Service Science & Knowledge Economy: Research Method

Topic:

Management is the best way to increase productivity

Submitted by:

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Abstract: The goal of this paper is to demonstrate how to prove a hypothesis about the impacts of the management activities in systems. The thinking experiments are adequate to prove hypothesis like "if a country is having the highest "GDP PPP per capita per hour worked" but not the highest neutral resources and industrial robots, it will be due to nothing else than a good management system." Similarity analyses helps to understand, that the above listed hypothesis is not robust!

Introduction

Management is controlling human resources, financial resources, technological resources, and natural resources to reach a goal. Management was appeared as a science to provide the best ways for increase in productivity in 19th and 20th century , when there were only few people who could value the importance of management because most people were still sceptical about it and used to think that it was not related to them and their business and it was something that fitted others.

But due to many challenges that businesses have been facing white, the number of people who can understand the importance of management has been getting more and more and today, very few people would doubt that management is essential. Nowadays, managers have become the essential key resource for economic and social development. Organizations which have good and talented managers, will survive. Conversely, organizations which have untrained managers will lose the market share and finally will be chased out of business by their competitors.

Organizations today have to deal with so many unexpected challenges related to; increase in productivity of resources, employing resources, motivating employees and etcetera. Challenges like these have changed the playing field on which firms must compete. They have dramatically increased the need for firms to be responsive, flexible, and capable of competing and reacting rapidly in a global marketplace.

The challenge of increasing the productivity of resources

One of the most important challenges for managers today and tomorrow is increasing the productivity of resources. Resources are developed by managers and they are responsible their productivity.

It is above all productivity which is the first responsibility. And the management challenge today and tomorrow will centre on productivity of resources.

Resources are not made by nature. They are made by man. And this is particularly true for two key resources; the human beings and capital. But human being would be a resource only if it became trained to productive work. This is the central challenge of management. It is particularly important in developing countries. In all developing countries there is lack of effective and productive people. One of the central challenges of managers in developing countries is development of people to human resources.

In many ways, capital is perhaps even more crucial, especially in developing countries, than human resource. Capital can be created by providing a surplus of today's production over cost. Otherwise, capital formation can not take place. Capital formation is a very important factor in the development of a developing country. It is also a crucial factor of continuing prosperity of the developed countries.

According, there are no jobs unless we can invest a significant amount of capital.

Challenge of dealing with changes

Rapid and unexpected changes will be the rule in tomorrow's environment. It is an unstable environment. In an unstable environment information received by organizations are contradictory. The best estimates that managers can make are actually only guesstimates. It is necessary to calculate the risks in such an environment. In this regard, rapid technological improvements, political instability, and lack of key resources are examples of changes in this unstable environment of 21st century. Accordingly, managers must develop some strategies in order to stay ahead of changes.

Furthermore, today and tomorrow's managers must also face the challenge of the frequent changes in the environment (which can create psychologically, great tension and stress for the manager) by developing agility in coping with these changes. The manager must thus develop planning strategies that are flexible enough to allow for frequent changes in direction while still accomplishing organizational objectives. Thus, confidence and enthusiasm for a given course of action must be maintained while knowing that the plan may be obsolete before it can be fully carried out. Maintaining the balance between enough stability to pursue plans while remaining flexible enough to make changes when necessary will be more difficult than ever before.

The political challenge

In order to deal with different people with different interests in the best way, managers must have sharp political skills. It is very important to recognize the personalities and interests of the people who you are working with. Or in other aspect, managers should develop and apply some strategies based on consumer's interest that can help the organization to have a bigger share in market.

The challenge of motivating employees

Nowadays, organizations are populated new generation of workers that are more talented and have more skills and abilities and higher knowledge degree than the previous generations. Managers need to face the challenge of motivating this new type of employees. New generation of workers must be managed differently than the previous generations. they can not be simply ordered and closely monitored because they resist and question the commands and managing models.

new generation of employees are more difficult to motivate them. This is due to a change in value systems coupled with greater knowledge management and rising educational levels. In view of this, greater scepticism concerning large organizations and less reverence for authority figures will be more common; unquestioned acceptance of rules and managing models will be less. While presenting a problem for managers these employees can also be the source of much creativity.

The measurement of productivity:

The GDP (PPP) per hour worked is the best measure of the productivity of a country when not taking into account unemployment or hours worked per week. GDP (PPP) stands for gross domestic product normalised to purchasing power parity.

Top 10 Most Productive Countries of 2019

Rank	Country	GDP per hour worked (In dollars)
1	Luxembourg	93.4
2	Ireland	87.3
3	Norway	81.3
4	Belgium	69.7
5	United States	68.3
6	Denmark	67.6
7	France	65.6
8	Germany	65.5
9	Netherlands	65.4
10	Switzerland	64.2
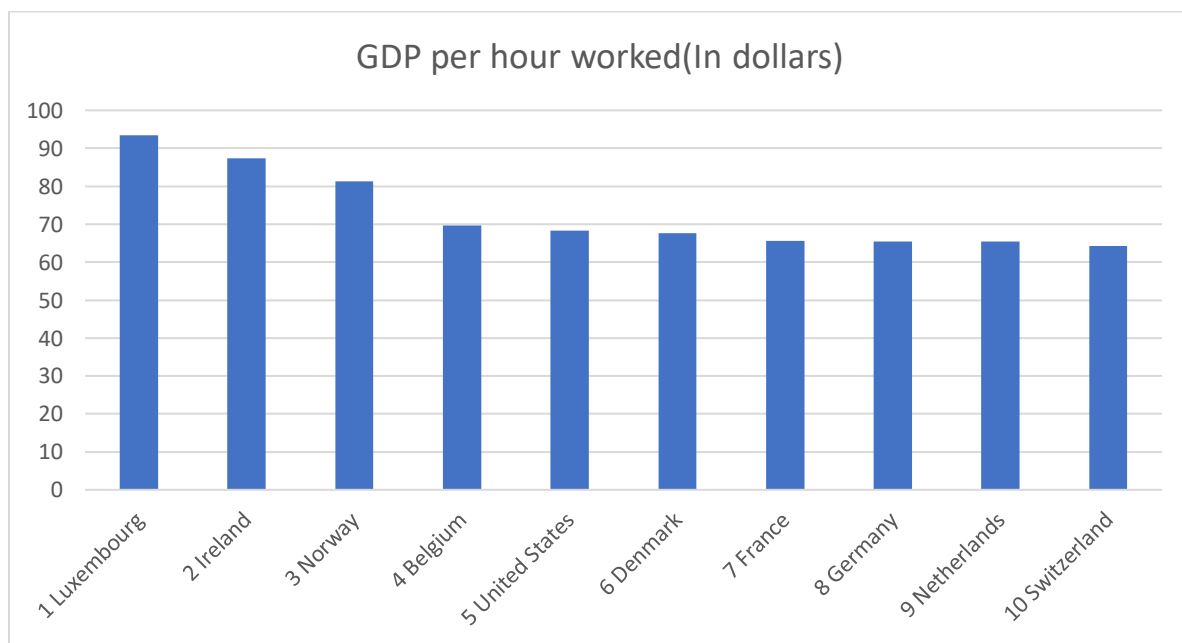
Figure Nr.1 – source: own presentation

There are factors to this measurement that differ in different countries. Such as: Natural resources, Size of the country, literacy rate and usage of industrial robots and also the quality level of the management system. Therefore we are going to compare countries in these aspects as well and then we will be able to find the most effective factor to the productivity rate of the most productive country.

Natural resources:

Leading Countries worldwide based on natural resource value as of 2019(In U.S. trillion dollars)

Rank	Countries	Value (in trillion dollars)
1	Russia	75
2	United States	45
3	Saudi Arabia	34.4
4	Canada	33.2
5	Iran	27.3
6	China	23
7	Brazil	21.8
8	Australia	19.9
9	Iraq	15.9
10	Venezuela	14.3

Leading Countries with natural resources value

	1 Russia	2 United States	3 Saudi Arabia	4 Canada	5 Iran	6 China	7 Brazil	8 Australia	9 Iraq	10 Venezuela
Value (in trillion dollars)	75	45	34,4	33,2	27,3	23	21,8	19,9	15,9	14,3

Figure Nr.2 – source: own presentation

Based on this information, the most productive country, which is Luxembourg, is not even among the top 10 countries that have the most national resources in value. This shows that natural resources of a country are not a very effective factor to the productivity of each person in a that country.

Size of the countries:

Country	Total Area (Km2)
Russia	17,098,242
Canada	9,984,670
China	9,833,517
United States	9,596,961
Brazil	8,515,767
Australia	7,692,024
India	3,287,263
Argentina	2,780,400
Kazakhstan	2,724,900
Algeria	2,381,741
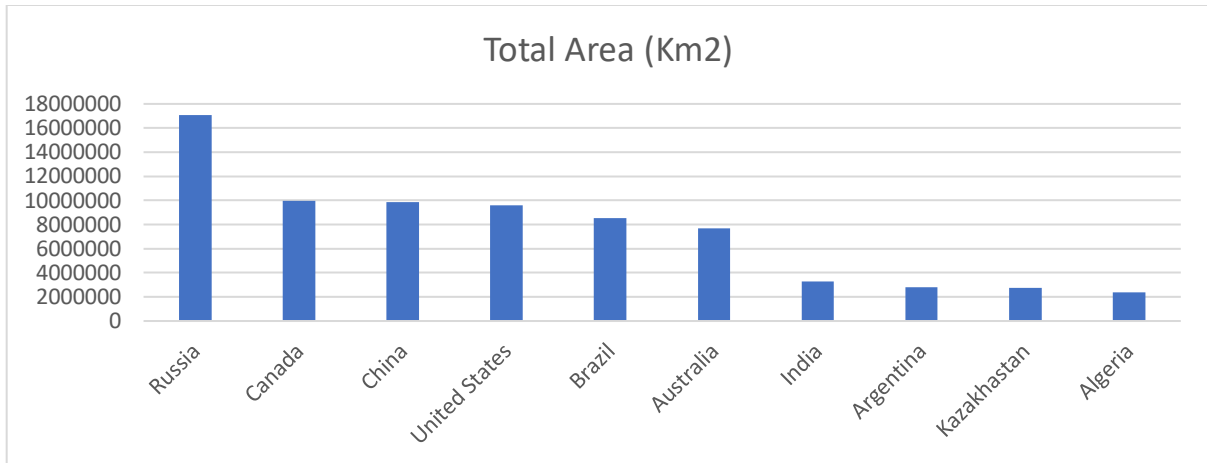
Figure Nr.3 – source: own presentation

Based on this information, the most productive country, which is Luxembourg, is not even among the top 10 biggest countries. This shows that the size of a country is not a very effective factor to the productivity of each person in a that country.

About Automation:

4. China — 154,000 industrial robots

China is responsible for 36% of total industrial robotics installations, with about 154,000 units. This is down 1% from 2017, but it's still more than the Americas and Europe combined. The value of installations reached $5.4 billion, which is 21% higher than in 2017.

With the current economic climate, keep an eye on how China deals with foreign robot suppliers. China's installations of foreign robot suppliers, including units produced in China by non-Chinese suppliers, decreased 7% from about 122,000 units in 2017 to 113,000 units last year. Installations from domestic Chinese industrial robot manufacturers increased 5% to 27% in 2018. This result is in line with China's policy of promoting domestic manufacturers.

2. Japan — 55,000 industrial robots

Despite seeing numbers increase 21% in 2018, Japan is still a distant second with 55,000 industrial robots. That is the highest number for ever for the country. Japan is the world's No. 1 industrial robot manufacturer and delivered 52% of the global supply in 2018.

3. U.S. — 40,300 industrial robots
Robot installations in the U.S. increased for the eighth year consecutive year. The 40,300 industrial robots, which is 22% higher than 2017, catapulted the US into third place and bumped South Korea down one slot.

The IFR said the driver of the growth in all manufacturing industries in the US since 2010 has been the ongoing trend to automate production to strengthen the U.S. industries in both domestic and global markets.

4. Republic of Korea — 38,000 industrial robots
South Korea dropped one spot in 2018 due to a 5% decline in installations of about 38,000. The IFR attributed the decline to a "tough year" for the electronics industry. Korea's use of industrial robots has increased 12% on average per year since 2013.

5. Germany — 27,000 industrial robots
Germany is the fifth largest industrial robotics market in the world and No. 1 in Europe. In 2018, the number of units sold to Germany increased by 26% to almost 27,000 units – an all-time record. Installations are mainly driven by the automotive industry.

Top Countries Using Industrial Robots

Countries	Number of industrial robots
China	154,000
Japan	55,000
United States	40,300
Republic of Korea	38,000
Germany	27,000
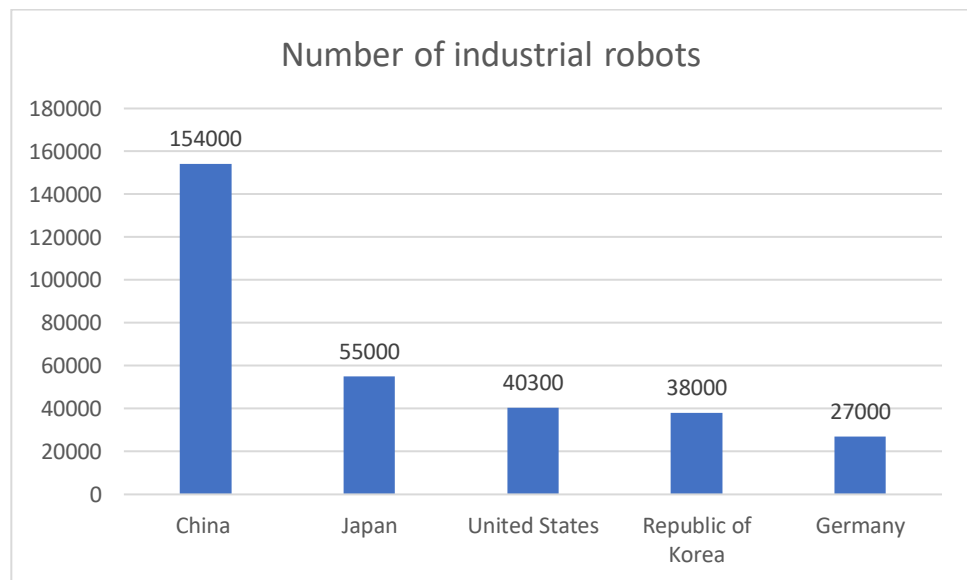
Figure Nr.4 – source: own presentation

Based on this information, the most productive country, which is Luxembourg, is not even among the top 10 countries that have the most industrial robot usage. This shows that usage of industrial robots of a country is not a very effective factor to the productivity of each person in a that country.

Literacy rate:

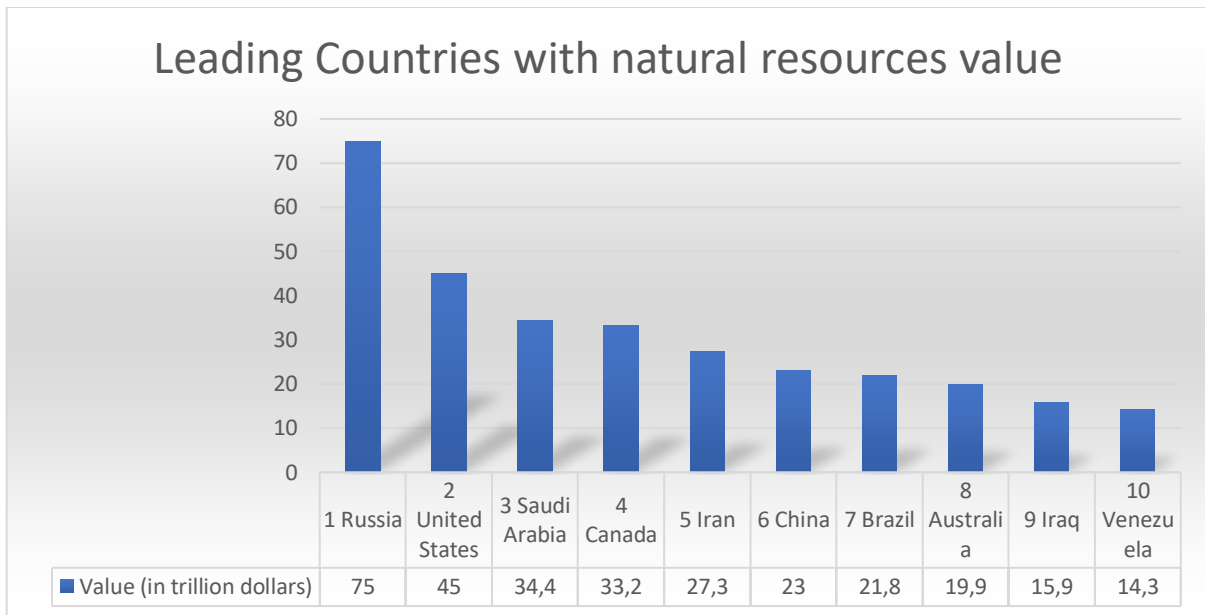| Literacy Rates		
Rank (Total)	Country	Percent
1	Andorra	100
1	Greenland	100
1	Korea (North)	100
1	Uzbekistan	100
5	Latvia	99.9
5	San Marino	99.9
7	Azerbaijan	99.8
7	Belarus	99.8
7	Cuba	99.8
7	Estonia	99.8
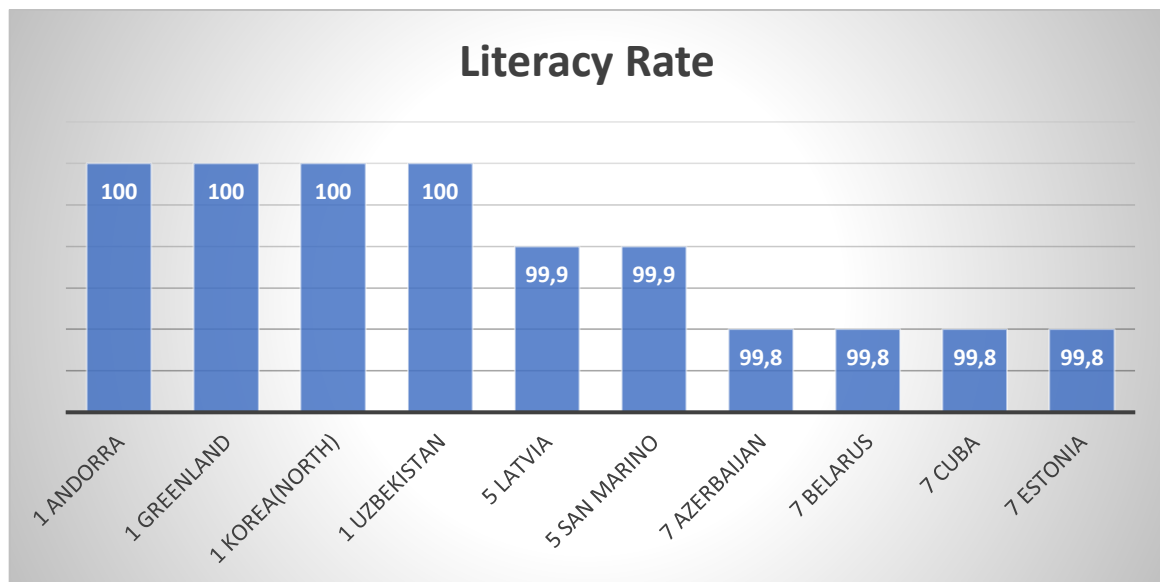
Figure Nr.5 – source: own presentation

Based on this information, the most productive country, which is Luxembourg, is not even among the top 10 countries that have highest literacy rate. This shows that literacy rate of a country is not a very effective factor to the productivity of each person in a that country.

Levels of Management

The term "Levels of Management' refers to a line of demarcation between various managerial positions in an organization. The number of levels in management increases when the size of the business and work force increases and vice versa. The level of management determines a chain of command, the amount of authority & status enjoyed by any managerial position. The levels of management can be classified in three broad categories:

1.

2. Top level / Administrative level

3. Middle level / Executory

4. Low level / Supervisory / Operative / First-line managers

Conclusion:

As we mentioned, Luxembourg is having the highest GDP PPP Per Hours which means Luxembourg is the most productive country.
As we analysed, these are major the factors to GDP PPP Per hours worked that can differ in different countries:
Management system quality level,
Natural resources,
The size of the country,
Usage of industrial robots,
Literacy rate.

We compared countries in these aspects excluding Management system quality level, because the Management quality level is not simply measurable.
And our aim was to find out which of these factors is the most effective one on the productivity.

As we observed, the most productive country is Luxembourg, while this country is not among the leading countries in other aspects that we considered and the only aspect that we are left with is the management system quality level. Meaning that, the high productivity rate of Luxembourg is due to nothing else than the high level of management system quality and it is fair to say it is at the "Top Level".

Now we have Luxembourg as an example to prove that the management is the best way to increase the productivity.

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Proving the hypothesis

For a thinking experiment, we only need an OAM with random values:
see https://miau.my-x.hu/miau/quilt/2020/management_project/management_scaled.xlsx

The figures 6-7-8-9 demonstrate the thinking experiment with random values – to derive based on offline (solver-driven) similarity analyses that an object (a country) without the best ranking values (Nr1) concerning the resources (Xi) but with the highest Y value (GDP/capita) can be evaluated as a country with bad management because the estimation for Y in case of the proved object can be higher than the highest value before!

OAM-fictive-0...100

direction	0 (the more the more)	1 (the more the more)	2 (the more the more)	3 (the more the more)	4 (the more the more)	5 (the more the more)	6 (the more the more)	
	x1	x2	x3	x4	x5	x6	x7	Y
OAM-fictive-0...100	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked
object=country1	66	57	1	44	98	4	35	13
object=country2	8	19	94	58	43	34	19	73
object=country3	52	8	39	84	21	74	83	97
object=country4	84	47	5	60	68	90	66	6 min
object=country5	59	74	47	39	25	33	16	61
object=country6	25	28	92	84	79	40	67	26
object=country7	67	61	74	29	35	19	40	96
object=country8	34	53	8	68	19	92	6	86
object=country9	28	42	83	7	88	2	66	79
object=country10	22	80	17	79	22	23	92	49
object=country11	81	81	4	49	51	56	19	99 max
object=country12	55	46	64	59	71	88	53	17

OAM-ranked

OAM-ranked	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked
object=country1	4	5	12	9	1	11	8	13
object=country2	12	11	1	7	7	7	9	73
object=country3	7	12	7	1	11	4	2	97
object=country4	1	7	10	5	5	2	4	6
object=country5	5	3	6	10	9	8	11	61
object=country6	10	10	2	1	3	6	3	26
object=country7	3	4	4	11	8	10	7	96
object=country8	8	6	9	4	12	1	12	86
object=country9	9	9	3	12	2	12	4	79
object=country10	11	2	8	3	10	9	1	49
object=country11	2	12	11	8	6	5	9	99
object=country12	6	8	5	6	4	3	6	17

Stairs

Stairs	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7		x1	x2	x3	x4	x5	x6	x7
1	53	82	73	0	0	60	48	S1-S2	0	70	34	0	0	60	0
2	53	12	39	0	0	0	48		8	0	0	0	0	0	48
3	45	12	39	0	0	0	0		18	0	0	0	0	0	0
4	26	12	39	0	0	0	0		0	12	27	0	0	0	0
5	26	0	12	0	0	0	0		0	0	0	0	0	0	0
6	26	0	12	0	0	0	0		0	0	0	0	0	0	0
7	26	0	12	0	0	0	0		0	0	12	0	0	0	0
8	26	0	0	0	0	0	0		0	0	0	0	0	0	0
9	26	0	0	0	0	0	0		26	0	0	0	0	0	0
10	0	0	0	0	0	0	0		0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	S11-S12	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0								
1	2	3	4	5	6	7	8								

	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked	estimation	difference	conclusions
object=country1	26	0	0	0	0	0	0	13	26	-13.33	bad management
object=country2	0	0	73	0	0	0	0	73	73	0.00	KAZOHIN
object=country3	26	0	12	0	0	0	48	97	86	10.71	good management
object=country4	53	0	0	0	0	0	0	6	53	-46.50	bad management
object=country5	26	12	12	0	0	0	0	61	50	10.71	good management
object=country6	0	0	39	0	0	0	0	26	39	-13.33	bad management
object=country7	45	12	39	0	0	0	0	96	96	0.00	KAZOHIN
object=country8	26	0	0	0	0	60	0	86	86	0.00	KAZOHIN
object=country9	26	0	39	0	0	0	0	79	66	13.33	good management
object=country10	0	12	0	0	0	0	48	49	60	-10.71	bad management
object=country11	53	0	0	0	0	0	0	99	53	46.50	good management <--the highest Y can be bad/norm-like/good!!!
object=country12	26	0	12	0	0	0	0	17	38	-21.43	bad management
									error		
									5661		

Figure Nr 6 – Good management scenario (source: own presentation)

direction	0 (the more the more)	1 (the more the more)	2 (the more the more)	3 (the more the more)	4 (the more the more)	5 (the more the more)	6 (the more the more)	
	x1	x2	x3	x4	x5	x6	x7	Y
OAM-fictive-0...100	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked
object=country1	66	57	1	44	98	4	35	13
object=country2	8	19	94	58	43	34	19	73
object=country3	52	8	39	84	21	74	83	97
object=country4	84	47	5	60	68	90	66	6 min
object=country5	59	74	47	39	25	33	16	61
object=country6	25	28	92	84	79	40	67	26
object=country7	67	61	74	29	35	19	40	96
object=country8	34	53	8	68	19	92	6	86
object=country9	28	42	83	7	88	2	66	79
object=country10	22	80	17	79	22	23	92	49
object=country11	81	81	4	49	51	56	19	99 max
object=country12	55	46	64	59	71	88	53	17

OAM-ranked	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked
object=country1	4	5	12	9	1	11	8	13
object=country2	12	11	1	7	7	7	9	73
object=country3	7	12	7	1	11	4	2	97
object=country4	1	7	10	5	5	2	4	6
object=country5	5	3	6	10	9	8	11	61
object=country6	10	10	2	1	3	6	3	26
object=country7	3	4	4	11	8	10	7	96
object=country8	8	6	9	4	12	1	12	86
object=country9	9	9	3	12	2	12	4	79
object=country10	11	2	8	3	10	9	1	49
object=country11	2	1	11	8	6	5	9	99
object=country12	6	8	5	6	4	3	6	17

Stairs	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7			x1	x2	x3	x4	x5	x6	x7
1	17	82	73	0	5	69	45		S1-S2	0	61	26	0	0	69	0
2	17	20	47	0	5	0	45			0	0	0	0	5	0	45
3	17	20	47	0	0	0	0			0	0	0	0	0	0	0
4	17	20	47	0	0	0	0			0	20	28	0	0	0	0
5	17	0	19	0	0	0	0			0	0	0	0	0	0	0
6	17	0	19	0	0	0	0			0	0	0	0	0	0	0
7	17	0	19	0	0	0	0			0	0	19	0	0	0	0
8	17	0	0	0	0	0	0			0	0	0	0	0	0	0
9	17	0	0	0	0	0	0			17	0	0	0	0	0	0
10	0	0	0	0	0	0	0			0	0	0	0	0	0	0
11	0	0	0	0	0	0	0		S11-S12	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0									
1	2	3	4	5	6	7	8									

	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked	estimation	difference	conclusions	
object=country1	17	0	0	0	5	0	0	13	23	-9.51	bad management	
object=country2	0	0	73	0	0	0	0	73	73	0.00	KAZOHIN	
object=country3	17	0	19	0	0	0	45	97	81	15.63	good management	
object=country4	17	0	0	0	0	0	0	6	17	-11.48	bad management	
object=country5	17	20	19	0	0	0	0	61	57	4.16	good management	
object=country6	0	0	47	0	0	0	0	26	47	-20.99	bad management	
object=country7	17	20	47	0	0	0	0	96	85	11.48	good management	
object=country8	17	0	0	0	0	69	0	86	86	0.00	KAZOHIN	
object=country9	17	0	47	0	5	0	0	79	69	9.51	good management	
object=country10	0	20	0	0	0	0	45	49	65	-15.63	bad management	
object=country11	17	82	0	0	0	0	0	99	99	0.00	KAZOHIN	<--the highest Y can be bad/norm-like/good!!!
object=country12	17	0	19	0	0	0	0	17	37	-19.79	bad management	
										error		
										1782		

Figure Nr 7 – Norm-like management scenario (source: own presentation)

direction	0 (the more the more)	1 (the more the more)	2 (the more the more)	3 (the more the more)	4 (the more the more)	5 (the more the more)	6 (the more the more)	
	x1	x2	x3	x4	x5	x6	x7	Y
OAM-fictive-0…100	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked
object=country1	66	57	1	44	98	4	35	13
object=country2	8	19	94	58	43	34	19	73
object=country3	52	8	39	84	21	74	83	97
object=country4	84	47	5	60	68	90	66	6 min
object=country5	59	74	47	39	25	33	16	61
object=country6	25	28	92	84	79	40	67	26
object=country7	67	61	74	29	35	19	40	96
object=country8	34	53	8	68	19	92	6	86
object=country9	28	42	83	7	88	2	66	79
object=country10	22	80	17	79	22	23	92	49
object=country11	81	81	4	49	51	56	19	99 max
object=country12	55	46	64	59	71	88	53	17

OAM-ranked	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked
object=country1	4	5	12	9	1	11	8	13
object=country2	12	11	1	7	7	7	9	73
object=country3	7	12	7	1	11	4	2	97
object=country4	1	7	10	5	5	2	4	6
object=country5	5	3	6	10	9	8	11	61
object=country6	10	10	2	1	3	6	3	26
object=country7	3	4	4	11	8	10	7	96
object=country8	8	6	9	4	12	1	12	86
object=country9	9	9	3	12	2	12	4	79
object=country10	11	2	8	3	10	9	1	49
object=country11	2	1	1	8	6	5	9	99
object=country12	6	8	5	6	4	3	6	17

Stairs	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7			x1	x2	x3	x4	x5	x6	x7
1	15	19	69	0	6	71	45	S1-S2		0	0	21	0	0	71	0
2	15	19	48	0	6	0	45			0	0	0	0	6	0	45
3	15	19	48	0	0	0	0			0	0	0	0	0	0	0
4	15	19	48	0	0	0	0			0	19	27	0	0	0	0
5	15	0	22	0	0	0	0			0	0	0	0	0	0	0
6	15	0	22	0	0	0	0			0	0	0	0	0	0	0
7	15	0	22	0	0	0	0			0	0	22	0	0	0	0
8	15	0	0	0	0	0	0			0	0	0	0	0	0	0
9	15	0	0	0	0	0	0			15	0	0	0	0	0	0
10	0	0	0	0	0	0	0			0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	S11-S12		0	0	0	0	0	0	0
12	0	0	0	0	0	0	0									
1	2	3	4	5	6	7	8									

	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked	estimation	difference	conclusions
object=country1	15	0	0	0	6	0	0	13	22	-8.82	bad management
object=country2	0	0	69	0	0	0	0	73	69	4.06	good management
object=country3	15	0	22	0	0	0	45	97	82	14.78	good management
object=country4	15	0	0	0	0	0	0	6	15	-9.48	bad management
object=country5	15	19	22	0	0	0	0	61	56	5.30	good management
object=country6	0	0	48	0	0	0	0	26	48	-22.35	bad management
object=country7	15	19	48	0	0	0	0	96	82	13.53	good management
object=country8	15	0	0	0	0	71	0	86	86	0.00	KAZOHIN
object=country9	15	0	48	0	6	0	0	79	70	8.82	good management
object=country10	0	19	0	0	0	0	45	49	64	-14.78	bad management
object=country11	15	19	69	0	0	0	0	99	103	-4.06	bad management <--the highest Y can be bad/norm-like/good!!!
object=country12	15	0	22	0	0	0	0	17	37	-20.07	bad management
									error		
									1829		

Figure Nr 8 – Bad management scenario (source: own presentation)

OAM-fictive 0...100

direction	0 (the more the more)	1 (the more the more)	2 (the more the more)	3 (the more the more)	4 (the more the more)	5 (the more the more)	6 (the more the more)	
	x1	x2	x3	x4	x5	x6	x7	Y
OAM-fictive 0...100	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked
object=country1	66	57	1	44	98	4	35	13
object=country2	8	19	94	58	43	34	19	73
object=country3	52	8	39	84	21	74	83	97
object=country4	84	47	5	60	68	90	66	6 min
object=country5	59	74	47	39	25	33	16	61
object=country6	25	28	92	84	79	40	67	26
object=country7	67	61	74	29	35	19	40	96
object=country8	34	53	8	68	19	92	6	86
object=country9	28	42	83	7	88	2	66	79
object=country10	22	80	17	79	22	23	92	49
object=country11	81	81	4	49	51	56	19	99 max
object=country12	55	46	64	59	71	88	53	17

OAM-ranked

OAM-ranked	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked
object=country1	4	5	12	9	1	11	8	13
object=country2	12	11	1	7	7	7	9	73
object=country3	7	12	7	1	11	4	2	97
object=country4	1	7	10	5	5	2	4	6
object=country5	5	3	6	10	9	8	11	61
object=country6	10	10	2	1	3	6	3	26
object=country7	3	4	4	11	8	10	7	96
object=country8	8	6	9	4	12	1	12	86
object=country9	9	9	3	12	2	12	4	79
object=country10	11	2	8	3	10	9	1	49
object=country11	2	2	2	2	2	2	2	99
object=country12	6	8	5	6	4	3	6	17

Stairs

Stairs	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7		x1	x2	x3	x4	x5	x6	x7
1	19	82	73	4	0	67	35	S1-S2	0	63	31	4	0	67	0
2	19	19	42	4	0	0	35		0	0	0	0	0	0	35
3	19	19	42	0	0	0	0		0	0	0	0	0	0	0
4	19	19	42	0	0	0	0		0	19	22	0	0	0	0
5	19	0	20	0	0	0	0		0	0	0	0	0	0	0
6	19	0	20	0	0	0	0		0	0	0	0	0	0	0
7	19	0	20	0	0	0	0		0	0	20	0	0	0	0
8	19	0	0	0	0	0	0		0	0	0	0	0	0	0
9	19	0	0	0	0	0	0		19	0	0	0	0	0	0
10	0	0	0	0	0	0	0		0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	S11-S12	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0								
1	2	3	4	5	6	7	8								

	attribute=resource1	attribute=resource2	attribute=resource3	attribute=resource4	attribute=resource5	attribute=resource6	attribute=resource7	GDP PPP per capita per hour worked	estimation	difference	conclusions
object=country1	19	0	0	0	0	0	0	13	19	-6.19	bad management
object=country2	0	0	73	0	0	0	0	73	73	0.00	KAZOHIN
object=country3	19	0	20	4	0	0	35	97	78	19.39	good management
object=country4	19	0	0	0	0	0	0	6	19	-13.19	bad management
object=country5	19	19	20	0	0	0	0	61	58	2.96	good management
object=country6	0	0	42	4	0	0	0	26	45	-19.39	bad management
object=country7	19	19	42	0	0	0	0	96	80	16.42	good management
object=country8	19	0	0	0	0	67	0	86	86	0.00	KAZOHIN
object=country9	19	0	42	0	0	0	0	79	61	18.11	good management
object=country10	0	19	0	0	0	0	35	49	53	-4.25	bad management
object=country11	19	19	42	0	0	0	35	99	114	-15.14	bad management <--the highest Y can be bad/norm-like/good!!!
object=country12	19	0	20	0	0	0	0	17	39	-22.35	bad management
									error		
									2318		

Figure Nr 9 – Bad management scenario without ranking number = 1 positions in the OAM for the object with the highest Y-value (source: own presentation)

References

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