

# Assuring Sustainable Development of the Republic of Moldova through Investments in Intellectual Capital

Alic Bîrcă\*, Aliona Chimacovschi\*\*

\* Academy of Economic Studies Moldova, str. Banulescu-Bodoni, 61, MD-2005, Chișinău, Republic of Moldova

e-mail: alicbir@yahoo.com

\*\* Academy of Economic Studies Moldova, str. Banulescu-Bodoni, 61, MD-2005, Chișinău, Republic of Moldova

e-mail: aliona\_mihchim@hotmail.com

## Abstract

*This paper presents the importance of intellectual capital in sustainable development of any country, because the human resources represent the most valuable capital. The intellectual capital includes the human capital, social capital and structural capital, and the investments in the domain are direct or indirect investments. Between 2001 and 2005, in the Republic of Moldova the number of graduates of higher education institution increased, and the number of graduates of colleges and secondary professional education institution decreased. To ensure a sustainable development of the country, it is important that the state, organizations and other education institution should promote knowledge transfer, e-learning, investments in career development, informational technologies and in individuals' health.*

**Key words:** *intellectual capital, human capital, social capital, structural capital, sustainable development, investment*

The multitude of economic problems the Republic of Moldova is currently facing is due to the lack of a definite strategy at the macroeconomic level that would identify the most important fields of development. During the last 10-15 years, the economy of the Republic of Moldova passed through a period of changes and new studies to identify some viable solutions for its sustainable development. The fact that the Republic of Moldova is considered one of the poorest countries in Europe is also the result of inefficient use of human resources, as an integral part of intellectual capital. As the Republic of Moldova lacks other natural resources, human resources represent the most valuable capital. In spite of the lack of natural resources, sustainable development of the Republic of Moldova can be assured through the development of technological, managerial, and financial innovations based of the creative human abilities. Thus, the role and importance of the human factor changes considerably which turns it from a passive resource into an active value of intellectual capital.

*Intellectual capital includes three elements: human capital, social capital and structural capital.*

*Human capital represents the human factor of a country which through a combination of intelligence, abilities and qualified experience encourages its sustainable development. Human resources can study, change, innovate and assure the creative enthusiasm which can guarantee a*

sustainable development of a country as a result of an adequate motivation. In its turn, the human capital is consists in:

- *educational capital* which includes the abilities acquired by individuals in the process of training;
- *biological capital* which refers to the physical abilities of the individuals synthesized mostly through their health.

Educational capital is presented in two distinct forms. On the one hand, there are skills acquired as a result of attendance in the formal education systems, knowledge certified by diplomas. On the other hand, there is any other knowledge acquired during the life, through own effort or contacts with experts in various domains finalized with the acquisition of knowledge resulted from the assimilation of the information received from interaction with them.

Biological capital faces difficulties in definition and measurement. In specialized literature there have not been done definite scientific researches to determine the health of individuals. This has been determined either through subjective evaluation of the individuals or through money measurements of expenses for medical assistance. The biological capital depends a lot on the educational capital, the researches showing that most educated individuals prefer high quality health services to maintain their health in perfect condition.

*Social capital* represents the acquisitions and flows of knowledge arising from the social networks established within a country. In Putnam's opinion, social capital is defined as „elements of social life – networks, norms, and trust – which allow the participants to act together more efficiently in achieving some common objectives”. The World Bank offers the following definition: „Social capital refers to institutions, relationships and norms which adapt the social interactions in a society both quantitatively and qualitatively ... The social capital does not represent only the number of institutions a society establishes – it is the liaison that keeps them together”.

Thus, The social capital can be viewed as an aggregate of horizontal associations between people, consisting of social networks and inherent norms which have an effect on the community, productivity and personal wellbeing.

*Structural capital* can be described as the institutionalized knowledge which can be retained with the help of informational technologies in databases which can be accessed immediately and extended easily. The structural capital is created by people, but it is the result of social capital interactions.

As a result, intellectual capital is very important for the sustainable development of any country and it requires special attention from the state, which should increase the financial resources to be invested in intellectual capital.

Investments in intellectual capital can be direct and indirect (table 1).

**Table 1.** Types of investments in intellectual capital

<b>Direct investments</b>		<b>Indirect investments</b>	
Investments in training	<ul style="list-style-type: none"> <li>• youth training to obtain a trade or profession;</li> <li>• professional re-qualification of individuals;</li> <li>• professional development etc.</li> </ul>	Investments in informational technologies	<ul style="list-style-type: none"> <li>• computerize the activity of all the organizations;</li> <li>• connect to the INTERNET network;</li> <li>• create virtual libraries etc.</li> </ul>

Table 1. (cont.)

Investments in the development of the creative potential	<ul style="list-style-type: none"> <li>• brainstorming;</li> <li>• case studies;</li> <li>• workshops etc.</li> </ul>	Investments in equipment to develop the intellectual capital	<ul style="list-style-type: none"> <li>• purchase audio equipment;</li> <li>• purchase video equipment;</li> <li>• purchase other equipment, useful both in the process of production and training etc.</li> </ul>
Investments in knowledge transfer	<ul style="list-style-type: none"> <li>• outsourcing;</li> <li>• consulting services;</li> <li>• benchmarking;</li> <li>• e – learning etc.</li> </ul>		
Investments in career development	<ul style="list-style-type: none"> <li>• planning an individual career;</li> <li>• planning an organizational career.</li> </ul>	Investments in medical assistance	<ul style="list-style-type: none"> <li>• purchase medical equipment;</li> <li>• cover expenses in case of temporary work incapacity;</li> <li>• health insurance of individuals etc.</li> </ul>
Investments in literature	<ul style="list-style-type: none"> <li>• publish all types of manuals;</li> <li>• publish general, creative and specialty magazines;</li> <li>• improve continuously the book stores in libraries etc.</li> </ul>		

Investments in the development of intellectual capital can be made by the state, through the policies they promote in this domain, by organizations or each individual separately and include various aspects. At present, from the multitude of direct investments in intellectual capital, investments in training have the highest ratio.

Investments made by the state in training represent the professional development of youth in order to obtain a trade or profession. Table 2 presents the number of graduates of educational institutions in 2001 - 2005.

Table 2. The number of graduates of educational institutions

Indicators	Years		
	2001	2003	2005
<b>Total number of graduates ( thousand)</b>	<b>34,5</b>	<b>35,1</b>	<b>33,6</b>
including:			
Graduates of secondary professional educational institutions (trade schools)	15,4	15,5	11,3
Graduates of colleges	6,6	4,3	4,9
Graduates of higher education institutions	12,5	15,3	17,4
<b>Graduates per 10000 inhabitants</b>			
Secondary professional educational institutions (trade schools)	38	43	31
Colleges	20	12	14
Higher education institutions	34	42	48

Source: National Bureau of Statistics, Republic of Moldova, 2006

According to the statistical data, in the Republic of Moldova the number of graduates with higher education is increasing, which is a favorable point as the value of the intellectual capital increases as well. Or, in the informational society where the work is „intellectualized” the increase in the number of graduates with a higher education degree is obvious, but the quality of the knowledge the young specialists acquire is also important. The number of graduates of higher education institutions increased from 12,5 thousand graduates in 2001 to 17,4 thousand graduates in 2005. Simultaneously, there can be observed a reduction in the number of graduates of the secondary professional educational institutions, from 15,4 thousand graduates in 2001 to 11,3 thousand graduates in 2005.

Organizations play an important role in the development of intellectual capital. Understanding the importance of the human capital to ensure competitiveness, organizations redirect yearly substantial financial resources towards professional training, including in this process a larger number of persons with different qualifications. Lately, the financial resources allocated by the organizations for professional training exceed largely the other financial resources directed for this purpose. Table 3 presents the financial sources inherent to personnel professional training and development.

**Table 3.** Sources of financing inherent to professional training

Sources of financing	Years					
	2001		2003		2005	
	thousand lei	%	thousand lei	%	thousand lei	%
<b>Total expenses:</b>	<b>20245,3</b>	<b>100</b>	<b>26305,5</b>	<b>100</b>	<b>43436,9</b>	<b>100</b>
Inclusively from:						
organizations	17617,3	87,02	21187,9	80,5	36665,9	84,41
state budget	369,1	1,82	778,5	2,96	1817,0	4,18
local budget	1886,8	9,32	4129,6	15,70	3059,0	7,04
other sources	372,1	1,84	209,5	0,84	1895,0	4,37

Source: National Bureau of Statistics, Republic of Moldova, 2006

According to table 3, financial means for professional training increased more than twice from 20245,3 thousand lei in 2001 to 43436,9 thousand lei in 2005. Organizations have allocated most financial means for professional training, which is more than 80% of total amount allocated for professional training.

The development of the creative potential has a great importance for a country's intellectual capital growth. The creative potential of a country can increase as a result of using various methods and techniques such as: case studies, brainstorming, workshops, which are less known in the Republic of Moldova and as a result, investments in this domain are insignificant. Thus, organizations should insist more on the application of these techniques or even the creation of specialized centers that would contribute to a more rapid development of the individuals' creative potential.

Knowledge transfer represents another form of intellectual capital development. Outsourcing, consulting services and the benchmarking are most adequate but the least known forms of knowledge transfer in the Republic of Moldova, except for the consulting services. In the Republic of Moldova, new knowledge can be acquired through consulting services provided by the specialized centers which are few and the quality of services provided is very poor.

It has been stated lately that *e-learning* represents an efficient form of intellectual capital development. E-learning can offer the information and instruction that is useful for the improvement of the individual's performance. Hence, it can not be viewed just as a method of training by using a computer, foremost it offers a multitude of solutions using new technologies, especially the INTERNET, in order to improve the individuals' knowledge and implicitly their performance. The investments in career development are insignificant as the organizations in the Republic of Moldova have not been previously involved in this activity. In the period of the Soviet Union it had a major political character because only people who were members of the communist political party were promoted to top positions. At present the organizations make only the first steps in planning their employees' careers.

Purchasing reference books from all the fields of the social life allows the acquisition of additional knowledge and information that would lead to the development of intellectual capital. This type of investment is very important as the creative potential develops owing to the accumulation of new information and knowledge.

Investments in informational technologies allow individuals to obtain more quickly the information they need for their personal development. Thus, intellectual capital development can not be conceived without investments in informational technologies.

The audio, video and other special equipment can influence the intellectual capital development as well. Moreover, it has already been proved that the information and knowledge an individual needs is transferred easier and quicker by using the aforementioned equipment.

Investments in individuals' health allow maintaining their work capacity at an acceptable level, offering thus the possibility of using the intellectual capital efficiently. As a result, investments in health should not be disregarded, but on the contrary more attention should be paid both from the state and organizations.

Thus, investments in intellectual capital allow increasing the value of individuals as well as their competitiveness. It should be stated with regret that in the Republic of Moldova the number of people with higher education degrees who leave their country to work abroad is increasing, which means the „emigration” of the intellectual capital of the country. Inadequate motivation of individuals with a high intellectual potential, persuades them to emigrate abroad to obtain higher salaries for the same effort. In case this tendency persists in the future there is a risk that the Republic of Moldova will remain without highly qualified work force and consequently, sustainable development will no longer be ensured.

## References

1. Amidon, D.M. - *The Innovation Superhighway: Harnessing Intellectual Capital for Sustainable Collaborative Advantage*, Amsterdam, Boston: Butterworth-Heinemann, 2003
2. Baker, S. - *Sustainable Development*, Routledge, 2006
3. Bounfour, A., Edvinsson, L. - *Intellectual Capital for Communities Nations, Regions, and Cities*, Amsterdam, Boston: Elsevier Butterworth-Heinemann, 2005
4. Brooking, A. - *Intellectual Capital*, London, New York: International Thomson Business Press, 1997
5. Chatzkel, J. - *Intellectual Capital*, Oxford, Capstone Pub., 2002
6. Choo, W.C., Bontis, N. - *The Strategic Management of Intellectual Capital and Organizational Knowledge*, Oxford; New York: Oxford University Press, 2002
7. Connor, R., Dovers, S. - *Institutional Change for Sustainable Development*, Cheltenham, Edward Elgar, 2004
8. Dalal-Clayton, D.B., Bass, S. - *Sustainable Development Strategies: A Resource Book*, London ; Sterling, VA : Earthscan, 2002
9. Ehin, C. - *Unleashing Intellectual Capital*, Boston: Butterworth-Heinemann, 2000
10. Harris, J.M. - *A Survey of Sustainable Development: Social And Economic Dimensions*, Washington, D.C.: Island Press, 2001
11. Harrison, N.E. - *Constructing Sustainable Development*, Albany, NY: State University of New York Press, 2000
12. Houghton, G., Counsell, D. - *Regions, Spatial Strategies, and Sustainable Development*, Routledge, 2004
13. Kersten, G.E., Yeh, A.G.O., Mikolajuk, Z. - *Decision Support for Sustainable Development: A Resource Book of Methods and Applications*, Boston, Kluwer, 2000
14. Lee, K., McNeill, D., Holland, A. - *Global Sustainable Development in the Twenty-First Century*, Edinburgh: Edinburgh University Press, 2000
15. Marr, B. - *Management Consulting Practice in Intellectual Capital*, Bradford, England: Emerald Group Publishing, 2005
16. Marr, B. - *Perspectives on Intellectual Capital*, Amsterdam, Boston: Elsevier Butterworth-Heinemann, 2005
17. Pallemerts, M., Azmanova, A. - *The European Union and Sustainable Development: Internal and External Dimensions*, Brussel, VUBPress, 2006
18. Phillips, P.P. - *Measuring Intellectual Capital: Twelve Case Studies From the Real World Of*

- Training*, Alexandria, VA: American Society for Training & Development, 2002
19. Rao, P.K. - *Sustainable Development: Economics and Policy*, Malden, Mass.: Blackwell Publishers, 2000
  20. Schmandt, J., Ward, C.H. - *Sustainable Development: The Challenge of Transition*, Cambridge University Press, 2000
  21. Scott, W., Gough, S. - *Sustainable Development and Learning: Framing the Issues*, Routledge, 2003
  22. Stewart, T.A. - *The Wealth Of Knowledge: Intellectual Capital And The Twenty-First Century Organization*, New York, Currency, 2001
  23. Stuhler, E.A., Vezjak, M. - *Sustainable Development: The Role of the Universities*, Muunchen, Hampp, 2000
  24. Teece, D.J. - *Managing Intellectual Capital: Organizational, Strategic, and Policy Dimensions*, Oxford ; New York, Oxford University Press, 2000
  25. Voss, J.P., Bauknecht, D., Kemp, R. - *Reflexive Governance for Sustainable Development*, Cheltenham, Glos, UK, Northampton, MA: Edward Elgar, 2006
  26. Wall, A., Kirk, R.J., Martin, G. - *Intellectual Capital: Measuring the Immeasurable?*, Amsterdam, Boston: Cima Pub., 2004
  27. \*\*\* National Bureau of Statistics, Republic of Moldova, 2006

## Asigurarea dezvoltării sustenabile a Republicii Moldova prin intermediul investițiilor în capitalul intelectual

### Rezumat

*Acest articol prezintă importanța capitalului intelectual în dezvoltarea sustenabilă a oricărei țări, deoarece resursele umane reprezintă cel mai valoros capital. Capitalul intelectual este format din capitalul uman, social și structural, iar investițiile în acest domeniu pot fi directe sau indirecte. Între anii 2001-2005, în Republica Moldova, numărul absolvenților instituțiilor de învățământ superior a crescut, iar cel al colegiilor și școlilor profesionale s-a diminuat. Pentru a asigura o dezvoltare sustenabilă a țării este necesar ca statul, organizațiile și alte instituții de profil să se orienteze spre transferul de cunoștințe, e-learning, investiții în domeniul dezvoltării carierelor, tehnologiei informației și al stării de sănătate a indivizilor.*