- professional workshops, doctoral schools<br>- existing forums for publicity<br>- measurement of competencies of pupils and its publicity<br>- traditions of innovation from the eighties and nineties<br>- professional calling | - underfinancing<br>- lack of synergy and coordination between organizations<br>- lack of political commitment to educational research and development<br>- unreal strategies without deadlines and responsible persons, budget<br>- education is not embedded into the national system of innovation<br>- there is not any institutions of this field at the Academy of Science<br>- lack of foreign language knowledge, not sufficient international embeddedness<br>- low quality of teacher training<br>- lack of feedback mechanism (accreditation, professional forums, program evaluations) |
| **Opportunities** | **Threats** |
| - resources from the Structural Funds<br>- creating new knowledge and expertise by developing professional evaluation<br>- there are enterprises and civil organisations in the arena<br>- status of excellence for universities<br>- there are some new frontier research in Hungary<br>- FP framework of the European Union | - due to lack of solidarity and cohesion educational R+D cannot get a good position neither in the academic sphere nor at the universities<br>- inefficient usage of Structural Funds, too short time and project logic serve the interest of organizing and planning institutions (not research)<br>- permanent low share from the state budget<br>- due to the lack of appropriate feedback quality assurance will not work |

*Comments:*

Strengths

- 'Professional tradition' is an immediately interesting label.  There is certainly a strong historical tradition to general intellectual activity, and to the importance of an advanced education system.  This is a crucially important platform for further progress and innovation.  On the other hand an interpretation relating more narrowly to the teaching profession seems less secure as a strength
- 'Doctoral schools': the CBR argues that the criteria for establishing doctoral schools are strongly rigorous.  We accept this, but as the CBR also says, this rigour also acts as a barrier to innovation and development, and in our view the level of doctoral research activity is more a weakness than a strength.
- Publicity forums exist and are a potential strength, but seem to us to need refreshing
- We accept the traditions of innovation from the 80s and 90s are a strength, though they maybe need more explicit exploitation

Weaknesses

We agree fully with this list.  Indeed they coincide almost completely with the analysis above.

Opportunities

Again, we have a high level of agreement with this list.   It could be extended in the following ways:

- There is scope for more diverse use of international resources than is suggested.  In other words, opportunities exist not only in relation to the European Union, but to other international organizations and, more particularly, in relation to institutional and other sources of expertise and experience.  Some examples of these are given in the boxes in this report.
- High levels of autonomy can – if properly used – permit high levels of innovation
- Further building and strengthening of networks of professional staff
- Developing and learning from good practice, in research and development.

Threats

- Strong agreement with the points on the project management of the structural funds, and on the lack of appropriate feedback.

## *Applying the CERI template*

The CERI/OECD reviews of education R&D (see Section 1, and OECD/CERI 2003) developed a template which was offered as a tool for other countries to apply**.**  We reproduce the template here, and offer a rating and  comment.  The rating – admittedly very crude - is on a 5-point scale, 1 = highest and 5= lowest.  As with the previous items in this section, the comments should not be given 'harder' status than they merit; they are offered more as a means of prompting fruitful debate than as scientific conclusions.

*Q1      What is the extent and quality of a country's knowledge about its current educational system?*

Parts of it are well mapped, cf the previous annual OFI  review, and the Green Book has taken this forward.   Regular   mapping   and   reviewing   will   help   rapid   progress.    See recommendations 1 and 2.
Rating:  3.

*Q2      Is there a national policy or strategy for educational R&D, with a clear understanding about what counts as 'research' and as 'development'?*

Little sign of a current strategy, especially in a sustained form.  However this initiative with its different components should mark a major leap forward.
Rating: currently 2, but likely to change

Q3      *How are R&D priorities supported and funded?*

There   is   significant   funding   at   present.    But   the   heavy   influence   from   the   EU-funded programmes means there is a serious possibility that this is shaping national priorities in ways which may distort the system.          Rating: not appropriate

Q4      *Are the models of R&D held by participants and stakeholders excessively linear?*

Yes, in so far as this is the logic of the criticism made above of the lack of evaluation and feedback.   However, it is not so in the sense that 'research' is not seen as preceding development in a linear way.
Rating: 3

Q5      *How are the various R&D activities distributed and co-ordinated?*

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Various agencies are involved in the distribution.  We had no direct evidence of lack of coordination across agencies, but for the system as a whole there is no strong sign of established mechanisms for coordination.

Rating: 2/3

Q6      *Has the R&D enterprise forged appropriate international links?*

Hungary plays a full part in international comparisons, and this is essential to maintain momentum and progress.  It is an open question whether the 'R&D enterprise' at every level is adequately involved.

Rating: 3

Q7      *How effective is the communication and dissemination of research findings - or what, from a knowledge management perspective, is called knowledge transfer?*

Here the system appears weak .  There is little in the way of brokerage agencies, or much apparent emphasis on synthesis and dissemination.

Rating: 2

Q8.     *How is the R&D embedded in provision for the education and training of teachers?*

This is a major difficulty and challenge.  Those responsible for teacher training are reported as having little R&D capacity themselves, and are therefore not in a position to train teachers to be research-oriented.

Rating: 2

Q9      *What quality assurance procedures are in place for educational R&D?*

It appears that these are similar to other disciplines, with educational research showing up unfavourably in comparison.

Rating: 3

Q10     *Is there adequate capacity building for educational R&D?*

Not yet, but there are promising signs.

Rating: 3.

This template was not directly used in the review process (see Annex C for the protocol used), and so the issues discussed and the views offered by participants in the interview programme do not map directly onto the questions above.  It should therefore be treated with caution;  but the exercise is nevertheless potentially valuable in a heuristic sense.

**7. CONCLUSIONS AND RECOMMENDATIONS**

We start by repeating the purpose of this review, which is to look at research, development and innovation from a systemic perspective.  It is not to examine the Hungarian education system generally, nor to evaluate each of the three components separately.  These conclusions and recommendations, therefore, are geared to improving the way R&D&I relate to each other.  The key themes running though the recommendations are those of the quality and circulation of information and knowledge; the capacity of the system to handle these;  the management of institutions and policies;  and a clearer focus on lessons and outcomes from the range of innovative activities which are currently under way and which will take place in the future.   Action to improve these will mean a more effective system, with better articulation between the three components.

Hungarian education is under stress but has many strengths and opportunities.  A country which has only fairly recently achieved a major change in its basic political complexion, and which is currently managing its integration into the wider European community, must at the same time deal with the turbulence of global economic change which is tossing around countries much larger and richer than itself.   Yet there can be no doubt about the talent and human potential which education can enable to make the country prosperous, innovative and progressive.  The challenge over the next five years – to 2015, when the structural adjustments to European entry should be complete – is to ensure that there is a really sound basis for Hungarians to achieve this.  A major advantage is that this period is quite well defined as a natural horizon.

One initial observation is this:  it is greatly to the credit of the Hungarian authorities that they have undertaken this overall initiative – ie the set of actions described in Figure 1.  This goes well beyond the conventional reviews of educational research.  *We commend this breadth of approach, and the emphasis it places on improving the system as a whole*.  Its success should enable the energies generated in previous two decades to be built upon in the decade to come.

## *Understanding and steering the system*

1. A first step would be to build a *map of the existing relevant RDI activities*.  By this we mean: a diagram of who are the main players in the game, with a brief account of what they do;  how they are resourced; and who they are accountable to.

The map should preferably go beyond the education system to include all major RDI stakeholders, but be as simple as possible, so that all stakeholders can have easy access to it. There could be different versions, from the highly simplified to the comprehensive, to meet different needs.

Even the process of constructing the map should be itself formative and constructive, especially as it is discussed, debated and revised. It may well be quite contentious – people will not necessarily agree on how it is to be built or on the information which appears. But this process of debate will bring more information into the pool, and open up possible connections.

The map would help to meet some of the criticisms voiced over transparency and accountability. It should also improve the process of priority-setting, for education generally and for educational research, by providing a common understanding of the system.

2. A further step in the same direction would to revive, in more developed form, the regular *Review of Education* in Hungary which used to be published. This publication would draw together key information; list the latest research and development; and help to set a policy and research agenda. It might be published only every three or four years, but could also be available as a regularly updated web document. It should help to lengthen the planning and research horizon.

   The Review could contain a separate chapter on research, development and innovation and also display the key outcomes from these activities. This would happen especially if it were designed on a dynamic basis, ie to evolve constantly to include new developments.

   Ownership of the Review would be an issue for debate, since this would affect its standing and nature. It could be an official government publication, or entrusted to a research institute or other body.

3. The scope for a national *educational scorecard* should be explored. This would draw on international evidence, such as PISA or PIRLS, but would locate such evidence in a properly designed national context. Initiatives such as the Canadian Composite Learning Index[24] ,pioneered by the Canadian Council for Learning and now being given a European version through a German initiative (European Lifelong Learning Index). The CLI aims to provide information at several levels (from local to national) on what progress is being made on different dimensions, using the four pillars of the UNESCO Delors report: learning to do, to be, to live together and to know.

4. A *longer-term vision of the national priorities for educational RDI* would be a major step forward. It would allow programmes to be more effectively designed, and for better use of the knowledge generated from RDI activities.

5. By its nature, an innovation system cannot be 'managed' or 'directed' from the top. But steering is needed, for setting priorities for RDI; providing the right framework of incentives and recognition; evaluating progress; and monitoring the flows of information and ideas which are the lifeblood of a culture of innovation. One option would be to have a small secretariat entrusted with this, based within the wider Research and Innovation Fund structure, but firmly connected to the educational field. An alternative (probably preferable given the primarily technological orientation of the R&I fund) would be for a body reporting to the Ministry of Education but with independent standing (at 'arms-length'). This might be called the *Council for Educational RDI* (CERDI). It may be appropriate for this Council to emerge as part of a refreshed OKI.

## *Engineering a stronger knowledge base*

a. *Researchers*

*Educational research* is distributed across several institutional types: universities, private consultants; independent agencies, and so on. This is not necessarily a disadvantage; indeed, it could mean that the educational research community has good links with a range of other professionals, in different fields or disciplines. But such potential needs to be actively developed.

6. *Research capacity needs urgent and sustained attention*. There are pockets of high quality but the overall picture is not strong. The cycle is a familiar one in many countries: low experience of research, and low quality; under-investment in research; poor recruitment of talent as researchers; and low impact on policy and practice.

7. The current move towards identifying research universities offers a particular opportunity for *integrating education-related research into wider research strategies*, but this will require imagination and determination, including a strategic commitment by universities to upgrade educational research. In our view, identifying a national

research agenda of priority educational issues (see Recommendation 4) and seeking ways in which a range of university disciplines can contribute to these is probably a more promising route – though not without risks - than concentrating on bringing education faculties up to a level where they are regarded as on a par with all other disciplines.

8. University teachers in Hungary are expected to do research, but this expectation appears low in faculties of education.  Immediate attention should be given to ways of *raising the research aspirations* of these staff.  It should not assume that the appropriate direction is for educational research to aim to be like traditional scientific disciplines.  Progress here requires:
   - Making explicit what the expectations are of research activity
   - Linking this to a debate on what kinds of research are best suited for promoting innovation and development in education.   This will include the balance between basic and applied research.
   - Attending to the reward/incentive system for carrying out research in this context.

9. A conventional but none the less important option is the strengthening of *doctoral* work on education.   We recommend that the focus is on *concentration at the institutional level*, linked with imaginative connections across the country.  Given the small current base, doctoral programmes should be built up carefully and in concentrated fashion;  that is, in probably no more than two universities.  Other universities can be connected through federal arrangements as appropriate.
   We would encourage the planning of doctoral programmes to take a number of factors into account:
   i. They should look for connections in to other disciplines, especially social sciences such as economics or sociology
   ii. They should look for connections in to other sectors, such as health
   iii. They should aim to build up teams of researchers, rather than developing traditional doctorates based on purely individual research
   iv. They should aim for a strong international perspective, with opportunities for students to go abroad
   v. They should have a strong orientation towards multi-method training, so that future researchers have a range of research tools and methods
   vi. They should explore the scope for a range of different types of doctorate, from traditional 'pure' research to more applied forms.

This is an ambitious list, which would pose a difficult challenge to most education faculties in most countries;  but we commend it as a set of aspirations to be achieved over a period.

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9.      The *Hungarian Academy of Sciences* (HAS) has an authoritative status in the Hungarian research world.   It is clear that education as a discipline or as a field does not impinge much on it. If this is to change, and if the intellectual and financial resources of the HAS are to be drawn on to improve education, there are two options.  These are not necessarily mutually exclusive, but in a world of limited resources a choice may have to be made.  This is, in many ways, parallel to the discussion of university research.

The first is to aim to build up *education as a discipline* akin to the other HAS disciplines.   This could either be within its current grouping, which places it with archaeology, history, philosophy and psychology as a member of the humanities.  Or it could be relocated to be closer to other disciplines if these seemed to offer better interaction.  In any case, serious effort would be need to make the jump from outsider to insider in the current disciplinary structure.  It is not entirely clear to us how the interactions between the HAS and universities operate, but given the weak state of educational research within universities,  there is not likely to be the kind of strong external support which would make this happen more easily.

The second option is to seek to give education – or learning – a *thematic presence* in the Academy, so that it runs across many different disciplines.  We refer to 'learning', since this may be a broader and more attractive concept for Academicians than education tout court.   Anyway, in theory this approach should open up excellent opportunities for interdisciplinary discourse, and greatly strengthened application too.  The practical mechanisms for achieving this, and its political feasibility, are beyond the scope of this report.  But even canvassing the option would be likely to throw up some interesting ideas.

Our recommendation is for the *HAS to take an explicit view on the future place of educational research within its portfolio of activities*.

10.      The prominence of *educational consultants* is a striking feature of the Hungarian RDI scene.  It is probably true that they represent, by international standards, a relatively high proportion of the intellectual capital in the field, though educational consultancies and thinktanks are increasingly influential in some countries.  They operate as private entities in a market.  Yet there is scope for integrating at least some of them into the system, in the sense that they contribute information, knowledge and expertise.  In other words, this does not seem to be a market where intellectual property rights are necessarily jealously guarded, and this is a positive feature.  Private consultants may in fact be more inclined to share intellectual property than their public sector counterparts, if the framework is right.  Our sense from those in the interview programme was that they were open to sharing;  and saw advantages in this and in a more generally stronger research base.  There was no strong impression of a purely competitive market.

If such is the case, the implication is that *consultants could be drawn in to research and capacity-building in a deliberate way*. Some may be properly qualified to teach on doctoral programmes, especially if these are of the more applied kind as suggested above. Others may be valuable members of research networks, forming partnerships with more academic colleagues – indeed, one consultant expressed a wish for more interaction with basic research. The existence of a relatively powerful consultancy field is an opportunity for actively strengthening the overall knowledge base, with a more diversified expertise. Consultants may have a particular role to play in developing a stronger brokerage function (see below).

*b. Teachers*

11.     This is not the place to make recommendations on *teacher training* generally. However, it seems clear that there is particular scope for change in the way teachers are prepared for their profession, and their in-service development, including teachers in school education, in higher education and also in vocational education and training. We can expect TAMOP 3.1.5, which deals with teachers' professional development, to enable progress in this direction. From the RDI perspective, there are three observations:

- Teachers would benefit from a *stronger research base amongst those responsible for teacher training and development* (see below on research). If teachers are to (re)gain full professional recognition, they need to be more heavily knowledge-based in their practice and orientation.
- This means in turn that *those employed to train them need to develop an appropriate relation to research*; they need not themselves be front-line researchers, but they should have an active level of scholarly familiarity, and regular access to contemporary research, including from abroad.
- Explicit attention should be paid to *enabling teachers to access and use research*, and *to plan and evaluate innovative developments*. These skills cannot be adequately acquired tacitly or by accident. They require explicit and imaginative planning.

12.     There is strong evidence that *capacity is often best built horizontally,* by people sharing experience and ideas. Teacher networks or communities pf practice are one example of this. There are good international models for taking such networks forward, as well as domestic Hungarian experience, notably on competence-based assessment. That experience should be converted into a concrete development plan for fostering teacher networks, of varying kinds. These might be by geographical locality, so members can easily meet; but they could, with IT, be geographically dispersed, organized  by subject or other

dimensions.  It is essential that networks are properly supported, sometimes with outside help.

13.     Networking amongst teachers will be a crucial means of building confidence and sharing expertise.  However, innovation requires *professional development to be more open* to ideas and inputs from other sectors than is often the case (see Csapó 2009).  To balance this focus on teachers on their own, the system needs to tap into the experience and ideas of people with other perspectives.  This may be particularly relevant in addressing disadvantaged groups such as Roma students.

*c.   Leadership and management*

14.     Decentralization should allow school leaders to innovate.  But their record on this will depend both on their own capacity, and on their relations with other levels, notably municipalities. We could not go into this issue at all, but the examples of outstanding school leadership, for example in relation to integrating and raising the performance of Roma children, show how important this can be.  International experience on school leadership is growing very fast , and is a resource which should be tapped.  *A programme for innovative school leaders to visit and fashion links with good practice elsewhere* could be an important development. Managing innovation, knowledge management and the use of research for improvement should be priority areas in the training and the professional development of school leaders.

15.     In higher education, the need for more proactive management appears urgent.  We heard of examples of strong leadership in one or two universities, but the traditional governance of universities structure generally militates against it.  One recommendation is that there should be an overall review of how far HE governance arrangements are appropriate.  A second is that in order to move forward with active management of universities, *bilateral links should be systematically developed between Hungarian universities and universities or programmes in other countries with strong management records*.   This might involve individual HE managers, or institutions as a whole, to enable organizational development.

*d.     Linking education with employment and other sectors*

16.     We began this report by locating the ERDIS project in the broader context of innovation in a global economy.   One of the main themes is the need for education to play its part in enabling societies to develop their overall capacity for innovation, linking economic and social development. It seems to us that Hungary suffers from poor knowledge flows between the worlds of education

and employment.  This is particularly striking when we look at the virtual exclusion of education from current initiatives on innovation generally.  Even the Green Book makes reference to the world of work only in relation to vocational training and early school leavers.  Below are three suggested areas where progress could be made on improving the system:

> *- reviewing the current knowledge base on education-employment links*, and seeking to promote research which contributes to this, especially in relation to the labour market outcomes of different types of education and training

> *-  changing the priorities of the Innovation Fund to include more education-related activity*, and promoting a better understanding amongst educators of relevant lessons from the Innovation Fund's work

> *- enhancing communication between educational institutions and organisations in other sectors* (both private and public) so that the innovation practices of other sectors could fertilise innovation thinking and practice in education.

## *Focussing clearly on outcomes*

17.     The *evaluation* of activities at all levels needs considerable strengthening if the system is to make continuous improvement.  In particular, it is needed if Hungary is to benefit as much as it might from the very considerable investment under way from EU-funded programmes.  In this context, however, the key point is that *evaluation is an essential source of knowledge flows between different actors and stakeholders.  It is therefore fundamental to a system which seeks to promote innovation.*

 There are several aspects to this:

> -  evaluation at *programme and policy levels* is a particular priority

> - for projects,  the evaluations should be *substantive as well as formal*;  in other words, they should deal with the educational lessons learnt and the extent to which projects had had an impact, as well as whether they fulfil the formal requirement

> - *formative as well as summative* evaluation is critical for systemic progress.

In stressing the importance of evaluation we should make it clear that this does not mean a single, rigid structure or approach to it.  Attention should be paid to developing evaluation methods which are a) suitable for the project or activity, and b) fit with a broader approach to programme or policy evaluation, so that more general lessons can be learnt.

18.     This leads us to recommend also that where these do not exist there should be some *meta-evaluations*, which draw lessons from across a range of projects, using various data sources and built in to wider processes of debate and analysis.

## *EU funded programs (TAMOP)*

The allocation of EU structural funds is a huge opportunity for Hungary to strengthen RDI, over a period of several years.  We have described briefly the scale of the TAMOP inputs, and some of the issues surrounding its implementation.

19.     There needs to be a significant *streamlining of the tendering* process.  At present the process appears cumbersome and elaborate, and therefore to absorb a disproportionate amount of resource, and especially of the time of people who might be making more substantive contributions.  Given that the programme is already well advance this may be difficult to implement, but there should be an urgent review to see what improvements can be made in the time remaining.

20.     Such is the importance of improving evaluation that we believe it would be worth exploring whether some *small percentage of TAMOP funding* can be set aside specifically to achieve this. Even an allocation of less than 1% would give a great boost to evaluation capacity, and would enhance the information and feedback in the system. Evaluation in the senses listed above should be included much more clearly as a component of most if not all contracts

## *Improving the knowledge flow*

21.   In any country *dissemination* is almost always something which can be improved, and this is the case in Hungary.  *Summaries and syntheses of research are useful tools to be developed*.  New technologies enable regular updating of results to be disseminated.  They also allow dissemination to become more interactive, and not the one-way process that the term usually implies.  In other words, results can be tested against the experience of those involved, and of the wider field.  All of this will increase the energy of the RDI system of the education sector.

Dissemination is not only about knowledge, or the results of research.  It also concerns the products of innovative developments.  A key feature of effective developmental work is the extent to which its successful outputs (curriculum materials, or pedagogical tools for example) can be made available widely.

22.     The *consultation arrangements* should be radically restructured.  A *National Education Forum* could be established, designed to promote mutual understanding between researchers,

policy-makers, practitioners and the public.   This could be quite explicitly a 'talking-shop' without decision-making powers;  but it would serve to improve communication, to allow different voices to be heard, and to improve the level of public understanding of educational issues.   A particular function would be to contribute to a stronger medium- or long-term horizon on education, providing stronger continuity in the face of political change.

The current consultative committees should be folded into this new structure.  The Forum might have different strands, for instance in relation to different education sectors, though it will be important to maintain connections across these.

There is much scope for the consultation process to draw on new technologies, for example in discussion of priorities through chatrooms and electronic discussion.


## Using external experience to ensure continuing systemic learning

Used appropriately, external experience can help enormously.  We have given some concrete examples in the text above of initiatives from other countries which offer lessons.  Recommendation 21 above follows the logic of this.  Of course the examples cannot be imported wholesale.  But they are selected because they are not heavily culture-dependent, and therefore are more open to exploration and even transfer.

23.     Two particular areas seem to offer very promising opportunities for direct learning:

> - *Brokerage agencies*, ie institutions and mechanisms which exist for synthesizing knowledge; for making it available to practitioners, researchers and policy-makers; and for creating feedback mechanisms to promote 2-way discussion:  This is particularly an area where is excellent experience internationally to be drawn on; we have included examples from Canada, UK and New Zealand.  We recommend that consideration should be given to establishing *bilateral links with relevant brokerage organizations* in order to explore transferable lessons from their experience and expertise.

- *Institutional leadership and management*, in schools, higher education and research functions.  Here too there is scope for increased bilateral or multilateral partnerships, including with countries in similar circumstances.

24. *The education sector RDI system of Hungary should be better connected to educational research, development and innovation elsewhere*, particularly in Europe and in the OECD community. As an OECD member Hungary is already participating actively in a number of education related projects (including the program on the innovation strategy for the education sector) and as a member of the European Union its researchers and developers are involved in

many cross-national programs and networks. The education R&D community of Hungary seems to be, however, less integrated into the international community of educational researchers and developers than it is the case in most developed countries. The integration should go beyond narrow educational boundaries, and link educational research to other social scientific disciplines. Internationalisation should be an important priority in the emerging national ERDIS strategy and this latter should make use of relevant inputs produced by the new innovation strategies of the OECD and the European Union.

25. Finally, this exercise of examination and review is one where momentum may be difficult to sustain. One way of addressing this problem would be to consult with similarly placed countries, and explore whether they may conduct a similar exercise. Hungary's initiative and commitment would be used to benefit other countries; but Hungary would benefit herself by having a *reference or benchmarking group* in order to monitor subsequent progress. Obvious candidates are those countries in a similar relationship to the EU, ie currently engaged in completing their entry with the use of structural funds. But these could be mixed with other countries with different profiles, within Europe and beyond.

Regular communication on benchmarking should over time build up the trust and openness which yields particular comparative value. It may be best to start with a small group of 4-6 countries.

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*Shiva: creative destruction (to match Schumpeter's view of innovation)*

## ANNEX A            ERDIS Project description

**A strategy for the Hungarian national education sector research, development, innovation and knowledge management system**

This project of the Social Renewal Operational Program (SROP) of the National Development Plan of Hungary for the period 2007-2013[25] aims at elaborating a *national education sector research, development, innovation and knowledge management strategy*. The project has the following four main components (see also the box below).

5. Analysis of non-education sector R&D&I systems and the exploration of relevant international examples and practices
6. Overall evaluation of the existing Hungarian education sector research, development, innovation and knowledge management system
7. Participation in the OECD education sector innovation strategy program
8. Elaboration of a strategy proposal

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Project components

- The first component (analysis of non-education sector R&D&I systems and exploration of international practices) comprises four elements. First, an analysis of the research, development, innovation and knowledge management practices of five sectors (e.g. car manufacturing, IT, bio-technology, health, and business consultancy) will be conducted. Second, two case studies of large organisations (one company and one public sector service organisation) will be prepared. Third, the international practices of educational research, development, innovation and knowledge management will be explored, mainly on the basis of the relevant OECD CERI programs of the last decade. Fourth, a number of supplementary smaller analyses will be conducted on the following themes:
    . - Knowledge networks in two disciplinary areas (science and foreign language teaching)
    . - Educational research and innovation in South-East Asia
    . - The role of large multinational IT firms in educational development
    . - The global state of the art of educational research and development
    . - Innovation in the private sector in education
- The second component (evaluation of the existing education sector R&D&I system) also has three elements. First, a "knowledge map" will be prepared which will provide a snapshot about the various "knowledge holders" and the different forms of knowledge they hold in the education sector on the basis of interviews and document analyses. Second, a major study will be prepared on the current state of the national education sector R&D&I and knowledge management system following a fixed framework (also using the general template prepared in the framework of the OECD review of the Danish education R&D system). The third element will be the evaluation of the Hungarian national education R&D&I and knowledge management system by an international expert.
- The content of the third component depends on the needs of the OECD education sector innovation project.
- The fourth component is the elaboration of the strategy proposal itself.
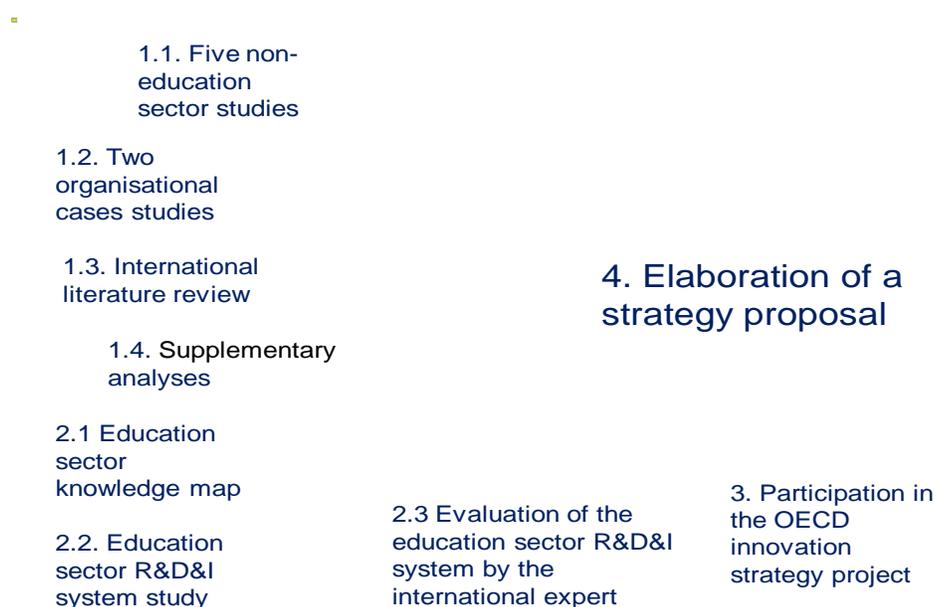
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[25] See the document here: http://www.nfu.hu/download/2737/T%C3%81MOP_adopted_en.pdf . The Hungarian abbreviation of the project is: TÁMOP 3.1.1.8.1.

The four components are strongly interlinked and they are interdependent (see *1. Figure*). The project is supervised by a professional advisory body which comprises members representing various competence areas and different organisations related with research, development and innovation. The composition of the body is as follows:

- One person representing the school education domain of the Ministry of Education and Culture
- One person representing the higher education and research domain of the Ministry of Education and Culture
- One person representing the ministry responsible for science, innovation and technology
- One person representing the Education Science Committee of the National Academy of Sciences and one teacher training university
- One person representing the Hungarian Innovation Association
- One person representing a national organisation for quality development (Hungarian Association for Excellence)
- The person who has been the author and editor of the Hungarian background report for the OECD on the national innovation system
- One person from the innovation research unit of the Institute of Sociology of the National Academy of Sciences
- One person from a major innovative multinational company

The project is implemented by the National Institute for Educational Research & Development (NIERD) which is an agency founded and operated by the Hungarian Ministry of Education and Culture. The project is a small component of a large scale educational development program entitled "*21st Century Schools*" which is part of the National Development Program of the government.

*1. Figure. The linkages of the components of the education sector R&D&I strategy project*

1.1. Five non-education sector studies

1.2. Two organisational cases studies

1.3. International literature review

1.4. Supplementary analyses

2.1 Education sector knowledge map

2.2. Education sector R&D&I system study

2.3 Evaluation of the education sector R&D&I system by the international expert

4. Elaboration of a strategy proposal

3. Participation in the OECD innovation strategy project

## ANNEX B          Background documentation


OECD review of the Hungarian innovation system (2008)

OECD innovation questionnaire for Hungary (http://www.oecd.org/dataoecd/5/43/38893097.pdf)

ProInno Innovation Trend Chart for Hungary  (http://www.proinno-europe.eu/extranet/upload/countryreports/Country_Report_Hungary_2008.pdf)

Abstract of the Act No. CXXXIV of 2004 on Research and Development and Technological Innovation. (http://www.inovasyon.org/pdf/Hungary.InnovationLaw.2004.pdf)

The Hungarian Government's mid-term (2007-2013) science, technology and innovation policy (STI) http://www.csic.edu.uy/archivos/investigadores/Doc_Pencti/Hungria/Hungria%202007_2025.pdf)

Revised National Lisbon Action Programme for Growth And Employment (2006) (http://www.nfu.hu/download/784/NAP_en_final.pdf)

Act on school education and higher education (http://www.okm.gov.hu/main.php?folderID=2289)

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Material on Hungary prepared for the Bonn OECD education innovation strategy seminar (http://www.oecd.org/document/27/0,3343,en_2649_35845581_41341467_1_1_1_1,00.html)

Innovation in the VET sector Hungary report (http://www.oecd.org/dataoecd/59/3/40958751.pdf)

The plan of EU funded development programs in the human sector 2007-2013 (http://www.nfu.hu/download/2737/T%C3%81MOP_adopted_en.pdf)

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Green Book for the Renewal of Public Education In Hungary (http://oktatas.magyarorszagholnap.hu/wiki/Green_Book)

## ANNEX C    Protocol for conversations with the international expert

**Examination of Hungary's educational research, development and innovation system (ERDIS)**

This short paper introduces the ERDIS examination.  It is designed to provide all those participating with a common understanding of the examination.

The main part of the examination will consist of a series of discussions between the external expert, Professor Tom Schuller, and a range of participants. We use the term 'conversation' to stress the collegial nature of these discussions.

**Context and Goals**

1. *Context*

   This independent examination of the Hungarian educational research, development and innovation system (ERDIS) is a sub-component of a wider evaluation of the RDI system. The wider evaluation is in turn a component of a project developing a national strategy The project description is to be found in Annex A. Figure 1 presents the overall structure of the project, and how this examination fits into it (Box 2.3).

2. *Goals of the conversations*

   The interviews are intended to :
   - Enable the examiner to develop a picture of the strengths, weaknesses and future options for the Hungarian RDI system

   - Allow participants to formulate and express their views on the above

   - Enable a common agenda to be developed as a result.

 The value of the interviews will depend on the frankness of the participants, and the quality of their insights.  The discussions will be confidential, in the sense that no specific comments will be attributed to specific individuals, except where permission is given.

The outline below is designed to help participants prepare their thoughts in advance of the interviews.  The discussions will be semi-structured.  In other words, they will be organised around a selection from the issues listed above, but this will certainly not prevent participants from introducing other points which they consider important, and the examiner will also be free to follow up new issues which emerge in the course of the discussion.

**Outline for the conversation**

The discussions will follow (though not rigidly) the following structure:

1. *My organisation*

   Opportunity for the participant to talk briefly about the organisation/sector which they represent

   - what it does

   - how it contributes to innovation.

2. *Key innovation issues*

We will then move on to discuss a selection from the following issues – but we will not deal with all of them in each conversation, nor stick rigidly to them:

- The *range of stakeholders* involved in innovation: how broad, how appropriate. This includes external agents, eg consultants, publishers etc

- The *institutional frameworks* (including relevant national and lower lever bodies, agencies, institutionalised networks etc.)

- *Leadership*: who takes responsibility for driving innovation along, and how is this exercised

- The level and quality of r*esources* (including financial and human resources) committed to innovation

- The impact of(dis)*incentives* for innovation: how strong, how well do they work

- The '*absorptive capacity'*: how far the different parts of the system are able to a) understand, and b) make use of the knowledge generated and circulated

- The level and quality of *monitoring, evaluation* and *feedback*: how well are policies and practice evaluated, and how well is that evaluation information put to use

- The extent and quality of *information flows*: who generates it, who gets it, and how it is used

- The use of *international* information, resources and expertise

- The *quality and relevance* of R+D+I, as perceived by the stakeholders and, as far as possible, as measured by recognised indicators.

It would be extremely helpful if participants can spare the time to prepare their thoughts beforehand on these issues.

3. Also attached is a *model of systemic innovation*, devised as part of the OECD/CERI project on systemic innovation in VET. If appropriate, we shall use this as a means of talking through the issues and processes involved in innovation.

4.  Participants will be invited to send in further thoughts or insights which occur to them after the interview.

**Results**

The outcome of the conversations will be a draft report from the expert. This will be circulated to participants for comment, by April. A final version will then be prepared and fed into the main project.

Figure 3.2. **Model of systemic innovation in education**
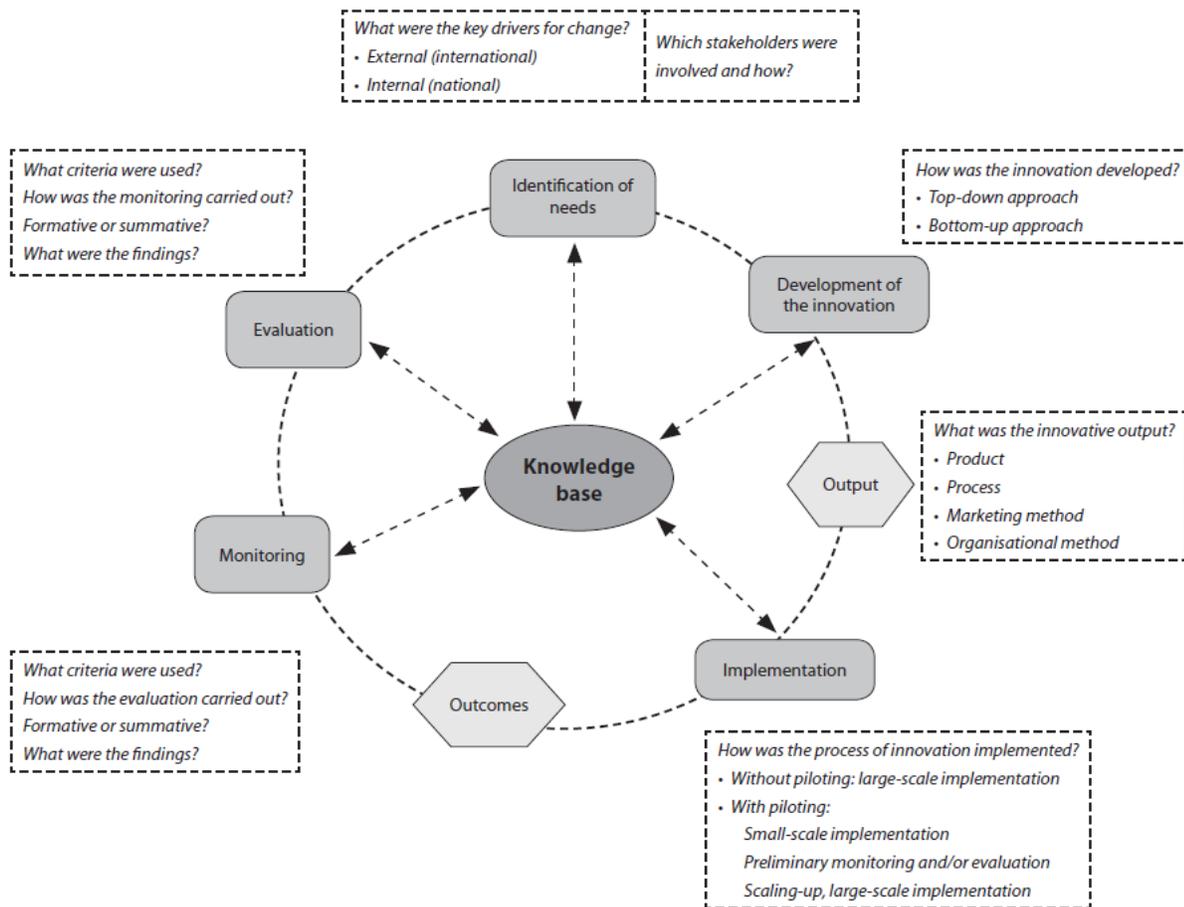


*Source: OECD/CERI Working Out Change: systemic innovation in vocational education and training*

## ANNEX D    Program of the visit of the international expert

### (ERDIS)

20-27 January, 2010

| Date | | Event | Participants |
|---|---|---|---|
| **January 20, Wednesday** | 18.30 | Arrival<br>Informal meeting (dinner) | core team (**Eva Balázs, Márta Fischer, István Vilmos Kovács and Gábor Halász)**<br>+ **Judit Lannert** (researcher) |
| **January 21, Thursday** | 9.00-10.30 | Launch briefing<br>(discussing the key conclusions of the background report, the focus of the investigation and the program of the visit) | **core team + Judit Lannert** |
| | 11.00-12.00 | Meeting with key decision makers in the Ministry of Education | **Beátrix Borzas** (colleague of the HE and research department)<br>**Sándor Brassói** (Head of the schools department) |
| | 12.00-13.00 | Lunch | |
| | 13.00-18.00 | Meeting with leaders of national (governmental) "background institutions" responsible for government related R+D+I and involved in the implementation the EU funded development programs | • 13.00-14.00<br>OFI: **Balázs Németh** and **Tibor Balázs** (programme leaders)<br>OH: **Ildikó Balázsi, László Ostorics**<br>Educatio: **Gabriella  Zsigovits**<br>NSZFI: **Judit Csapó** (Head of Secretariat for External Relations) |
| **January 22, Friday** | 9.00-10.30 | Meeting with representatives of the agency implementing the EU funded National Development Program and planners of NFÜ education programs in the TAMOP operational program) | **Bálint Magyar**<br>**Jutka Wolf**<br>**Ádám Horváth**<br>**Aurél Puskás**<br>**Zsolt Sági**<br>**András Bakos** |

| | 11.00-12.30 | Meeting with educational researchers | **Daniel Horn** (MTA, Institute of Economics)<br>**György Drótos, Gergely Kováts** (Corvinus University)<br>**Iván Bajomi** (ELTE University, Faculty of Social Sciences)<br>**Mária Szabó, Matild Sági, András Derényi** (OFI)<br>**Zsuzsa Vajda** (University of Miskolc, Teacher Training Center) |
|---|---|---|---|
| | 12.30-13.30 | Lunch (OFI lunch - buffet) | |
| | 13.30-15.00 | Meeting with the heads of major university education science departments | **Éva Lőrincz** (Budapest University of Technology and Economics)<br>**Vilmos Vass** (ELTE)<br>**Zsuzsa Mátrai** (Pannon University)<br>**Mária Nagy (**College of Eger**)**<br>**Balázs Gál** (Pannon University) |
| | 15.00-16.30 | Meeting with representatives of consultative bodies | FTT: **Ferenc Makovényi**<br>OKNT: **Ferenc Lóránd** (president)<br>KT: **Eva Pecsenye** (member – representing organisations of teachers)<br>NSZFT: **István Wentzel** (on behalf of ASZSZ) |
| **January 23, Saturday** | 9.00-12.00 | Educatio exhibition | **Mátyás Gáti** (head of press department) |
| **January 24, Sunday** | | | |
| **January 25, Monday** | 9.00-10.30 | Meeting with representatives of private consulting companies | **Viktória Bodnár** (IFUA)<br>**János Setényi** (Expanzio)<br>**Attila Horváth** (Horváth & Dubecz)<br>**András Nyiri** (Tinta Kft)<br>**Krisztina Csekő** (Commitment Zrt) |
| | | Meting with representatives of MTA | Professors<br>**Tamás Kozma**<br>**Valeria Csépe**<br>**Marianne Nikolov**<br>**Tamás László Szabó** |

| | | | |
|---|---|---|---|
| | 12.00-13.00 | Lunch | **Benő Csapó** (University of Szeged) |
| | | | **Tibor Baráth** (Qualitas) |
| | 13.00-14.00 | Meeting with a representative of OTKA | **Gábor Makara** (former president of OTKA) |
| | 14.30-16.00 | Meeting with a representative of NKTH | **László Gombos** |
| | 16.30-18.00 | Meeting with a representative of OK (Oktatásért Közalapítvány) | **Zsófia Gáli** (one of the programme leaders) |
| **January 26, Tuesday** | 9.00-10.00 | Meeting with representatives of theTEMPUS PF | **Péter Tordai** (director) |
| | | | **Katalin Garai-Albrecht** |
| | | | **Katalin Kurucz** |
| | | | **Anita Kardos** |
| | 11.00-12.30 | Meeting with the representatives of unions and civil organisations | **László Kis Papp** (FDSZ) (president) |
| | | | **Gyöngyi Kiss** (PSZ) (member) |
| | | | **Gábor Kerpen** (PDSZ) (president) |
| | | | **László Kuti** (TUDOSZ) (president) |
| | | | **László Somogyi** (GOSZ) (member) |
| | | | **Géza Molnár** (ESHA) (member of presidency) |
| | 12.30-14.00 | Lunch | With **Zoltán Loboda** (Head of EU department, Ministry of Education and Culture) |
| | 14.30-16.00 | Meeting with the leaders of the various sub-projects of our education sector R+D+I project (5+5 persons) and the members of the steering group | Researchers: |
| | | | **János Győri** (IT research) |
| | | | **Lívia Faragó** (Eastern-Asia research) |
| | | | **András Inotai** (health care) |
| | | | **Anikó Farkas** (ELTE) |
| | | | Steering group: |
| | | | **András Bakács** (Ministry of Economy and Development) |
| | | | **Péter Gyenes** (Nokia-Siemens Networks) |
| | | | OFI (related projects): |
| | | | **Attila Gáspár** |

| | | | **Kálmán Békési** |
|---|---|---|---|
| | 16.00-17.00 | Meeting with the representatives of political parties | **Rózsa Hoffmann** (KDNP) |
| **January 27, Wednesday** | 9.00-10.00 | Meting with a journalist | |
| | 10.00-12.00 | Debriefing and further planning | core team + Judit Lannert |
| | 12.00 –4.0 | Preparation for departure | |

## Legend

Educatio – EDUCATIO Társadalmi Szolgáltató Nonprofit Kft.
Educatio Public Service Non-profit Company
(http://www.educatio.hu/cegunk)

ESHA – European Schools Headmaster Association

(http://www.esha.org/)

FTT - Felsőoktatási és Tudományos Tanács
Higher Education and Research Council
(http://www.ftt.hu/Kezdőlap/tabid/36/language/en-GB/Default.aspx)

FDSZ – Felsőoktatási Dolgozók Szakszervezete
Trade Union of Employees in Higher Education
(http://www.fdsz.hu/i_flash.html)

GOSZ – Gimnáziumok Országos Szövetsége
National Association of Gymnasiums
(http://www.gosz.hu/info.html)

KT – Közoktatás-politikai Tanács
Counciul of Public Education Policy
(http://www.okm.gov.hu/main.php?folderID=1198)

MTA – Magyar Tudományos Akadémia
Hungarian Academy of Science
(http://www.mta.hu/index.php?id=406&type=0)

MTA Institute of Economics

http://www.econ.core.hu/english/

NKTH – Nemzeti Kutatási és Technológiai Hivatal
National Office for Research and Technology
(http://www.nkth.gov.hu/english)

NFÜ – Nemzeti Fejlesztési Ügynökség
National Development Agency
(http://www.nfu.hu/?lang=en)

NSZFI – Nemzeti Szakképzési és Felnőttképzési Intézet
National Institute of Vocational and Adult Education
(https://www.nive.hu/english_version/index.php)

NSZFT - Nemzeti Szakképzési és Felnőttképzési Tanács
National Council of Vocational and Adult Training
(http://www.szmm.gov.hu/main.php?folderID=16449)

Including:

VOSZ: National Association of Entrepreneurs and Employers

(http://www.vosz.hu/)

FVSZ: Association of Adult Trainers

(http://www.fvsz.hu/) – only in Hungarian

ASZSZ: Association of Autonomous Trade Unions

(http://www.autonomok.hu/) - only in Hungarian

SZTÁV: Adult Trainer Ltd.

(http://www.sztav.hu/) only in Hungarian

NTK – Nemzeti Tankönyvkiadó

National Textbook Publisher

http://oldwww.uni-miskolc.hu/e_index.php only in Hungarian

OKM – Oktatási és Kulturális Minisztérium
Ministry of Education and Culture
(http://www.okm.gov.hu/main.php?folderID=137)

OFI - Oktatáskutató és Fejlesztő Intézet
National Institute for Educational Research and Development
(http://www.ofi.hu)

OH – Oktatási Hivatal
Educational Authority
(http://www.oh.gov.hu/english)

OKNT – Országos Köznevelési Tanács
National Council of Public Education
(http://www.okm.gov.hu/main.php?folderID=392)

OTKA – Országos Tudományos Kutatási Alap

      Hungarian Scientific Research Fund

      (http://www.otka.hu/?akt_menu=991&set_lang=991 )

PDSZ – Pedagógusok Demokratikus Szakszervezet

      Democratic Union of Teachers

      (http://www.pdsz.hu/index.php)

PSZ – Pedagógusok Szakszervezete

      Teachers' Union

      (http://www.pedagogusok.hu/index.php)

TAMOP . Társadalmi Megújulás Operatív Program

      Social Renewal Operational Program

TUDOSZ –Tudományos és Innovációs Dolgozók Szakszervezete

      Trade Union of Scientific and Innovation Workers

      (http://www.tudosz.hu/)


University websites:

Budapest University of Technology and Economics

Corvinus University (University of Economics)

      http://www.uni-corvinus.hu/index.php?id=474

ELTE (Eötvös Lóránd) University

      http://oldwww.uni-miskolc.hu/e_index.php

University of Pannonia

      http://www.uni-corvinus.hu/index.php?id=474

University of Miskolc

      http://oldwww.uni-miskolc.hu/e_index.php

University of Debrecen

      http://www.unideb.hu/portal/en