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Smart cities marketing and its conceptual grounds

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Smart Cities Marketing and Its Conceptual Grounds

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Abstract

The most frequent definition of the smart city in the literature defines it as a developed urban area that creates sustainable economic development and high quality of life. Therefore, a city should always be capable of identifying and effectively resolving its key development challenges in order to improve the quality of life of its citizens. Regarding economics approach, the authors rely on endogenous growth theory derived from Arrow. The authors explore the role of smart city management and governance, which will have to combine the need for capital with the need to ensure the environment that this capital will enhance modern urban producing factors. Hence, the authors discuss communication aspects and the importance of the evolution toward smart communities, where the idea is not on making places smart anymore, but rather focus on humans and their needs. For an emerging smart city, market built up of smaller cities and municipalities describes the changing role of marketing and the shift of roles in its processes in order to show the urge to become familiar with the spirit of open innovation and rethink marketing strategy in this emerging reality.

Keywords: smart cities, marketing, economics, conceptual grounds

Introduction

Promoting cities to become smart primarily derives from the problems caused by rapid urbanization—usually deteriorating quality of life in big agglomeration. Despite the adjective smart is commonly used this term has not necessary being completely adopted in academia and politics. However, the common denominator of all initiatives and positions is that they live in the environment of still deficient proves and theory.

Looking for robust smart city concept we found that this concept is still in progress (Johnson, 2008; Boulton, Brunn, & Devriendt, 2011; Mora, Deakin, &

Bolici, 2017; Law & Lynch, 2019; Shoaib & Shamsi, 2019). This means that there still no consistent or unanimous use of terms has been adopted. Here we refer to Johnson (2008) who understands the use of smart city as an urban labelling phenomenon, noting that the label smart city as a concept is not always consistent. The plurality of the concept is best presented through Giffinger et al.'s (2007) who introduced issues, such as, awareness, flexibility, transformability, synergy, individuality, self-decisiveness, and strategic behaviour, all being crucial parts of the smart city concept.

Even more, according to Harrison et al.'s study (2010), a smart city is a part of being subject to instrumentalization and interconnectivity actually an intelligent city. For the Natural Resources Defense Council (2014), smart means more efficient, equitable, sustainable, and liveable, while Toppeta (2010) emphasises most the improvement in sustainability and liveability. Rios's (2008) sees smart city as a city that gives inspiration, shares culture, knowledge, and life, and motivates its inhabitants to create and flourish in their own lives. Giffinger et al. (2007) highlighted the performance of smart city in economy, people, governance, mobility, environment, and living. Washburn et al. (2010) on the other hand conceptualise smart city with giving the biggest attention on the use of smart computing technologies. Smart computing means new generation of integrated hardware, software, and network technologies for providing IT systems and advanced analytics for optimising the business processes. Industry 4.0 technologies allow a technological transformation of cities therefore harnessing the potential of the 4th industrial revolution will require cities to integrate new innovation and technology-related concepts (Hobcraft, 2019). Especially the Internet of Things, the Internet of Services and the Internet of Energy as aspects of Industry 4.0 should be considered as elements that can create the connection of the Industry 4.0 and Smart City initiative (Lom et al., 2016).

The facts presented above support the statement that smart city is a very complex concept. In this respect, it must be considered rather as organic system combined of many elements. Following the discussion in the literature (Kanter & Litow, 2015, Koch, Rapp, & Kröger, 2013) a smart city is "organic integration of system". In this respect, also the interacting of its parts will define the level of smartization. Being subject to action of humans living together in agglomeration none of these elements cannot operate or be treated separately. Functioning in the form of network modern cities- smart cities are actually acting as organisms using their nervous system as developed by their citizens. This brings us to the term intelligence of cities including interrelation and interacting of digital communication networks, given intelligence as well as software – all of them making smart city similar to organism with nerves and brains.

Marketing necessary mean addressing people with new possibilities referring to a products and services. To steer people into smart city values there will be surely no unified marketing approach, but one will have to consider the difference in their reasoning as a consequence of existing historical, cultural and economic experience. As empirical proof shows there three factors are being more and more influenced by thinking and perspective in their social network and environment (Macdonald, 2017). Here, the very same facts can be accepted immediately because they are supporting social network general position or will be rejected because it wants to abruptly change this position.

In this article, the authors try to combine recent knowledge on definitions and economics relevant to smart cities, which could support modern view on marketing function promoting the smart city idea.

Urban Economics and the Case for Smart Cities Marketing

Being brought to agenda whenever discussion on urban agglomerations takes place, smart cities became a mantra for participants in these discussions. Following new technology impulses and the need for circle economy the idea is making us conscious, which new technologies could contribute to our (better) living. Addressing of these problems the World economic Forum (2016) set four priorities in the field using principles of circular economic: smart energy networks, smart shareable home, optimised mobility and shareable, reusable buildings.

Bringing in all kinds of network the idea challenges at least two facts: i) will humankind accept limitless robotization and cybernetics in everyday life and ii) shall human typical stochastic and random acting be handed to artificial intelligence and robots?

Smart city principles will need intelligent support by the policy makers, firstly by using favourable fact at their disposal. Complying with smart cities concept more indigenous approach will have to take place, such as "building on existing qualities and assets, linking related industries to one another, mobilising companies and citizens to innovate..." (Urbact II, 2015, p. 7). It is the fact that the players in the political market act on basis of imbedded freedoms mostly from the times with allegedly vast environment resources in the scarce economy. The pace with which technology has brought excessive production of goods and services has not only burden the environment but have also deteriorated the quality of living in urban areas. The policy makers will have to address these problems and

introduce circular economy amid changing people perception on their freedoms as well as prevent inhabitants from free riding. We see the possible system of approaches to achieve best results from circular economy-oriented measures—be accepted by three main measures: informing of inhabitants on positive consequences of change in behaviour, financial (tax) incentives and popularization through targeted marketing.

Here the position of economic policy is, however, by far not simple. As the “*contradictio in adiecto*” we firstly find the relation between cybernetization and freedom, the last being core human value. The freedom to interhumanly acting would in this case be defined and limited by vast network of tangible and intangible support offering us the benefit of enlarging our productivity and leisure. This opens the space for governmental and corporate steering of the systems thus reducing democracy (Poole, 2014). Spreading all over the world such smart city idea would secondly require simultaneous and equal values and development level on a global scale. If not so, civilization clashes between worlds with different levels of historical development that can be measured in centuries, could easily just by deploying their brain trust undermine and put civilization living its remote world in an unpredictable situation.

Smart city marketing is being challenged through peoples’ need to make cities more human oriented. We must, however, beware the fact that the city is an agglomeration also in economic and political sense. Here we do not completely agree with Polese (2013) that cities are in the first line agglomeration of people and not economic or political units. As we see with state capitals, their political weight and economic power as a rule attract people who are needed for such city to operate and perpetuate its position. Therefore, despite its human orientation smart city and its marketing will include the city’s need to consider all three pillars of its existence as human, economic and political formation.

Successful smart city marketing will therefore consider some facts dealing with economics, which are constraining the plans to change the nature of existing cities. The same is with policy to attract specific human capital from other cities to relocate in order to achieve higher competitiveness. These facts are (to be compared with Polese, 2013): city’s location and relative size mean certain predestination, although this may change following historical or technology change, city’s accessibility and connectivity exposition to political and technology change and the footprint that industry specialization has left on the city.

Being triggered by deteriorating quality of life in modern cities different initiatives among which smart cities have

special position, are more and more taking scientific position. However, it is not enough to disregard markets and economic patterns proved in economic theory and search for a completely new approach, without understanding the basic economic knowledge that defines agglomeration growth and transactions. Synthesised from the literature (to be compared with Gale, Pack & Rothenberg, 2002; O’Sullivan, 2007; Kotkin, 2017) these basic economic facts and axioms could be quoted as follows:

- Bid rent theory - As long as there will be city centres and suburbs, there will also be the bid rent curve falling sharply from the centre showing the falling density of users of city centre services;
- Location equilibrium will at the end of the day drive the prices of immobility to the levels that correspond attractiveness of certain location – arriving at Pareto optimal allocation;
- Self-reinforcing effects deriving from moving of compatible people and services to certain areas are causing concentration of wealth or poverty in cities’ sub regions;
- Externalities cause inefficiency as a person or company rises the quality of life in a certain city area and is not paid for it;
- Economies of scale cause specialization of higher knowledge to concentrate in a city or its area;
- Zero economic profit ends the competition - as incumbent companies reach zero profit at certain production level, they will still continue their business, but no new firms will enter the very market.
- With merging of different urban areas subject to income segregation, local governments will also in the future have to consider Pareto optimum. This means measuring total costs and benefits of such action and assuring positive sum.
- Suburban fiscal transfers to central cities create agglomeration economies and prevent weakness of central city government, which negative economies would spread also to the suburban area.

Therefore, no matter how prosperous the smart cities ideas may be and what will be their impact on urban policies, they will have to comply with facts and behaviour patterns explained by urban economics. They can be influenced to a certain degree, but not expelled. In this respect, directing marketing to exclude them would be risky and costly with practically no long-term effect.

Put in a more concentrated way this means that persons and companies respond to price differentials when relocating across the space (Brown, 2013, p. 45). This can of course be modified but not aborted through any means of intervention or regulation. Therefore, discussion on economic principles in urban economics starts from considering the city as market experiencing supply and demand functions.

Despite the fact that urban economic theory findings cannot be ignored, there is some criticism needed and it is proving the need for further search not only in scientific sense but also when acting, for instance, when the field of marketing is concerned. Here we should firstly not forget possible market failure and imperfections in the price mechanism (Goodall, 1997, p. 7) in this area, which is why urban economics and policy have been necessary linked to planning (Kaza & Knaap, 2012, p. 31). Further on it is of utmost importance for studies supporting theory to base on reliable data. This can often be a problem in measuring cities location choices and so often proxy variables are implemented (Harris, 2011, p. 369). Therefore, there is a room for data obtaining to build a robust ground for smart cities marketing analysis and implementation. Next, the “normal” reaction of people to price incentives has to be monitored also from the point of behavioural economics stressing that the people’s information is imperfect and that there are several ways in which people display their human limitations. These are their limited powers to problem solving thus following the rules of thumb to simplify their decision-making, their propensity to follow conventional wisdom; they can be influenced by how problems are presented (in media), their limited willpower and sometimes altruism. Besides, individuals rather react to a loss of a value than to a gain in the same value (Brooks, 2012, p. 20) which additionally underlines the importance of marketing information function.

Changing Role of Marketing in Smart Cities

From assumptions, regarding urban economics discussed above we have learnt that smart city marketing will be interwoven with many factors. Here we want to analyse its changing role from rather one/few-dimensional activity serving the promotion of technology solutions into a multi-dimensional set of activities, which can take the role of the development booster and redefine the structures steering the development of the city. At this point a short notice that this is not something what persons active in the steering structures or citizens always openly embrace, but more a challenging transition which can be led with different approaches, some addressed in our discussion.

Smart city marketing has been performed by two main groups: smart city solution providers and city authorities with all those acting on behalf of them. With technologies opening many easy and accessible communication channels the communication with the crowd has drastically change. From the mass media with one-way communication, now many possibilities have been appearing to interact with groups of people in so-called two-way and many-to-many communication. This brought to the emergence of new

forms of collaboration among local governments, research institutes, universities, businesses (e.g. Public-Private Partnerships) and now also with citizens (e.g. Public-Private-People Partnerships). A new understanding of innovation has been embraced, grounded in the concept of open innovation ecosystems and on citizens’ empowerment for shaping innovation and urban development.

To create sustainable economic development and high quality of life, which as we have learnt has been adopted as the aim of smart cities, we should always be capable to identify and effectively resolve its key development challenges and citizen needs. Here we want to stress the importance of the evolution toward smart communities, where the idea is not of making places itself smart anymore, but rather focus on humans and their needs.

Thus, citizen inclusion in the decision-making processes has become an imperative, which caused the beginning of a vivid and let’s call it *demanding* evolution taking place right now. Vivid evolution is seen from examples from the United Kingdom. There tweaked tax return notices resulted in millions of pounds of savings in three short weeks (Halls-worth, List, Metcalfe, & Vlaev, 2014). Next is the scheme that personalised text message reminders on unpaid fines, which was estimated to benefit the UK government by over 800,000 pounds worth of additional payments each week. As a last one let us quote from before mentioned inspired projects performed in Finland to search for human-centric governance through experiments (Annala et al., 2015). The evolution is also demanding, because it is bound to the so-called maturity or readiness level of a specific city or environment. As with definition for smart cities also here we are still without one general definition for what the maturity stands. Simplifying we can understand it as a set of different methodologies measuring different dimensions and aspects of city development with focus on transforming governance and service delivery models as well as citizen and business engagement by increasing use of data and digital technologies.

The business-as-usual approaches for example in form of classic one-way communication techniques which only inform and not really boost the interaction that cities have used for well over 100 years to involve citizens are not typically effective today, if they ever really were (DeKeles, 2015). Empowering citizens means that they not only have a voice, but also, they are regarded as a key stakeholder helping shape the development. Lessons learnt from the past development of the smart cities is that acceptance of new technologies should be not taken for granted. Moreover, this is exactly the turning point in the new role of the smart city marketing which has open innovation in its DNA and not only as a “nice thing to do”.

Open innovation research indicates that “unknown outsiders” can constitute an important source of innovation and value-creation. There has not been much research discussing open innovation in public sector or public organizations dealing with production, delivery and allocation of goods with and for citizens (Koch et al., 2013), but things are changing, because citizens engagement is the only way to earn the understanding of citizens’ needs. Talking about those, latest research shakes our picture of understanding the world. It shows that in the past leaders competing for votes had the wrong understanding of citizen priorities: in European elections since 1970 the life satisfaction of the people is the best predictor of whether the government gets re-elected – much more important than economic growth, unemployment or inflation (Clark et al., 2016).

In the harmony with principles of open innovation, smart city marketing does not only become the tool to understand citizens’ needs, it can also become the creating force of a new market. Smart city market so far has been a large city domain, like Barcelona, Amsterdam, and Vienna, to mention some in Europe. True, the predictions show that soon half of the world population will be living in big cities, but it is also true that the rest will remain in smaller urban centres. Being a human needs’ catalyst, by use of artificial intelligence and big data smart city marketing can help us understand also the patterns of needs and demand in smaller cities. Thus, it helps create new partnerships between smaller cities based on the same problems to solve which can grow in a new market – the smart city market of smaller cities and municipalities. First initiatives of this kind, such as FLAPAX – European Smart Community Accelerator, are already appearing (Starc-Peceny, 2016).

We have already mentioned innovation lead with citizen engagement in United Kingdom with tweaked tax return notices and other examples. However, does the open innovation in the DNA of the smart city marketing lead to a complete loss of leadership and decision making for authorities? A controversial example to reflect this point is the current case in Tokyo, where Yoichi Masuzoe, governor of

the Tokyo Metropolitan Government has taken the decision to take a big investment and build the 6,000-unit Olympic village to function exclusively on fuel cell power (Spector, 2016). As we know, the electric power has been so far the mainstream “future energy” although not being a completely clean energy source. Starting at this point an open debate in Tokyo about which, electric or fuel cell power – which is at this point still more expensive, but clean, should be used for the Olympic village, would probably bring more to a confusion than productive discussion. Readiness level and understanding of an average citizen about different power sources and technologies is too low. From this, we learn that open innovation goes in hand with the city maturity level and the role of smart city marketing specialists is to recognise it. Masuzoe has taken a step risky for his career and financially, but might give Tokyo the chance to become the lighthouse for the rest of the world with benefits for city’s air quality, resilience to natural disasters, and, most emphatically, the potential to seriously cut contributions to climate change. We are yet of the verge of understanding what pays and what not and it will be interesting to observe and learn the emerging era of Public-Private-People Partnerships and cooperation.

Conclusions

Since the development of understanding that building smart cities is not a mere technological issue, smart city marketing has grown from rather one/few-dimensional activity serving the promotion of technology solutions into a multi-dimensional set of activities. Cities need to learn to deal with the principles of urban economics, behavioural economics as well as open innovation and rising of maturity level of involved stakeholders. Smart city marketing is not only a promoter anymore. It has grown into a tool for understanding of citizen needs. And, even more, it can also become the creating force of a new market in which smaller cities might take the chance to become faster and more efficient in guaranteeing citizens well-being.

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Konceptualne osnove marketinga pametnih mest

Izvleček

Najpogostejša v literaturi sprejeta definicija pametnega mesta se nanaša na razvito urbano območje, ki ustvarja trajnostni gospodarski razvoj in visoko kakovost življenja. Zato bi moralo biti mesto vedno sposobno prepoznati in učinkovito rešiti svoje ključne razvojne izzive, da bi izboljšalo kakovost življenja svojih državljanov. Glede ekonomskega pristopa se avtorji opirajo na endogeno teorijo rasti po Arrowu. Avtorji preučijo vlogo pametnega upravljanja in upravljanja pametnih mest, ki bo morala združiti potrebo po kapitalu in potrebo po zagotavljanju okolja, da bo ta kapital okrepil sodobne mestne dejavnike. Na podlagi tega avtorji razpravljajo o vidikih komunikacije in pomenu razvoja do pametnih skupnosti, pri čemer ne gre več za vzpostavitev pametnih mest, temveč je središče na ljudeh in njihovih potrebah. Za nastajajoče pametno mesto, ki ga sestavljajo manjša mesta in občine, avtorji opišejo spreminjajočo se vlogo trženja in prenos vlog v njegovih procesih, da bi pokazali potrebo po seznanjanju z duhom odprtih inovacij in potrebo po premisleku na področju tržnih strategij v to nastajajočo resničnost.

Ključne besede: pametna mesta, marketing, ekonomika, konceptualne osnove