THE STATUS OF THE HUMAN CAPITAL IN ROMANIA AND ITS COUNTIES

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Abstract: The human capital concept implies thus that the capital is the active capital of people themselves and that people cannot be separated from their knowledge, abilities, health or values. We can consider that the human capital can be divided into four elements: Knowledge, Skills, Talent and Behavior.

In this article, I analyzed, at a detailed territorial level - that of the counties, taking into account the territorial structure, with its intrinsic issues at the human capital level and the specificities of the Romanian regions, a territorial human capital index – THCI, capable of comprising, in my view, the current situation and the related issues at the level of the Romania's counties.

Keywords: human capital, Europe 2020 Strategy, Romanian counties, pillars, territorial human capital index – THCI.

JEL Classification: I15, I24, I25, R23

1. Human Capital Definitions

The first elements referring to the *human capital,* such asthose regarding the importance of education on work productivity and the idea o investing in the *human capital* were first defined by Adam Smith, in „The Wealth of Nations" (1776), in the context of the analysis of differences between workers with different education background and instruction levels[1].

The modern concept of *human capital* belongs toTheodore W. Schultz (Nobel winner for economy) who in his article - *Investment in Human Capital (1961)*[2] published in the American Economic Review demonstrated that in the US economy the results of the investment in human capital by education and training are greater than those of the investment in the physical capital

[1] (Smith, Adam,*Avuţia naţiunilor*:Cercetarea asupra naturii şi cauzelor ei vol.1, Editura Academiei, 1962, p. 9-12, 14)

[2] Schultz, Theodore, W., Investment in Human Capital, *American Economic Review*, 1(2), 1961, p.1-17 (http:///www.jstor.org/stable/pdfplus/1818907.pdf)

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(machinery, buildings, computers). Schultz defined the concept in 1968: "I consider all human abilities innate or acquired. The capabilities that are valuable and that can be improved by appropriate investment constitute the human capital. Investing in themselves, people can enlarge the range of choices available to them'[3]. The human capital concept implies thus that the capital is the active capital of people themselves and that people cannot be separated from their knowledge, abilities, health or values.

Jacob Mincer introduced the concept of human capital in the neoclassic economic literature via his 1958 article „*Investment in Human Capital and Personal Income Distribution*"[4]. The idea of human capital was put in practice by the Chicago School whose representatives are Jacob Mincer and Gary Becker. According to Gary Becker, the human capital is defined by *the monetary and non-monetary activities which influence future monetary income. These activities include: education, training on the job, medical expenses, migration, seeking information on prices and incomes. The* ***factors*** that impact the human capital are this: *schooling, physical health, mental health child care and migration*[5].

Newer perspectives, more precisely those referring to the total human capital mention the value of the return on investment of human capital on its owner. On the other hand both economic trends and the literature in the field emphasized that *in both economic development and in firm behavior—the most important assets are the human ones.*[6]

To support this idea, Thomas Davenport concluded that: 'the human capital comprises all the intangible assets that people bring to their jobs. He studies the so-called metaphor of the human capital, broken into four elements: i) Knowledge: command of a body of facts from different sources ii) Skills: facility, developed through practice; iii) Talent: inborn facility for performing a task; iv) Behavior: observable ways of acting that contribute to accomplishing a task.[7]

[3]Schultz, T. W.,*Reflection on Investment in Man,* The Journal of Political Economy, Vol.70,No.5 Part 2, Investment in Human Beings, Oct.1962,p.1-8 (http:///www.jstor.org/stable/pdfplus/1818907.pdf)

[4]Mincer, Jacob, *Investment in Human Capital and Personal Income Distribution*, Journal of Political Economy, Vol.66, Issue 4, 1958, p.281-302 (http:///www.jstor.org/stable/pdfplus/2006549.pdf)

[5]Becker, G.S., *Capitalul uman.O analiză teoretică şi empirică cu referire specială la educaţie*, Editura ALL, Bucureşti, 1997, p.12-27

[6]Roosevelt Malloch, T., *Social, Human and spiritual Capital and Economic Development*, Templeton Foundation, Harvard University, October 2003,p.4 (http://www.metanexus.net/spiritual_capital/pdf/Malloch.pdf)

[7]Davenport, Thomas O., *The Human Capital Metaphor: What's in Name?,* in Learning from Human Capital Revolution, Spring 2001 (http://www.linezine.com/4.2/articles/tdthcmwian.htm)

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2. Human Capital Quantifying Indicators

The attempts of assessing human capital at world level were motivated by the acknowledgement of human capital as determining factor of economic growth (OECD, 2001).

There are numerous approaches for measuring the *human capital stock* and developing national *human capital accounting* in countries such as USA, Canada, Australia, Norway, New Zeeland, United Kingdom , Portugal etc., at OECD level (human capital accounting development) and ant EU level by the ***European Human Capital Index*** and the ***Regional Human Capital Index***.

On the other hand, studying human capital in connection with *competitiveness* (more recently taking into account the knowledge society framework and the interconnections) lays light on the links among these concepts characterized by extensive theoretical debates and disputes. At global level, a series of famous international organisms (World Bank, OECD, World economic Forum, European Commission etc.) and education renowned educational and consultancy institutions (INSEAD, McKinsey etc.) have made substantial efforts for years (decades) to measuring and identifying *aggregated indicators* to highlight the development status of countries from the competitiveness perspective, of human capital and of the knowledge society. The results obtained by means of these methodologies provide first of all a hierarchy of countries according to the levels of different indicators and the analyses of the trends as compared the previous years[8].

More in-depth analyses at country level emphasize the *critical fields* which need *improvement interventions* regardless if it implies the education level or the quality of the economic environment or the capacity to attract and retain talent and make use of certifications in activities locally or increase the health and wealth level of the population.

Out of these indicators of the type, the most renowned at international level are the *index of human capital (World Economic Forum, the global talent competitiveness index (INSEAD), the IMD world talent raking (IMD Lausanne) human development index (UN); the gender gap index(World Economic Forum).* Further on we will refer in more detail to Romania's position in the world according to the human capital index, at the end we will present a fitting of this index at territorial level, in the specific context of the Romanian counties.

[8] E. Pelinescu (coordonator) (2014), *Capitalul uman – factor esențial al creșterii competitivității în societatea cunoașterii*, Institutul de Prognoză Economică, București.

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The Human Capital Index – HCI was elaboratedby World Economic Forum, being presented in the first *Human Capital Report* in 2013. It provides a comprehensive framework for evaluating and benchmarking human capital at the level of national economies, emphasizing the best national performances regarding the investments in the health, education and talent of their own citizens as well as far as ensuring a proper environment so that these investments are translated into high productivity at the entire economy level. The index was calculated for 122 countries of the world, providing besides a global hierarchy, more complete pictures of he specific context of each country.

Taking into account that the human capital index is determined by the physical, economic and social context of a specific society and by a series of other components which vary in time (health, environment factors etc), similarly to other indicators calculated by WEF, HCI, the human capital are based on four main pillars (Addendum 1):

The *Education* pillar contains indicators relating to quantitative and qualitative aspects of education across primary, secondary and tertiary levels and contains information on both the present workforce as well as the future workforce.

The *Health and Wellness* pillar contains indicators relating to a population's physical and mental well–being, from childhood to adulthood

The *Workforce and Employment* pillar is designed to quantify the experience, talent, knowledge and training in a country's working–age population

The *Enabling Environment* pillar captures the legal framework, infrastructure and other factors that enable returns on human capital

The Human capital index scores for 2013 show that Romania had the weakest performance on the *Workforce and Employment* pillar (85) and the *Enabling Environment* pillar *(position 8)* as well a relatively average gap on inter-HCI performance (28 ranks) which signals the presence of a *relatively reduced balance of performance level of the factors/evolutions favorable to the development and action of the human capital at national level* – a serious alarm for the economic and social development perspectives of Romania (issues that will be tackled in another article correlated with other indicators of human capital and competitiveness).

Considering the four HCI pillars, for the *Education* pillar in Romania, a paradox and an alarming situation is noticeable *for the future of the human capital of the country*: it ranks the highest as far as the *level of primary education* of the current work force is concerned (15) and the lowest as far

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as the 'primary enrolment rate' (position 96!) – with impact on the future work force (taking into account the importance of primary education in the personal and professional development) and on the perspective of achieving the Europe 2020 objective as far as reducing early school abandonment. Regarding *Health and Wellness* Romania records the same paradoxical situation, potentially alarming: the least favorable positioning on *healthcare quality (place 114*- no surprise, taking into account the deplorable state of the national health insurance system) and the most favorable as far as 'depression' is concerned (position 2- not necessarily because Romanians are in good health, on the contrary, due to the poor and insufficient service offered as well as the population's lack of information). The paradoxes continue with the *Workforce and Employment* pillar: Romania ranks lowest in the *capacity to retain talent (position 115* – no surprise, considering the extension of the phenomenonof the external migration of the specialists educated in Romania, searching first decent income and welfare as well as career opportunities), which, at least theoretically, would offer premises and better and diverse development chances of the Romanian human capital.

The last paradox of the human capital situation in Romania is revealed by the least unfavorable and most favorable positions on the *Enabling Environment* pillar, which signals quasi-chronical overall inequality and social polarization: position 119 as far as social mobility and 56 as far as the Social safety net protection and mobile usage are concerned (a factor related to the emergence of the knowledge society, insufficient on its own for the renewal of the social, economic and political system).

To conclude and sum up, a possible equation of the current state of the human capital in Romania revealed by the first global HCI would be: deterioration of the basic education + deterioration of health and wellness + migration of the work force+ sectorial and territorial unevenness on the occupational market + great income unevenness and work force impoverishment + high dependence on social assistance and inappetence in engaging in economic activities + a certain propensity towards novelty and modernization, which can be systemic but also determined by the pressure of the media + a possible change in the system of values (not necessarily in a good direction) + rigid, unstimulating and truly hostile legal, political and administrative environment.

3. The territorial human capital index at the Romanian counties level

Whether at national level things were presented in a more extended European context, we will try to detail the analysis at a detailed territorial level -that of the ***counties*** - taking into account the territorial structure, with its intrinsic issues at the human capital level and the specificities of the

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Romanian regions ('development regions' constituted by the aggregation of several counties, without legal personality, although a focus of the specific community /national programs).

As a novelty: we will also present and analyze a ***territorial human capital index – THCI,*** capable ofcomprising, in our view, the current situation and the related issues at the level of the Romania's counties , based on the ***human capital index*** elaborated by theWorld Economic Forum in 2013.

It is worth mentioning that although ***THCI*** is an *aggregated index*, based on the same pillars (*education, health and wellness, workforce and employment, enabling environment)* it will be different from the human capital index in certain aspects:

THCI includes only strictly quantitative indicators and sub-indicators, taking into account the restriction concerning data availability, qualitative variables being unavailable for the moment

The same data availability restriction determined that several sub-indicators be approximated by means of other quantitative indicators that mainly describe the same phenomenon, direct statistical information being unavailable, which, on the other hand, lead to a relatively numerical unevenness of the *Enabling Environment* pillar. Thus, in the future, it will be necessary to identify other potential indicators to be taken into consideration in the structure of this pillar.

For all indicators, the data refers to year 2013 or to the most recent year available[9].

Determining the values of THCI and of other component indicators were made based on the following formula: $y = (x-x_{min})/(x_{max}- x_{min})$,frequently used in the literature in the field.

Where applicable, depending on the statistical data, some indicators were calculated taking into account the *discrepancy between the rural and urban environment*, better scores being given to lower differences

, better rural areas values respectively. The capital city, Bucharest was also taken into consideration in this context, assigning randomly equal values for both environments, which resulted in 0 differences (which can affect negatively or positively a certain county, according to each specific indicator).

The results regarding THCI and the constitutive pillars for the counties of Romania (grouped by regions) are available in Table 1, the main aspects emphasized being the following:

Table 1. Territorial human capital index (THCI) at the county level in Romania

Counties	**THCI**				

[9] The year is stated in the detailed figures, available upon request.

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		IC Education Pillar	**IC Health and wellness Pillar**	**IC Workforce and occupation Pillar**	**IC Incentive/Demanding environment Pillar**
North-Western Region					
Bihor	11	**6**	19	**9**	19
Bistriţa-Năsăud	20	12	**7**	23	**36**
Cluj	**4**	**4**	**3**	**4**	**4**
Maramureş	14	13	**8**	14	29
Satu Mare	24	**37**	22	13	18
Sălaj	31	18	**35**	31	**40**
Central Region					
Alba	25	27	17	**39**	11
Braşov	**6**	23	**4**	**6**	**10**
Covasna	27	**33**	15	32	**35**
Harghita	19	16	**9**	25	28
Mureş	18	20	26	11	23
Sibiu	**8**	11	**6**	**8**	15
North – Eastern Region					
Bacău	26	24	29	28	17
Botoşani	32	**9**	**39**	**38**	27
Iaşi	**5**	**1**	**10**	**10**	**5**
Neamţ	30	31	32	30	25
Suceava	**9**	**2**	14	20	**9**
Vaslui	**39**	**10**	**34**	**42**	**39**

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South-Eastern Region					
Brăila	**35**	**35**	**36**	27	32
Buzău	**33**	30	**37**	**36**	20
Constanţa	**7**	21	11	**5**	12
Galaţi	22	17	20	26	21
Tulcea	29	**41**	28	21	30
Vrancea	**41**	**38**	**38**	**33**	**42**
Southern Region Muntenia					
Argeş	12	14	18	17	**6**
Călăraşi	**37**	29	**40**	**35**	26
Dâmboviţa	23	22	21	29	14
Giurgiu	**40**	**39**	**41**	19	**34**
Ialomiţa	**34**	32	30	**34**	**38**
Prahova	15	19	24	12	13
Teleorman	**42**	**40**	**42**	**41**	**33**
Bucharest-Ilfov Region					
Ilfov	**2**	**42**	13	**2**	**1**
Municipiul Bucureşti	**1**	**5**	**1**	**1**	**2**
South-Western Region Oltenia					
Dolj	21	**8**	23	22	16
Gorj	13	**3**	16	15	31

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Mehedinţi	**36**	**36**	27	**37**	**41**
Olt	**38**	25	**33**	**40**	**37**
Vâlcea	16	26	**5**	16	22
Western Region					
Arad	**10**	15	25	**7**	**7**
Caraş-Severin	28	28	31	24	24
Hunedoara	17	**34**	12	18	**8**
Timiş	**3**	**7**	**2**	**3**	**3**

Source:. The author's calculation/counts based on the information from National Institute of Statistics's TEMPO –on line data base

Except the Southern Region Muntenia and the South-Western region Oltenia, in all the other regions there is at least one county among the first 10 regarding the THCI (in Bucharest-Ilfov region, Western Region, Central Region, but also in the norh-western region there are even 2). Without being a surprise, Bucharest stays on top, followed by Ilfov, which makes Bucharest-Ilfov region to be on top among the country regarding the performance level in the human capital field. If Bucharest registers positionings in the first 10 counties regarding even all the compounds of THCI, and Ilfov county registers an unexpected last place (42) regarding the education pillar and a thirteenth place regarding the heath and wellness pillar it means that there are significant deviations even in the heart of the most developed region in Romania.

Other 3 counties register positionings among the first 10 counties both from THCI and compound pillars point of view:Timis County (the western region), Cluj County (the north-western region) and Iasi County (the North-Estearn region). Positionings in the firsts 10 counties for more than two pillars register also counties like Brasov and Sibiu (Central region). All these aspects lead us to a fisrt conclusion *that the best global performances regarding the human capital are registered in counties with a higher development level*.

Four out of the eight development regions have no county in the first 10 places (the North-western region, Central region, Bucharest-Ilfov region and the Western region), but one region has no less than 4 counties among the last 10 in the country regarding THCI (the southern region Muntenia, with the following counties: Calarasi, Giurgiu, Ialomita and Teleorman) and another

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one has 3 counties (the south-eastern region with the following counties Braila, Buzau and Vrancea). This aspect leads us to another conclusion that *the worst performances regarding the human capital are registered in the counties with a lower development level.*

Two counties (*Vrancea* from the south Eastern region and *Teleorman,* from the southern region Muntenia) register positionings among the last 10 counties in the country if we are talking about all the main pillars of THCI, 4 counties (*Mehedinti* and *Olt* from the south-western region Oltenia, *Giurgiu* from the Southern region Muntenia and *Vaslui* from the north-eastern region) register unfavourable positionings if we are talking about 3 out of the 4 pillars of THCI, and 4 other counties (*Calaras*i and *Ialomita* from the southern region and *Braila* and *Buzau* from the south-eastern region) if we are talking about 2 out of 4 pillars. Vaslui county registers an uncomfortably paradox - a good positioning regarding the education pillar, but a very disadvantageous one regarding the rest of the pillars, which makes us seriously thinking about the way the human capital is exploited, about its productivity and about its development opportunities. We can meet some other paradoxical situatios, but of a lower amplitude, in counties like *Bistriţa-Năsăud* and *Satu Mare* in the North-Western region, *Alba* and *Harghita* in the Central region, *Botoşani* in the North-Estearn region, *Ilfov* in Bucharest-Ilfov region and *Hunedoara* the Western region). These situations lead us to two conclusions: *the worst performances regarding the human capital are registered in the less developed areas within the regions outside the Carpathian mountain range and also in the counties with a lower development level within the more developed regions, which confirms the statistical correlation, mostly direct and positive, between the development level and the performances in the human capital field, inclusively at a sub-regional level. (a correlation coefficient of 0,739).*

The analysis in each pillar in part highlights other issues, some of which concern. Thus, in terms of education pillar stands very good position amoung the first 10 counties, some counties in regions with weaker economic performance (no more than four counties in the North-Estearn region - Iasi, Suceava, Botosani and Vaslui counties and two in the South-Western Oltenia - Dolj and Gorj), unfavorable relative positions of all counties in the south-eastern and South Muntenia, and the presence of the least developed counties, but in regions with a higher level of development among the last 10 counties (Satu Mare from the norh-western region, Covasna from the Centre Region, Ilfov, Hunedoara from the Western Region).

The human capital endowment (expressed partially by the education pillar) is weakly corelated with the overall economic performance in the counties of Romania, indicating at least the risk of

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migrating human capital with a good level of education to other counties/ regions that provides favorable conditions for better and more efficient use of it (expressed by higher level of employment, higher incomes and lower unemployment rate).

Regarding the health and wellnesspillar, two regions have no less than three counties amoung the top 10 in the country (Bistrita-Nasaud, Cluj, Maramures in the North-Western region and Brasov, Sibiu and Harghita in the Central region), three regions (West, Bucharest-Ilfov and Centre) have no county among the last 10 in the country, but the opposite two regions have three counties among the last 10 in the country (Braila, Buzau and Vrancea in the South-Eastern and Calarasi, Giurgiu and Teleorman in South Region).

Other unfavorable positioning are recorded by counties with a lower development level, both in more developed regions (Salaj from North-Western region) and least developed (Botosani and Vaslui in the North-Estearn region and Olt in the South-Western Oltenia) , indicating a stronger correlation between the level of economic development of a county and the health and wellnesspillar, but with certain intra-regional particularities.

The labor and employment pillar reveals again the best positioning all of the counties in more developed regions (Bihor and Cluj in the North-Western region, Brasov and Sibiu in the Central region , Ilfov and Bucharest in the Bucharest-Ilfov region, Arad and Timis in the West region).

If in the case of some counties in developed regions seems to exist a direct positive correlation between level of performance on education and the labor and employment (Bihor and Cluj in the Nord-West region, Sibiu in the Central region, Bucharest in the Bucharest-Ilfov region and Timis and Arad in the West region), in most counties in regions with lower development level who performed well in terms of education correlated with employment and labor force pillar the situation is reversed (Botosani, Vaslui and Suceava in the North-Estearn region), confirming earlier observations regarding low capacity of less developed counties to use local human capital high level of education and sophistication.

Moreover, there are indications that even some counties that have achieved average or lower performance in terms of education, both in less developed regions or more developed regions may become net attraction of labor force in the counties listed above and beyond (Satu Mare in the North-Western, Brasov and Mures in the Central region, Constanta and Tulcea in the South-Eastern region, Giurgiu si Prahova in South Muntenia, Ilfov in Bucharest-Ilfov region, Valcea in South-Western Oltenia, Hunedoara in West region).

4. Conclusion

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Finally, although the number of indicators considered is, as mentioned, relatively low in the case of the stimulating environment pillar (reflecting partially the human capital productivity) the best placement are record, in general, by the counties located in more developed regions (Ilfov and Bucharest from the Bucharest-Ilfov region, Timis, Arad and Hunedoara from the West region , Cluj from North-Western and Brasov from Central region).

Notable exceptions are Iasi and Suceava from North-Estearn region and Arges from South Muntenia, whose best performance are related at least partially, with thouse relating to education – indicating possible opportunities to develop human capital locally (in terms of solving the problems regarding the poor use of it) and increase the general level of development. It should be noted a greater intra-regional variability for this pillar – a reflection of the general disparities significant intraregional on productivity and competitiveness.

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*** *The Human Capital Report* 2013, World Economic Forum, Geneva.

Addendum 1. The Structure of the human capital Index

Pillar 1: Education		
Sub-pillar	Indicators	Source
Access	Enlistment in elementary education rate %	UNESCO, Institute for Statistics, available data for

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		2003-2012
	Enlistment in secondary education rate %	UNESCO, Institute for Statistics, available data for 2003-2012
	Rata de înrolare în învățământul terțiar (%)	UNESCO, Institute for Statistics, available data for 2003-2012
	Gendre inequality regarding education	World Economic Forum, *Global Gender Gap Report*, 2012
Quality	Internet access in schools	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Quality of the education system	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Quality of the primary education schools	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Quality of education in regarding Maths and Science field	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Quality of the managemnt in schools	World Economic Forum, *Executive Opinion Survey*, 2013-2014
Level	Level of primary education (% from population over 25 years old)	UNESCO, Institute for Statistics, available data for 2011 or for a more recent year
	Level of secondary education (% from the population over 25 years old)	UNESCO, Institute for Statistics, available data for 2011 or for a more recent year

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	Level of tertiary education (% from the population over 25 years old)	UNESCO, Institute for Statistics, available for 2011 or for a more recent year
Pillar 2: Health and wellness		
Survival	Infant mortality (at 1000 living child births)	World Health Organisation, Global Health Observatory, *World Health Statistics, Mortality and Burden of Disease, Child mortality*, 2011
	Life expectancy	World Health Organisation, Global Health Observatory, *World Health Statistics, Mortality and Burden of Disease, Child mortality*, 2011
	Gendre inequality regarding survival	World Economic Forum, *Global Gender Gap Report*, 2012
Health	Deficiencies in speaking (% from the children under 5)	World Health Organisation, Global Health Observatory, *World Health Statistics, Nutrition, Child malnutrition*, date disponibile pentru intervalul 2003–2011
	Years of unhealthy life (% from life expectancy)	Speranța de viață ajustată pentru sănătate, World Health Organisation, 2007, din *Global Gender Gap Report*, 2012 și World Health Organisation, Global Health Observatory, *World*

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		Health Statistics, Mortality and Burden of Disease, Child mortality, 2011
	Deaths/defunctions under 60 years old because of the intransmissible diseases (% from the total deaths/defunctions because of the intransmissible diseases	World Health Organisation, Global Health Observatory, *World Health Statistics, Non–communicable diseases*, 2008
	Obesity (% from adults with IMC over 30)	World Health Organisation, Global Health Observatory, *World Health Statistics, Adult risk factors*, 2008
	Impact of the intransmissible deseases over economical activities	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Impact of the transmissible deseases over economical activities	World Economic Forum, *Executive Opinion Survey*, 2013-2014
Wellness	Stress (% from the answers)	Gallup, *Worldview* database, available data for 2009–2013
	Depression (% from the answers)	Gallup, *Worldview* database, available data for 2006–2011
Services	Water,sewage/canalization, hygiene	World Health Organisation, Global Health Observatory, *World Health Statistics, Environmental Health*, available data for 2005–2011
	Quality of the health care	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Accesibility of the health	World Economic Forum,

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	care	*Executive Opinion Survey*, 2013-2014
Pillar 3: Workpower and occupation		
Attending	Workforce attenting rate, between 15-64 years old (%)	ILO, *Key Indicators of the Labour Market, (KILM)*, 2010
	Workforce attenting rate, over 65 years old(%)	ILO, *Key Indicators of the Labour Market, (KILM)*, 2010
	Gendre inequality regarding the attending rate	World Economic Forum, *Global Gender Gap Report*, 2012
	Unemployment rate (%)	ILO, *ILOstat*, date disponibile pentru intervalul 2003–2010
	Unemployment rate amoung young people (%)	ILO, *Laborstat*, date disponibile pentru intervalul 2003–2010
Talent	Capacity of the country to attract talented people	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Capacity of the country to retain talented people	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	The easeness in finding competent employees	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	The link between salaries and productivity	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Capacity of innovation	World Economic Forum, *Executive Opinion Survey*, 2013-2014

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	The indicator of the economical complexity	Hausmann, R., Hidalgo, C., et al. *The Atlas of Economic Complexity*. Cambridge: Puritan Press, 2011
	Absorption of the technology within the companies	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Articles in Scientific and Technical magazines (at 1000 inhabitants)	World Bank, *World Development Indicators* online database, 2009 and United Nations, Department of Economic and Social Affairs, *World Population Prospects*, 2009
	Average age of the people in work efficiency	United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects DEMOBASE* 2010
Instruire /Training	Personnel training	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Training services	World Economic Forum, *Executive Opinion Survey*, 2013-2014
Pillar 4: Demanding /Incentive Environment		
Infrastructură/Infrastructure	Mobile phone users (at 100 inhabitants)	World Bank, *World Development Indicators* online database, 2011
	Internet users (at 100 inhabitants)	World Bank, *World Development Indicators* online database, 2011
	Quality of the internal	World Economic Forum,

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	transport	*Executive Opinion Survey*, 2013-2014
Colaborare/Collaboration	Level /Phase of the clusters' development	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Collaboration between the business environment and the universities within C&D field	World Economic Forum, *Executive Opinion Survey*, 2013-2014
Cadru legislativ /Legislative Background	Doing Business index	World Bank and International Finance Corporation, 2012
	Social security network protection	World Economic Forum, *Executive Opinion Survey*, 2013-2014
	Protection of the intellectual property rights and of the property	World Economic Forum, *Executive Opinion Survey*, 2013-2014
Mobilitate socială/Social Mobility	Social mobility	World Economic Forum, *Executive Opinion Survey*, 2013-2014

Source: *The Human Capital Report* 2013, World Economic Forum, Geneva.

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