The role of rankings in growing city competition

Rudolf Giffinger / Hans Kramar / Gudrun Haindl

Department of Spatial Development, Infrastructure and Environmental Planning
Centre of Regional Science
Vienna University of Technology
Rudolf.giffinger@srf.tuwien.ac.at; ++43 1 58801 26633

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On the one hand the comparison of cities can support investors in their choice of location, on the other hand it can be an important guide for the cities to judge their strengths and weaknesses and to define their goals and strategies for future development. However, there is some evidence that the discussion of city rankings is mainly concentrated on the final ranks totally neglecting the methods and indicators used.

This paper concentrates on the question how cities cope with the results of national and international city rankings. It reflects actual experiences with the reaction of local governments and stakeholders on a comprehensive ranking of selected medium-sized cities in Europe („Smart Cities“)[1].Many of the 70 cities, which were evaluated on the base of empirical regional indicators, however, were strongly interested in the results of the study: Especially the cities which scored well asked for empirical findings and conclusions in detail as a welcome support of their promotion activities. Based on these experiences the paper tries to provide an insight into the way cities react on city rankings and how they try to make use of their results. It deals with the question whether local governments are willing and able to learn from results in detail and how do they seriously reflect on the strengths and weaknesses revealed in the study.

Answering these questions the paper concludes in proposals for making city rankings a more significant and effective instrument for steering economic, social and spatial processes in cities: recommendations for researchers and analysts dealing with the design and methodology of city rankings on the one hand and for local governments and stakeholders concerning the reasonable handling of results on the other are formulated.

1. Introduction

As a consequence of strong economic and technological changes over the last decades cities and regions are facing growing competition for high ranked economic activities (see Begg 1999). On the urban level, cities aim at improving their competitiveness and their position in the European or national urban system. Since the European integration process has diminished differences in economic, social and environmental standards[2], cities have converged in their basic conditions for competition, which is increasingly scaled down from the national level to the level of cities and regions (see Storper 1995). This trend enhances the importance of specific local characteristics, which provide comparative advantages competing for increasingly footloose and mobile global enterprises, investors, tourists and capital (Parkinson et al., 2003; Giffinger et al., 2003). Facing this development, urban competitiveness and corresponding strategic approaches with specific goals and modified instruments have become important efforts of urban politics (Tosics, 2003).

In this crucial situation city-rankings experience a remarkable boom and increasingly attract public attention. In these comparative studies cities are evaluated and ranked with regard to different economic, social and geographical characteristics in order to reveal the best (and the worst) places regarding either quality of life or conditions for economic activities. In that way the comparison of cities can support investors in their choice of location on the one hand, but it can also be an important guide for future city development on the other. Having realised this specific assets of city-rankings, policy makers increasingly make use of their results, which reveal particular strengths and weaknesses of the cities. Thus, city-rankings have become an important empirical base for disclosing comparative advantages and sharpening specific profiles and consequently for defining goals and strategies for future development. Secondly, positive results in a widely published and approved city-ranking can also be used as a central part of a city's marketing strategy: a top-rank in a highly reputed city-ranking definitely helps to improve the international image of a city.

In this context this paper tries to find answers to the question in which way city-rankings can be used in strategic policy advice for cities. It deals with the issue how the results of such ratings can be interpreted and adopted in order to sharpen a city's specific profile and to define effective strategies for a sustainable development. For that purpose the first chapter presents experiences with existing city rankings, detecting the main benefits and limits regarding their explanatory power and applicability in urban strategic planning. The next chapter discusses one specific city ranking approach, namely the European Smart City ranking, conducted last year. Moreover, the examination of this specific example for city rankings leads into answers to the question, how and in which form such rankings can be used in order to identify strengths and weaknesses of cities, and, furthermore, in which way they can be used to provide input for strategic discussion on local urban development and to contribute to a city's positioning.

2. Benefits and limits of city-rankings

Tackling the question how the results of rankings can be applied in strategic policy advice for cities, it is necessary to examine and compare existing city-rankings thoroughly in order to detect their explanatory power and applicability in urban strategic planning. Surprisingly, neither regional science nor spatial economics or sociology have looked into that subject from a scientific point of view, although city-rankings seem to have significant influence both on investors and on political decision-makers.

In one of the few empirical studies in that field, Schönert (2003) shows that rankings are usually targeted on different goals and that they significantly deviate in methods and results: According to the particular thematic focus rankings make use of different indicators for describing the main characteristics of the cities and therefore provide deviant final ratings. Furthermore the author empirically proves that there is no evidence that the ranks are reflected in future economic performance of the cities. Based on a detailed analysis and comparison of 10 German city-rankings he points out the following assets of city-rankings:

- City-rankings draw public attention to major issues of regional science
- City-rankings stimulate a broad discussion on regional development strategies
- City-rankings force regional actors making their decisions transparent and comprehensible

[2] In particular the adoption of EU standards and norms in the accession countries has accelerated this trend (see Pichler-Milanovic, 2005)

- City-rankings make positive characteristics public outside the city itself
- City-rankings may initiate learning effects of local actors

On the other hand he considers some handicaps:

- City-rankings tend to neglect complex interrelations and causalities
- City-rankings are mainly discussed with regard to final rank
- City-rankings may threaten long-term development strategies
- City-rankings may strengthen existing stereotypes
- City-rankings are ignored by badly ranked cities

In a different approach Fertner et al. (2007) define three distinguishing aspects, by which city-rankings can be compared and classified. Analysing and interpreting existing city-rankings it is important to consider the following aspects and make them evident:

- Objective: The objective of the ranking is not only specified by its aim and its target audience but also by its spatial scope and the desired factors and indicators behind the ranking.
- Methodology: Methodology does not only include the way of data collection and processing but in a first step also the limitation of cities examined in the ranking.
- Dissemination: The way, how the results are evaluated, interpreted and presented is crucial for the impact of the ranking.

These three aspects are applied to compare 7 different national, European and worldwide city-rankings systematically and to disclose similarities and differences. The main findings of this comparison are (see Fertner et al. 2007):

- Rankings focusing on a clearly defined issue provide more applicable results than rankings providing 'just' an overall list.
- Public attention is mainly focussed on the final ranking without considering the methodological aspects behind the ratings.
- This selective public perception of results enforces a confirmation of existing stereotypes and clichés.
- Even the cities themselves do not make use of the results in a constructive and positive way in order to find out their own strengths and weaknesses as an empirical base for detecting future fields of activity.
- Rankings are excessively acclaimed by the "winners" and ignored by the "losers"
- Rankings tend to follow a "generalistic" approach, as many financiers ask for clear results which can easily be communicated in public.
- Most rankings aim at finding the "best" or "most attractive" city in general terms totally ignoring the fact that different activities need different conditions.

The authors conclude that especially medium-sized cities, which are not able to compete in all fields of economic activity and therefore have to focus on selected branches, can hardly be compared and evaluated in general (p.7): "Even more than in the case of metropolises, city-rankings of medium-sized cities have to be highly specific in their approach and always be related to a particular aspect of attractiveness: The results of rankings focusing on quality of life or on cultural potentials will strongly diverge from the findings of studies which try to evaluate regional conditions for tourism or innovative industries." These findings point out that especially rankings of medium-sized cities have to be interpreted with caution considering the factors and indicators used.

3. 'Smart City' – Ranking Approach

According to the three aspects mentioned above an own ranking approach focusing on the specific situation of medium sized cities was developed. This approach is now described in its basic aspects (see Fertner et al., 2007; resp. http://www.smart-cities.eu/; found on 18th of June, 2008).
In a first step **basic objectives** of this ranking approach are defined as

(1) transparent ranking of a selected group of cities
(2) elaboration and illustration of specific characteristics and profiles of every city
(3) the encouraging of benchmarking between selected cities
(4) detection of strengths and weaknesses for strategic discussion and policy advice.

In order to implement this approach we defined 'smart city' – based on round table discussion and literature research - as follows: "A Smart City is a city well performing in 6 characteristics, built on the 'smart' combination of endowments and activities of self-decisive, independent and aware citizens." (http://www.smart-cities.eu/model.html; found on 18th of June, 2008) However, the term 'smart city' is not used in a holistic way but in most examples one emphasizes specific characteristics of different fields of urban development and even the awareness and participation of a city's inhabitants regarding special issues of urban development. Accordingly, 'smart' implies the implicit or explicit ambition/intention to improve its performance regarding urban development in the specific characteristics.

According to literature and a round-table-discussion, six 'smart' characteristics had been identified which are likely to be relevant: economy, people, governance, mobility, environment and living. These 6 characteristics we regard as the relevant group characterizing a smart city. They are broken down into 33 relevant factors (see list of factors in figure 2) which reflect the most important aspects of every smart characteristic. Finally, every factor of a smart characteristic is defined empirically through a group of corresponding indicators. In total, 74 indicators had been defined and used for operationalising the relevant factors. As the list of factors results from the definition in an idealistic way, two of the factors could not be defined empirically because of the lack of data. Thus, only 31 factors remained in the ranking procedure.

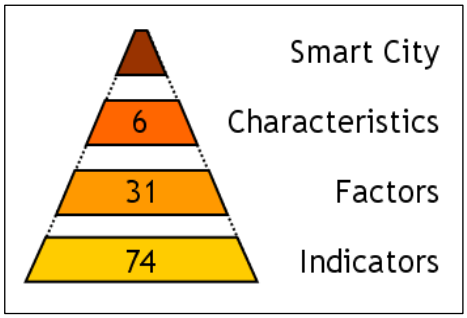


Fig.1: Description of Smart City

Fig. 2: List of characteristics and factors

SMART ECONOMY (Competitiveness)

- Innovative spirit
- Entrepreneurship
- Economic image & trademarks
- Productivity
- Flexibility of labour market
- International embeddedness
- *Ability to transform*

SMART PEOPLE (Social and Human Capital)

- Level of qualification
- Affinity to life long learning
- Social and ethnic plurality
- Flexibility
- Creativity
- Cosmopolitanism/Open-mindedness
- Participation in public life

SMART GOVERNANCE (Participation)

- Participation in decision-making
- Public and social services
- Transparent governance
- *Political strategies & perspectives*

SMART MOBILITY (Transport and ICT)

- Local accessibility
- (Inter-)national accessibility
- Availability of ICT-infrastructure
- Sustainable, innovative and safe transport systems

SMART ENVIRONMENT (Natural resources)

- Attractivity of natural conditions
- Pollution
- Environmental protection
- Sustainable resource management

SMART LIVING (Quality of life)

- Cultural facilities
- Health conditions
- Individual safety
- Housing quality
- Education facilities
- Touristic attractivity
- Social cohesion

To give an example: 'Smart people' as characteristic is defined through the 7 factors mentioned above in figure 2; for instance, the factor 'affinity to life long learning' is then operationalized through the indicators 'Book loans per resident', 'Participation in life-long-learning in %' and 'Participation in language courses'.

All 74 indicators which we finally used in the ranking are obtained from the following data sources: Urban Audit (local, core), ESPON 1.4.3 project (FUA level), ESPON 1.2.1 project (NUTS 3), Eurostat database (NUTS 3, NUTS 2 or NUTS 0), various Eurobarometer special surveys and a study (Ministère de la culture, 2005) on creative industries (NUTS 0). Of course, the majority of all indicators (65%) are defined on the local level. Others which are derived from data on the national or NUTS 2 level are included because they provide additional information not only about the endowment of cities but also about the perception and assessment of specific developments.

In a second step questions regarding the selection criteria of cities as well as the aggregation procedure are dealt with from a **methodological point of view**: In order to make the ranking approach more transparent, the **definition of the city sample** is essential. In comparison to other ranking approaches the Smart-City approach considers only medium sized cities in Europe. As there is no clear and common definition of medium sized cities we defined four criteria for selection:

- Potential members are all functional urban areas in Europe (FUA): these are about 1.600 entities in Europe according to the findings in the ESPON 1.1.1 study including all 27 EU-member states as well as Norway and Switzerland. (Nordregio, 2004)
- Within this group 584 core-cities with a population between 100.000 and 500.000 inhabitants are selected because they represent cities not the largest cities or capital cities for most countries (exception Ljubljana)
- Within this group only such 364 cities are selected which have at least one university which indicates a precondition for knowledge based and smart urban development:
- Finally, the last selection criteria of the remaining cities is a catchment area of less than 1.500.000 inhabitants assuming that such 256 cities are not part of a metropolitan agglomeration.

So, 256 medium sized cities remain for a potentially ranked group. However, this number is reduced to 70 cities due to accessibility and quality of data; only few cities are considered although they have a slightly larger catchment area.

The **aggregation procedure** for defining the Smart-City ranking is the following: The above described indicators are defined in different ways and, thus, they show completely different levels of values and different ranges which are not allowed to be merged in any form. Very easily, such indicators are standardized through a z-transformation resulting in a distribution with an average value '0' and a standard deviation of '1'. Through this transformation indicators are now comparable and appropriate for any aggregation procedure. Assuming the substitution between indicators all (not missing) values are added up to the aggregated value for every factor resp. for every characteristic and in total for every city itself. As there are missing data which does not allow calculating the (standardized) indicator value, we finally do not use the sum of all values but the average value of the aggregated values divided through the case-specific number of values.

Based on these definitions and methods smart cities are ranked according to their average value across all indicators. Empirical findings are produced and illustrated via tables, graphs and maps. For an overview of the cities and their grouped ranking see fig. 3.

Fig. 3: City sample and group rating
(Source: Giffinger et al. 2007)

The darker the colour the better the rating

Of course, ranking approaches and their findings will have more public attention the more **dissemination** of relevant results is enforced. As relevant empirical results we produced information about:

- the whole sample in order to show the position of distinct cities within the group or relative to other cities (bench marking)
- selected single cities in order to illustrate its specific profile of characteristics and corresponding factors.

According to the aggregation procedure every city shows a value for its smartness. In addition, for every city the profile regarding the six characteristics is displayed and indicates a relative heterogeneity in the city-specific bundles of characteristics at a first glance.

Fig. 4: all cities: final rating with characteristics (Source: Giffinger et al. 2007)

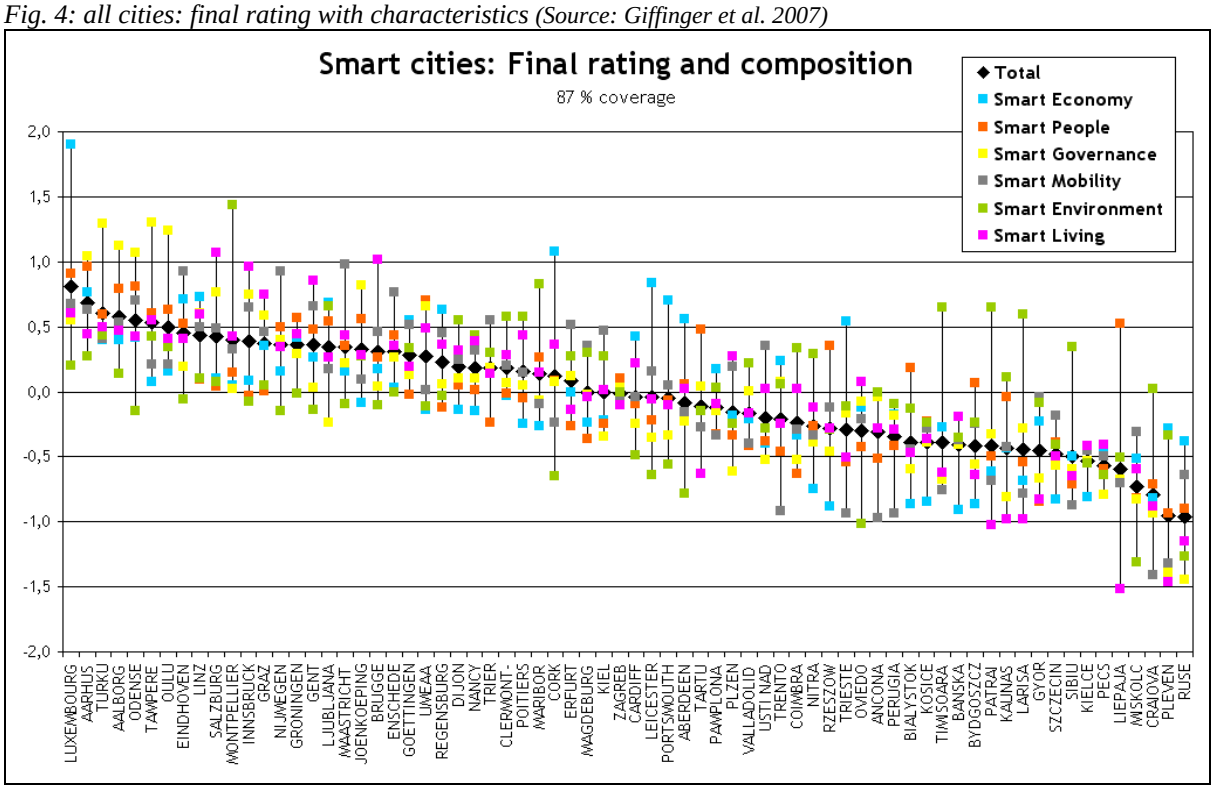
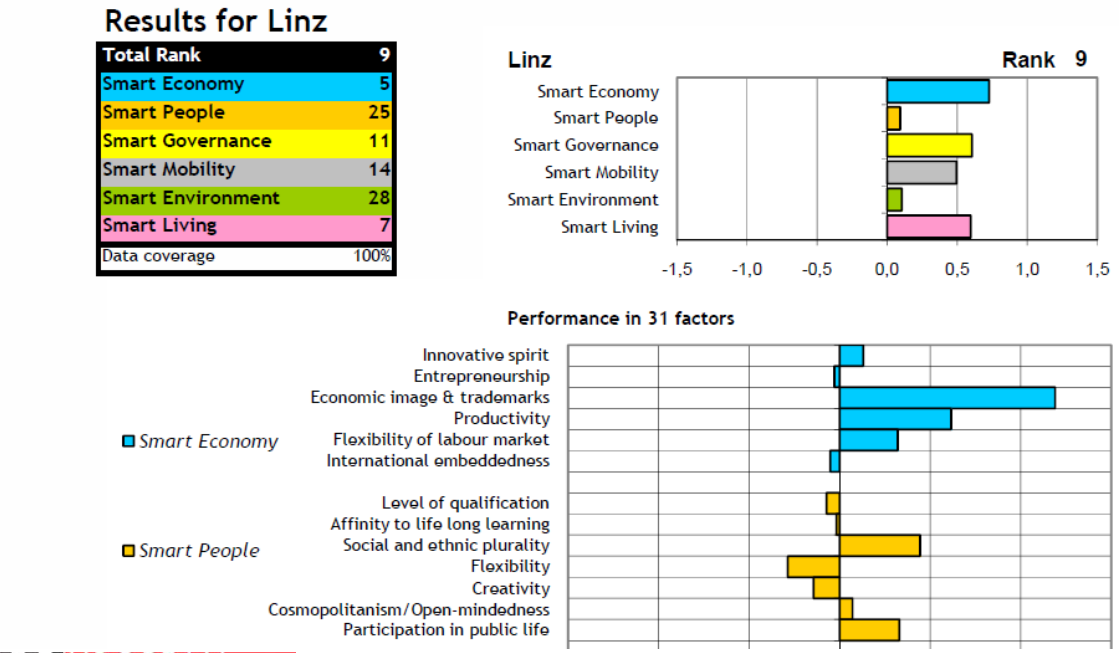


Fig. 5: A city's profile in characteristics and factors (Source: own calculation)



For instance, the results for Linz, Upper Austria and European Cultural Capital in 2009, indicate characteristics which are - in comparison to the whole group - above average respectively very high. Obviously, the relative small value (above average) for smart people results from some relevant factors like 'level of qualification', flexibility' and 'creativity' which do not perform well.

Finally, in a third step **dissemination of the results** was realised through two activities last year: (1) a press conference at the international fair EXPO REAL in Munich, Germany; (2) an own site in the internet http://www.smart-cities.eu/ which is still online.

The main target of the press conference was the dissemination of the whole approach and its basic findings. Perhaps more important was the presentation of the webpage during the press conference because this page provides more information about

- the approach and the model
- the ranking of all cities in total resp. due to distinct characteristics
- the benchmarking for distinct cities illustrating the average values for all six characteristics and for all groups of factors which constitute a single characteristic.

As expected these forms of dissemination provoked different reactions:

- Newspapers in different European countries (at least in Germany, Finland, Luxembourg, Slovenia and Austria) on the local and on the international level reported about the approach and its findings – basically confirming our results and mostly under the aspect of benchmarking.
- Some cities reported and discussed the ranking on city-specific webpages and took the detailed information for discussion of recent urban issues. Even not so well ranked cities made a statement on that results and agreed with their ranking due to the detailed and transparent approach.
- Some cities decided to take up this findings for official policy issues; for instance Turku (see: http://www.utu.fi/en/research/researchs_turku/turku_was_ranked_ high_in_the_ranking_of_european_middle-sized_cities.html; seen 19.8.2008)
- Some cities decided to become object of the ranking although they had not been selected according to our criteria resp. they want to be partner in a more exclusive network of smart cities which expect more detailed information in order to bring forward their city development strategy.

4. Typical profiles of medium-sized cities in Europe

Obviously, the positioning of cities on the base of a transparent ranking approach provokes further strategic discussion regarding adequate strategies to compete in the European system of cities. Amongst other instruments the comparison and ranking of cities is one of the most productive approaches to identify a city's relative advantages and potentials resp. its weaknesses against other cities. However, what can we learn from that rankings and which potentials do such rankings have for a strategy-finding process and relevant policy advice? Answering these questions we first elaborate typical profiles of cities which can be detected in our city sample.

As already shown in the previous figures, there is no single general ranking but all cities show specific profiles in their characteristics. Since this bundle of characteristics describing every city is pretty heterogeneous, every indicator shows a more or less high range across the sample (as shown in figure 4). For example, the difference between Luxembourg (LU) as best performing city in 'Smart Economy' and Banska Bystrica (SK) as city with the worst performance can be located at a range of 2,67 (see figure 6)[3]:

The highest disparity between the best and the worst performing city can be found within the factors 'Smart Environment' (range: 2,78) and 'Smart Governance' (range: 2,75), while the difference regarding 'Smart People' is comparatively lower. Remarkably, two middle-rated cities (Novi Sad, ranked 49 and Kassel, ranked 32) show the best values regarding 'Smart People' and 'Smart Mobility'. This result emphasizes that the results of city rankings have to be interpreted beyond the final overall-ranks in order to gain more sophisticated insight into the specific strengths and weaknesses of a city as a reliable base for strategic policy advice.

[3] All values are standardised values in order to ensure comparability.

Fig. 6: Best and worst values (factors) in comparison

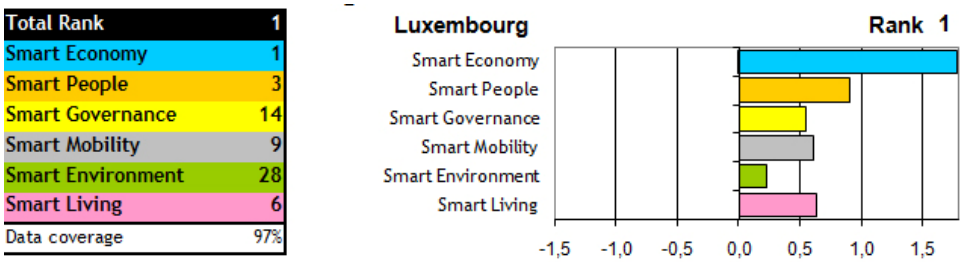
	Best value			Worst value			range
	city	rank	value	city	rank	value	
Smart Economy	Luxembourg	1	1,78	Banska Bystrica	62	-0,89	**2,67**
Smart People	Novi Sad	49	1,16	Pleven	77	-0,93	**2,09**
Smart Governance	Tampere	6	1,31	Ruse	78	-1,45	**2,75**
Smart Mobility	Kassel	32	1,20	Craiova	76	-1,38	**2,57**
Smart Environment	Montpellier	12	1,45	Miskolc	75	-1,33	**2,78**
Smart Living	Salzburg	11	1,11	Liepaja	74	-1,52	**2,63**
Total	Luxembourg	1	0,78	Ruse	78	-0,99	**1,77**

Nevertheless, before we can discuss these strategies for the positioning of cities, we have to reconsider the first description of the indicators representing this bundle of characteristics defined in the European Smart City ranking approach. As indicated, there is a large range of characteristics leading into very different profiles of cities. At this point, the question emerges whether there are significant types of profiles for distinct groups of cities. To answer this question, we tried to detect 'typical profiles', which can be used as a base for discussing different strategy-finding processes, by means of a cluster analysis.

First, the interrelation between indicators had to be checked[4]. On the one hand, there is weak interrelation between 'Smart Environment' and the rest of the factors (0,141 - 0,375), on the other hand, quite strong interrelation can be observed between 'Smart Living' and 'Smart Governance' resp. 'Smart Mobility' (around 0,750), as well as between 'Smart Governance' and 'Smart People' (0,671). The cluster analysis[5] itself showed up with six different clusters of cities, as described in the following:

- Two big clusters of cities, namely
  - 'winning cities' with consistently positive values (37 cities) and
  - 'loosing cities' with consistently negative values (28 cities)
- Three small groups of cities (consist of 3-5 cities each) with interesting and very heterogeneous profiles
- 1 outstanding city (Luxembourg, ranked first in European smart cities: see fig. 7)

Fig. 7: Profile of Luxembourg as highest ranked city

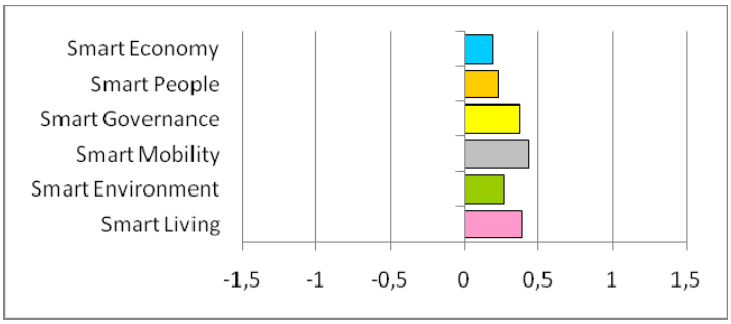


'Winning cities':

Not surprisingly, this cluster is mainly constituted by the best-ranked cities. As shown in figure 8[6], the group of 'winners' is characterized by doing well in all measured factors, especially in mobility, living and governance. In comparison to the outstanding winner of the ranking, Luxembourg, this group of cities tends to be weaker in the field of economy, but slightly better in environmental aspects.

[4] The interrelations between the factors have proved to be acceptable for cluster analysis (Backhaus et al. 2003).
[5] Hierarchical cluster analysis
[6] Mean values

Fig. 8: Typical profile of a ‚winning city' and list of ‚winning cities'

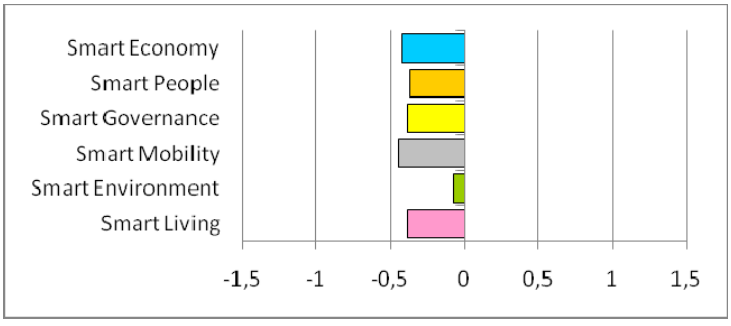


	city	rank		city	rank		city	rank
DK	AARHUS	2	NL	NIJMEGEN	15	FR	NANCY	28
FI	TURKU	3	AT	GRAZ	16	FR	CLERMONT-FERRAND	29
DK	AALBORG	4	BE	GENT	17	DE	TRIER	30
DK	ODENSE	5	SI	LJUBLJANA	18	FR	POITIERS	31
FI	TAMPERE	6	NL	MAASTRICHT	19	DE	KASSEL	32
SE	MALMOE	7	DE	MANNHEIM	20	SI	MARIBOR	33
FI	OULU	8	SE	JOENKOEPING	21	DE	ERFURT	35
NL	EINDHOVEN	9	BE	BRUGGE	22	HR	ZAGREB	36
AT	LINZ	10	NL	ENSCHEDE	23	DE	MAGDEBURG	37
AT	SALZBURG	11	DE	GOETTINGEN	24	DE	KIEL	38
FR	MONTPELLIER	12	SE	UMEAA	25	DE	ROSTOCK	44
AT	INNSBRUCK	13	DE	REGENSBURG	26			
NL	GRONINGEN	14	FR	DIJON	27			

'Loosing cities'

Typical 'loosing cities' can be found within the ranks 45 and 73, characterised by a rather weak performance in all factors exept 'Smart Environment' (average mean value). In particular, these cities have problems both in economy and mobility (see figure 9). Regarding the location of these 'loosing cities', it becomes apparent that they can mainly be found in eastern and southern parts of Europe (see figure 12).

Fig. 9: Typical profile of a ‚loosing city' and list of ‚loosing cities'

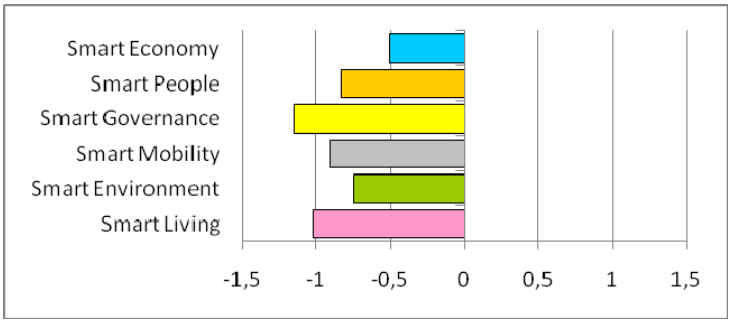


	city	rank		city	rank		city	rank
ES	PAMPLONA	45	ES	OVIEDO	56	LT	KAUNAS	66
CZ	PLZEN	46	IT	ANCONA	57	GR	LARISA	67
ES	VALLADOLID	47	IT	TRIESTE	58	HU	GYOR	68
CZ	USTI NAD LABEM	48	IT	PERUGIA	59	PL	SZCZECIN	69
PT	COIMBRA	50	PL	BIALYSTOK	60	RO	SIBIU	70
HR	RIJEKA	51	SK	KOSICE	61	PL	KIELCE	71
IT	TRENTO	52	SK	BANSKA BYSTRICA	62	HU	PECS	72
IT	UDINE	53	PL	BYDGOSZCZ	63	PL	SUWALKI	73
SK	NITRA	54	GR	PATRAI	64			
PL	RZESZOW	55	RO	TIMISOARA	65			

‘Worst cases’

This small cluster is made up by the last four cities of the ranking, showing up with the most negative values in all measured factors. The performance is especially weak in goverananve and living. Compared to the group dicussed before (‘loosing cities’), this cluster of ‘worst cases’ is far away from beneficial performance in any of their characteristics, while the loosing cities at least tend to show almost balanced amounts regarding environment.

Fig. 9: Typical profile of a ‚worst case‘ and list of ‚worst cases‘

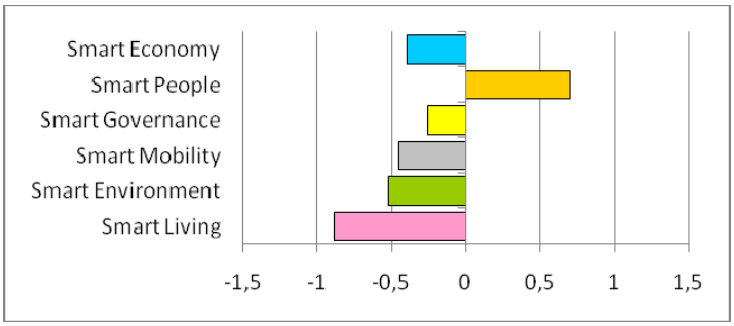


	city	rank
HU	MISKOLC	75
RO	CRAIOVA	76
BG	PLEVEN	77
BG	RUSE	78

‘Bad living conditions for smart people’

Three cities can be summed up within this cluster, presenting a very interesting profile that can be characterised by very bad values regarding living conditions on the one hand, and a comparatively good performance in the field of ‘Smart People’. As heterogenous as the profile itself, the three cities belonging to this cluster show relatively different results in the overall ranking, ranging from rank 43 (Tartu) to rank 74 (Liepaja).

Fig. 10: Typical profile of a city with ‚bad living conditions for smart people' and list of cities

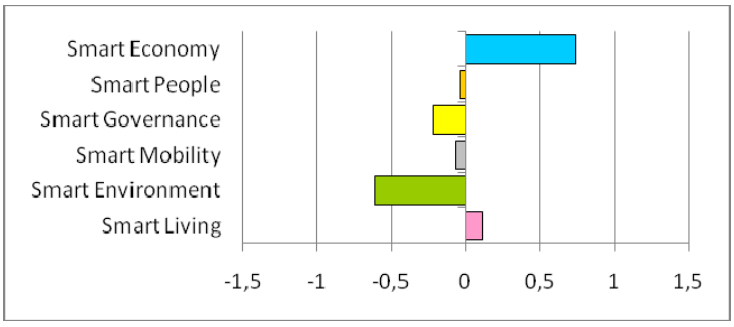


	City	rank
EE	TARTU	43
SR	NOVI SAD	49
LV	LIEPAJA	74

'Economy at the cost of environment'

Similar to the previous mentioned cluster, these five cities show a very heterogenous profile, but, contrary to the three cities before, they are doing much better in their living conditions and, additionally, they have balanced values regarding 'Smart People' and 'Smart Mobility'. There is a big gap between the very good activites in economy and the comparatively bad performance in environmental features, as shown in figure 11.

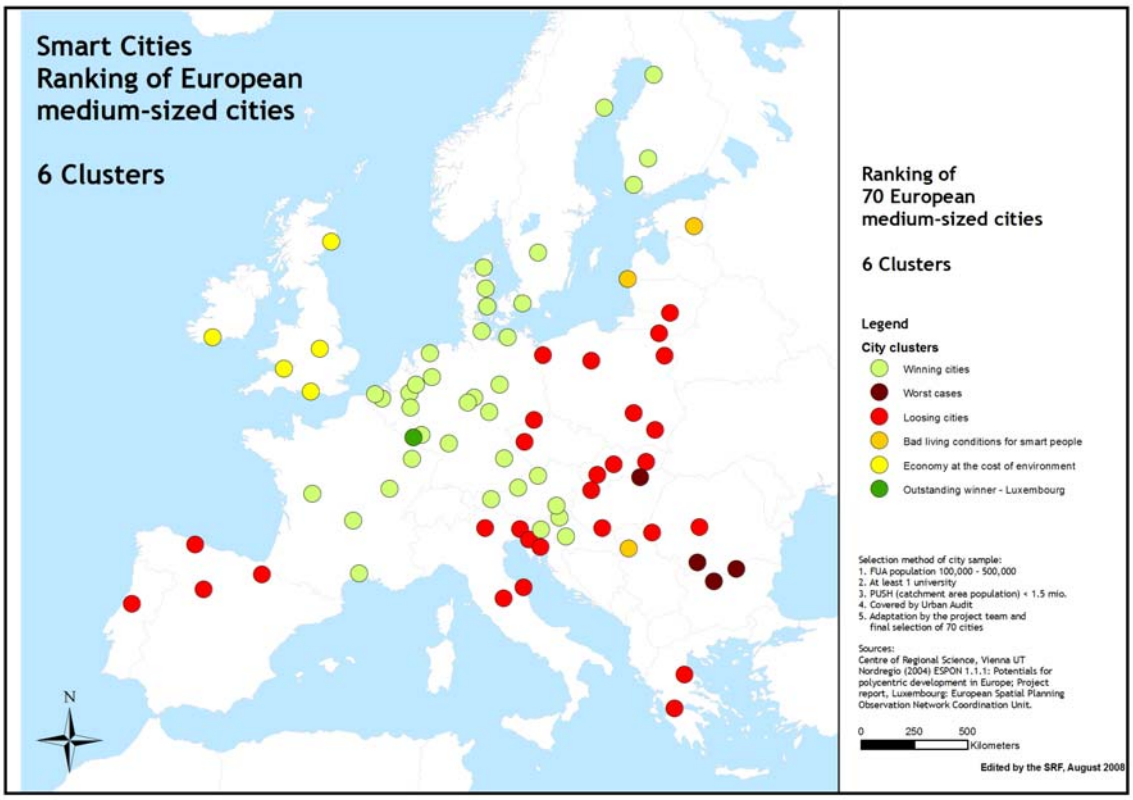
Fig. 11: Typical profile of a city with ‚economy at the cost of environment' and list of cities



	city	rank
IE	CORK	34
UK	CARDIFF	39
UK	LEICESTER	40
UK	PORTSMOUTH	41
UK	ABERDEEN	42

Evidently, this cluster only consists of old industrial cities in the UK and Ireland, which are ranked in the midfield of the overall ranking. Presumably, the typical profile of these cities is affected by the heritage of the industrial development during the last decades.

Fig. 12: Types of city clusters



5. Strategies for defining and improving a city's position

Generally speaking, the cluster analysis as described in chapter 4 provides two noticeable results:

- Since the cities participating in rankings are as heterogeneous as the characteristics describing the profile of each city, the results have to be interpreted and applied beyond the simple consideration of the final rank of a city in order to develop sensible strategies on an international level. Even if there is a high correlation between the cluster membership and the overall rank, cities are clustered in an accurate way despite their heterogeneity. The clusters, which show specific types of cities, help to overcome the superficial reflection of the overall rank or the random comparison of the best and worst cities.
- For the stakeholders of a city these findings allow to focus on the specific profile of strengths and weaknesses in relation to similar cities. It is not reasonable to follow best-practice strategies at random, but to respond to the cluster membership. In that way best practice-examples of other cities can be interpreted with regard to their specific profiles, which makes them more easy to adopt in an effective way.

Commonly, urban strategies try to re-imagine a distinct urban region and to define priorities in corresponding fields of development (Healy 2004). Due to relative heterogeneous profiles, which partly differ significantly from their ratings, two corresponding approaches can be applied to encourage cities to improve their position and to become 'smart':

Evidence based approaches need a detailed description and analysis of the different fields of urban development and, finally, an assessment of strengths and weaknesses. The Smart City approach allows such an analysis in a rather differentiated way on different levels. Especially on the more disaggregated levels, empirical analysis can focus on specific issues based on a functional understanding of distinct fields of urban development. The assessment can be done in a twofold way: On the one hand the functional understanding helps to identify distinct factors influencing the 'smartness' of a city. On the other hand it allows specific benchmarking with other cities with regard to given types and profiles. Based on this typology any city can be referred to cities belonging to the same type or to any other type to which a city aims to belong.

Due to this reason, the 'Smart City' approach provides empirical evidence regarding the profile of a city in a differentiated way and the identification of groups of cities with typical profiles. Besides, the differentiated assessment of strengths and weaknesses helps to define relevant priorities in an efficient way.

Lesson drawing approaches concentrate on understanding the conditions under which policies operate in lending political systems and on creating proper conditions in borrowing political systems (Page, 2000). Applying this approach involves many steps: An important first question is from where experiences can be transferred (Robertson, 1991; Robertson and Waltham, 1992). Local governmental levels are likely to look to nearby local governments, assuming that they have most in common with neighbours. In this sense, subjective identification and political values are important in directing the search. Ideological compatibility, similarities in resources, psychological or cultural proximity, the availability of evidence and interdependence are other factors to be considered (Rose, 2001) when selecting cities from which a lesson can effectively be drawn.

Therefore, the 'Smart City' approach is useful for the selection of cities from which lesson drawing is expected in an effective way. Again, the multidimensional description of cities respectively the identification of comparable and typical profiles, for sure, helps to select other cities for learning and transferring relevant strategies. For instance, it would not make sense to learn and to transfer policies or strategies from cities which have completely different profiles. For that reason, it is highly recommended that cities should learn from cities, which are relatively similar in their strengths and weaknesses.

6. Conclusions: Recommendations regarding ranking approaches and strategic policy advice

As cities face growing competition, they seek for (new) possibilities of defining and strengthening their position in urban systems. Facing the specific strategic efforts in many cities there is a consensual understanding of strategic spatial planning regarding it as collective efforts in order to re-imagine a corresponding urban region and to define priorities in corresponding fields of development. (Healy, 2004) However, such strategies show some specific characteristics (Jessop & Sum, 2000; Maier, 2000):

- a concentration of organizational capacities around common projects between several private investors, stakeholders and public actors
- a concentration on critical issues and on corresponding basic projects
- visions and priorities usually based on the evaluation of the city's potentials, strengths and weaknesses
- a process-oriented approach in the long run

Rankings can be used as instruments for the positioning of cities as they consider the specific local characteristics of each city, which gain more and more importance through the European integration process. At the same time, rankings provide an empirical base for assessing specific strengths and weaknesses in a benchmarking process and they can be applied as guiding instruments for future city development. For investors, rankings act as decision support for site selection, and, for the winners of city rankings, they increase the reputation and contribute to the city's marketing.

Though, few empirical studies in this field (see Schönert 2003, Fertner et al. 2007) point out that there are some disadvantages to consider when using city rankings for policy advice. With respect to methodological aspects rankings tend to neglect complex causalities and are often not transparent with respect to data collection and processing. As discussed in this paper, the results of rankings depend on the spatial scope and the selected indicators to a high extent. Another important role has to be referred to the dissemination of the rankings themselves as they are mainly discussed with regard to final ranks, ignored by badly ranked cities or just perceived corresponding to existing stereotypes.

Medium-sized cities can be identified as a very special group of cities which are not considered in other rankings or which loose in importance and attention against bigger metropolitan areas which are usually ranked in higher positions. Hence, especially for medium-sized cities there is a demand for strategic policy advice with the help of city rankings. Since, as indicated before, city rankings are highly heterogeneous regarding methodology and objectives, one has to go far beyond a simple comparison of the ranks of cities, and in addition, a more elaborated procedure is necessary for focusing on the specific profile of a city with its strengths and weaknesses in detail. Cluster analysis is one possibility out of a wider range of procedures for investigating rankings in a more sophisticated way. When clustering the cities by their specific characteristics it becomes obvious that city

rankings can only be used as a base for strategic policy advice when both the qualities of the ranking itself are taken into consideration as well as the specific conditions and characteristics of a city. As shown in the empirical discussion of the 'Smart City' ranking, it may be much more reasonable and beneficial to respond to the typical profile of a city and best practice-examples of cities with similar preconditions than to simply follow best-practice examples at random for developing urban strategies.

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