Eco-innovations in the urban regeneration projects

Making the 21st Century Cities

Edited by Krzysztof Jarosiński

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Publisher's note

We're delighted to bring you the book series prepared by the Authors taking part in the "Eco-innovations in cities" Project (POKL.04.03.00-00-249/12-00). The series, which is available free of charge, consists of six books:

- "Eco-cities" by Dominika Brodowicz, Przemysław Pospieszny and Zbigniew Grzymała
- "Green Project Funding" by Hanna Godlewska-Majkowska, Katarzyna Sobiech-Grabka, Paweł Nowakowski
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- "Making the 21st Century Cities" ed. by Krzysztof Jarosiński.

The Project was designed and prepared by Professor Marek Bryx, Deputy Rector of the Warsaw School of Economics (SGH), and Doctor Dominika Brodowicz. The Project has been carried out within the Priority IV "Tertiary Education and Science", Measure 4.3 "Strengthening the didactic potential of universities in the fields of key importance for the aims of Europe 2020 Strategy". In line with the objectives, the Project is conducted from 1st July 2013 until 31st December 2015.

The main aim of this Project was to create at the Warsaw School of Economics a one-year specialisation entitled "Eco-innovations in the urban regeneration projects". What is more, the Project's aim is to develop the study offer concerning the area of green and socially responsible eco-innovations in cities regeneration. The main objective of this new specialisation is to enhance students' knowledge

about eco-cities, give them sufficient information and discuss case studies on the subject: how contemporary cities should be planned, developed and managed. As most of our communities exist within the urban environment, the provision of eco-innovations is essential for the well-being of society. This unique educational programme for M.A. students provides information on maximising the benefits of making innovative and creative cities to citizens, local authorities, planners, developers, students, researchers and non-government organisations interested in improving the quality of life in cities.

MSc Alina Modrzejewska-Kołakowska – Project Manager
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Krzysztof Jarosiński, Grzegorz Maśloch, Agnieszka Barańska

Introduction

As evidenced by modern research carried out in many academic centres, enterprises and public administration, creative thinking and consequently the innovation process is running in the modern world next to the financial capital, human capital and organization, one of the most important factors driving the modern economy. Creativity and innovation implementation are an enormous strength of the development. Many studies indicate clearly on the universality of creative thinking and innovation implementation in many areas, especially in the private sector, but also in the wider public sector. The impact of the factors has been seen both, on the economic and social system of the cities and regions. In practice, this means that innovation processes can be well absorbed by the local environment of the cities and municipalities. Strength and dynamics of these processes is varied and can be determined by the size of the settlement unit, the degree of complexity of the economic and social processes also from funding opportunities. Not without significance historical factors remain relating to modern contemporary settlements. According to studies, contemporary innovative processes find their reference to the state and to the changes recorded in the past. Paraphrasing the state of research it can be argued, that significant quantitative and qualitative changes of an innovative character, find their basis in the evolutionary processes of change observed in the past. This means that a solid foundation to start the innovation process takes place where there is a possibility of appeal to the history, traditions, economy, politics and the ethical and moral patterns formed in the past.

A consistent feature of these changes is to cultivate a new paradigm of development through a gradual transition from the traditionally defined as an as an extensive development of quantitative towards a qualitative paradigm of development. This should be based on a wider reference to the potential of creative thinking and shaping the future with the use of a wide range of

innovations. The authors of the submitted book are conducting wider research into the impact of innovation on socio-economic development and recognize that one of the most important centres has been, for some time, the city and region of Vienna.

The concept of the book is to introduce the reader to the issues of innovative development processes taking place in the modern cities. In particular, the intention of the authors was to present the impact of new methods of management and the quality of life in the cities of the 21st century. The general conditions for the development of an internal but also located in the external environment of the cities results in the fact that the cities meet the expectations of the community and this requires the use of new, advanced methods of management that go beyond the traditionally accepted norms of administering the local government units. Therefore, the authors have set themselves the tasks of defining and exploring the opportunities for a sustainable achievements range of objectives:

- identifying the determinants of theoretical growth on the grounds of significant changes in the approach to problems solved by reference to the creative thinking methodology,
- presentation of the methods of creative thinking and the group problem-solving tools,
- discussing, prepared under the Project, case studies relating to the subjects detailed analysis of selected problem ranges identified as best practices and constituting material for implementation in cities,

support the teaching process in the context of innovative specialisation „Eco-innovations in the urban regeneration projectsMaking the 21 st Century Cities". "Eco-innovations in cities", launched for a selected group of the students,

- development path of theoretical knowledge transfer and practical considerations taken as part of the research at the University of Vienna to a wider audience taking the conditions of the functioning of local government in Poland into consideration,
- construction of a plain of communication in the form of a municipal forum, which brings together public administrations, representatives of the business and academic environment of the country and abroad.

As explained by contemporary research in many academic centres, enterprises and public administration, creative thinking, and thus, innovation processes are in the modern world next to financial capital, human capital and organization, one of the most important factors driving the modern economy. Creativity and innovation implementation are an enormous strength of the pro-development.

Studies indicate clearly on the universality of creative thinking and innovation implementation in many areas, especially in the private sector, but also increasingly in the wider public sector. At the same time, it reveals here the impact of the innovation factors disclosed in the economic and social systems of cities and regions. In practice, this means that innovation processes can be well absorbed by the local environment of cities and municipalities. The strength and dynamics of these processes, however, varied and can be determined by the size of the settlement unit, by the degree of complexity of the economic and social processes that also may be conditioned by funding opportunities. Not without significance are the historical factors relating to contemporary settlements. According to studies, contemporary innovative processes find their reference to the situation and in the changes recorded in the past.

Referring to the studies can be argued that significant quantitative and qualitative changes of an innovative character, find their basis in evolutionary processes of change observed in the past. This means that a good foundation to begin the innovation process takes place where there is a possibility of appeal to the history, traditions, economy, politics and the ethical and moral patterns formed in the past. In conditions such as these there may appear favourable circumstances to the broader absorption effects of creative behaviour and the implementation of innovative solutions that over time created and continue to create norms of behaviour.

A consistent feature of these changes is to cultivate a new paradigm of development through a gradual transition from the traditionally defined as the development of an extensive quantitative towards a qualitative paradigm. With wider consideration of the potential of creative thinking and shaping the future with the use of a wide range of innovative character solutions it will be possible to limit the costs of the settlement units. At the same time innovative solutions will give new opportunities to the management of natural resources, especially in relation to their limitations in this regard.

Please note that creating a good climate for the development of creativity and entrepreneurship, as well as planning and organization of the innovation process is also associated with incurring certain expenditures. These expenses can be implemented at the enterprise level, at the level of public administration research and other centres. In this sense, to generate innovative solutions is not without cost. These costs, however, have a slightly different character, offering no prospects for change in areas considered as traditional, fixed and unchanging. So in this approach, we are dealing with human resource development and capacity building intellectual for change in the future.

The authors have presented the book after examining the impact of innovation on the socio-economic development and recognizing that new solutions have a huge impact. They can be seen, along with capital, as important drivers of change, which will create a positive economic impact. Today there is a lot of pressure on the wider launch of innovative processes in the cities. This stems from the belief that only in this manner is it possible to restore the attractiveness of the location of cities, to the competitiveness of cities and regions as well as to processes deglomeration in cities.

In the cities, named smart cities, it is followed by a gradual reversal of this trend. The first manifestation is renewed population growth. Such a situation can be observed precisely in Vienna. After many years of systematic decline in the number of inhabitants, this has been reversed, which means that in Vienna there is a rapid increase in population. As a result, there is renewed interest in living in cities offering a high standard of living, but in many others follows a systematic further outflow of the population. These processes have become a new paradigm of development. The future, therefore, seems to be extremely dynamic and can bring a lot of changes. Certainly further urban development, will create a new quality in the structure of the settlements and the socio-economic situations in the developed countries.

Prof. Krzysztof Jarosiński Ph.D.

Chapter 1

Creativity and its impact on the development of modern cities

Grzegorz Maśloch

Introduction

Creativity is a universal human feature we are born with. Every child is naturally creative[1] Since the first months of life they acquire knowledge about the surrounding world and use it very often in an innovative manner, solving their problems. But their creativity most often fades.

So far, the analysis of social and economic phenomena has not paid great attention to human creativity and has focused mainly on imitative functions (e.g. education, professional experience, punctuality etc.) Some time ago economists, sociologists and psychologists discovered that a person has some non-measurable features, which are difficult to identify, described in the literature on the subject as creative. In connection with this approach, it has been recognised that the creative thinking of a person is as important as other features. As a consequence, this means that the creativity of a person, from a purely individual function, becomes a social function.

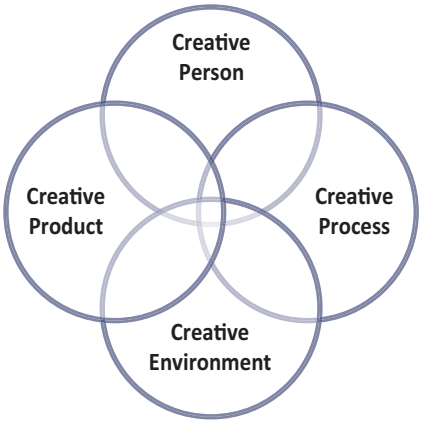
Intuitively, the defined phenomenon of creativity is in fact a very complex process, which in turn leads to a situation when there is no clear definition of creativity. In a different approach, defining the concept of creativity undoubtedly affects the multiplicity of scientific disciplines (education, psychology,

[1] See: E. Albee, *Collecting ideas from the unconscious mind*, in: *Creativity. Unconventional Wisdom from 20 Accomplished minds*, Palgrave Macmillan, New York 2007, p. 24. L.M. Cohen, D. Ambrose, *Adaption and Creativity*, in: *Encyclopedia of Creativity*, Vol 1, Academic Press, San Diego 1999, p. 11; Osho, Creativity. Unleashing the Forces Within, Macmillan, 2011, p. 108, S. Wright, Creativity in Early Childhood, Sage, London 2010, pp. 1-24.

philosophy, technology, theology, sociology, linguistics, business studies and economics, etc.), that research and describe the phenomenon of creativity.

Owing to the fact that creativity may be defined in a multifaceted manner, there are many definitions of creativity. Particular definitions refer to creativity as a process, or creative people, environment or products (effects) of creativity (see chart 1.1.)[2]. It should be borne in mind that very often particular definitions supplement each other and may contain elements typical of many aspects[3].

Chart 1.1. 4P Creativity (Person, Process, Products and Press (environment)



Source: Prepared on the basis of: M.R. Sarsani, *Creativity…*, *op. cit.*, p. 21.

For this reason, for instance, Welsh defined creativity as "… process of generating unique products by the transformation of existing products. These products, tangible and intangible, must be unique only to the creator, and must meet the criteria of purpose and value established by the creator"[4] P. Johnson-Laird on the other hand, defines creativity as "… mental processes that lead to solutions, ideas, conceptualizations, artistic products that are unique and novel"[5].

R.W. Weisberg understands creativity as something which "… refers to novel products of value, as in 'The airplane was a creative invention.' 'Creative' also refers to the person who produces the work, as in, 'Picasso was creative.'

[2] M.R. Sarsani, *Creativity in Schools*, Sarup & Sons, New Delhi, 2006, p. 20; H. Fumoto, S. Robson, S. Greenfield, D.J. Hargreaves, *Young Children's Creative Thinking*, Sage, London 2012, pp. 1-184.

[3] M.R. Sarsani, *Creativity …, op. cit.*, p. 20; D.J. Hargreaves, *What Do We Mean by Creativity and Creative Thinking*, in: H. Fumoto, S. Robson, S. Greenfield, D.J. Hargreaves, *Young Children's Creative Thinking*, Sage, London 2012, p. 17.

[4] M.R. Sarsani, *Creativity …, op. cit.*, p. 20.

[5] D.J. Hargreaves, *What Do We Mean by Creativity …, op. cit.*, p. 17.

'Creativity,' then refers both to the capacity to produce such works, as in 'How can we foster our employees' creativity?' and to the activity of generating such products, as in "Creativity requires hard work…."[6].

Regardless of various definitions in the literature on the subject as to the notion of creativity, particular attention should be paid to the role of a creative person, who "… sees the world differently, and does not accept the structures that most people unthinkingly accept"[7]. The result of such a "different" perception of the world is to propose a new, innovative solution or product, which will contribute to creating added value. If the new, creative idea does not directly constitute value for the creative person, it should "... produce some form of value that can be recognized by a third party"[8]. As a mathematical sum it could read: **1 + 1 + C = 3+**, where 1 equals an element to be used in the creative process and C = creativity. By introducing the creative dimension, practitioners can produce a new synergy so as to achieve greater value than the individual component parts"[9].

It is worth mentioning that, "historically, researchers tended to view creative people as lone geniuses, working on creative endeavours in isolation from the rest of the world. Today, there is fairly widespread recognition that creativity should not be considered as a gift of the selected few but rather as something that exists in a wider range of professions and people"[10].

The creativity of a person is undoubtedly influenced by:

- hereditary features,
- atmosphere in which we grow up,
- education,
- interests,
- quality and type of work performed,
- human potential in which we live.

The creative process was first described by Graham Wallas in 1926. He identified four stages in the creative process (see chart 1.2):

- preparation (finding a creative solution to a problem or development of an idea requires both the time as well as collecting appropriate information about the problem. Thanks to this it is possible to pose in-depth questions and develop initial ideas. At this stage the problem is defined and information collected on a given problem),

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6 R. Mellor, *Entrepreneurship for Everyone*, SAGE, London 2008, p. 31.

7 E. Jong, *Seducing her Own Demons*, in: *Creativity. Unconventional Wisdom from 20 Accomplished minds*, PalgraveMacmillan, New York 2007, p. 64.

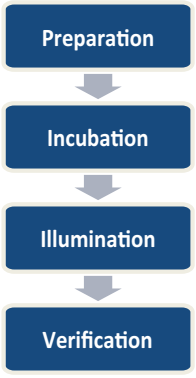
8 A. Green, *Creativity in Public Relations*, Kogan Page Publishers, London 2010, p. 7.

9 Ibidiem, p. 7.

10 C. Andriopoulos, P. Dawson, *Managing Change*, Creativity & Innovation, Sage, London 2009, p. 21.

- incubation (at the stage of incubation we analyse and process information collected, which in consequence is supposed to find possible solutions),
- illumination (it is a stage where specific ideas are generated or suggested for solutions to problems. This important moment of the creative thinking process is the effect of prior work and time devoted to the idea incubation),
- verification (In the end, verify the collected ideas in terms of their incorporation into life. The creative ideas or products proposed at the stage of illumination require very often particularisation, recognition of strengths and weaknesses, opportunities and threats and adjustment to the owned possibilities (e.g. financial, organisational, spatial, cultural, etc.)[11].

Chart. 1.2. Creative process by Graham Wallas



Source: Prepared on the basis of: W.G. Griffin, D. Morrison, *The Creative Process Illustrated: How Advertising's Big Ideas Are Born*, HOW Books, Cincinnati 2010, p. 7.

It is also worth paying attention to the componential model of creativity proposed by T.M. Amabile. In the discussed model the possibility to use the creative potential of individuals and proposing solutions/creative products depend on meeting three main components:

- domain skills,
- creativity relevant skills,
- intrinsic task motivation[12].

[11] See: T. Deb, *Strategic Approach to Human Resource Management Atlantic Publishers & Dist*, New Delhi, 2006, p. 269; C. Andriopoulos, P. Dawson, *Managing ...*, *op. cit.*, p. 21; A. Rothenberg, C.R. Hausman, *The Creativity Question*, Duke University Press, Durham, NC, 1976, pp. 69-79.

[12] W.Ch. Kamakil, *Play and Creative Drawing in Preschool*, Herbert Utz Verlag, München 2013, pp. 58-61; C. Andriopoulos, P. Dawson, *Managing ...*, *op. cit.*, pp. 21-22.; T.M. Amabile, *Componential Theory of Creativity*, Harvard Business School, Working Paper, 12-096, April 26, 2012, www.hbs.edu/faculty/Publication%20Files/12-096.pdf. Online. [10 June 2014].

By domain skills the author understands the knowledge concerning a given domain, where creative ideas are formed as well as the skills necessary for activity and talent. With regard to creativity relevant skills, T.M. Amabile lists: the ability of persistent work, sacrifice, persistence, the ability to undertake risk and the need for novelty. Intrinsic task motivation is defined as the ability to undertake challenges (tasks) for the satisfaction from their performance and creating new values/products[13] "This model was developed at Harvard during the 1980s and identifies key components of creativity at certain stages of creative process"[14].

When analysing the discussed model by T.M. Amabile, it is worth paying attention to the fact that it assumes the purposefulness of the shaping and development of creative capabilities of each person. Therefore, in this aspect nobody should be discriminated against, or we should not resign from shaping creative attitudes. However, it should be noted that not always the costs of investing in the development of creativity will pay off, since in certain domains of the economy or art the top level of achievements is achieved at various ages.

1.1. What kind of thinking is creative and what is not?

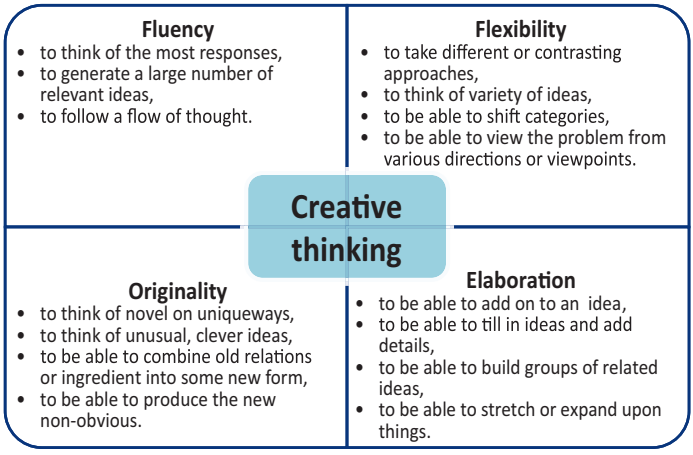
Creative thinking is thought of as being a compost of abilities: fluency, flexibility, originality, and elaboration[15] (see chart 1.3.). In the discussed approach, fluency is identified as the speed and ease with which a man finds himself in a new situation and is able to deal with new and creative ideas. Flexibility, on the other hand, is the capacity to recognise problems from different perspectives and to evaluate it, from a different, or even opposite viewpoint. It is also the ability to present old views and concepts in a new, different manner. Originality is defined as the ability to create ideas and new views, very often of an unusual nature or controversial. Thus, this is the key ability of creative thinking. Developing ideas is the ability to develop, fill with new content, enrich the analysed creative solutions and the ability to go from the theoretical sphere into practice.

[13] W.Ch. Kamakil, *Play and Creative ...*, *op. cit.*, pp. 58-61; C. Andriopoulos, P. Dawson, *Managing ...*, *op. cit.*, pp. 21-22.

[14] *Ibidem*, p. 22.

[15] D. Draze, *Think Tank: A Simulation Game to Promote Creative Thinking*, Prufrock Press Inc., Waco 2005, p. 8.

Chart 1.3. The four of abilities of creating thinking



Source: Prepared on the basis of: D. Draze, *Think Tank: A Simulation Game to Promote Creative Thinking*, Prufrock Press Inc., Waco 2005, p. 8.

When analysing the issue of creativity and its impact on the socio-economic development, it is worth paying attention to the fact that creativity is certainly not:

- "eccentric personality. Truly creative work is not only novel; it is also appropriate. Moreover, it is much more useful to think of creativity as arising from a particular behaviour and resulting in a particular product or idea – rather than thinking of creativity as a quality of a personality,
- art (or The Arts), Creativity is novel and appropriate behaviour in any domain of human activity – from business management to scientific discovery to fiction-writing to child-rearing to social interaction to painting … and so on,
- intelligence. As it is traditionally conceived, intelligence is the set of capacities that are measured by IQ tests or courses in school. Certainly intelligence can contribute to creativity. But research shows that there is much more to creativity than just "smarts". In facts, above modestly high IQ's, there is no clear relationship between intelligence and creativity,
- good. Novel and goal-appropriate behaviours can be applied to evil and destructive ends just as well as they can be applied to good, responsible, and constructive ends"[16].

[16] T.M Amabile, *Creativity and Innovation in Organizations*, Harvard Business School, 9-396-239, 1996, www.evcimen.com, p. 2.

Creativity thinking is important for the development of unique and valuable capabilities for many reasons. Successful organizations look for leaders who make original ideas into reality. Creative thinkers come up with ideas and look at things from different perspectives, and these types of thinkers make atypical connections and look at things in new ways. Creative thinking can also be entered into entrepreneurial activity in many ways. Creative thinkers have the most to offer for their organizations and their creative ideas often very favourably affect the operation of a company or a public institution.

But there are many reasons that can kill creativity. The reasons that kill creativity should include:

- "always pretend to know more than anybody around you,
- police your employees by every procedural means that you can devise,
- run daily checks on the progress of everyone's work,
- be sure that your professionally-trained staff members do technicians' work for long periods of time,
- erect the highest possible barrier between commercial decision-makers and your technical staff,
- be certain not to speak to employees on a personal level, except when announcing raises,
- try to be the exclusive spokesman for everything for which you are responsible,
- say yes to new ideas, but do nothing about them,
- call many meetings,
- put every new idea through channels,
- stick to protocol,
- worry about the budget,
- cultivate the not-invented-here syndrome"[17].

1.2. Creative people – creative cities

"The creative city as an informal and spontaneously evolving spatial organization has been the arena for all large-scale creative revolutions. In the course of the past 2500 years, a small number of relatively large cities have functioned as hotbeds of revolution – are creativity"[18]. The main resource determining the directions and the dynamics of development of cities has

[17] G. Morgan, *Creative Organization Theory, A Resourcebook*, Sage Publications, London 1990, p. 54.

[18] A.E. Andersson, *Creative People Need Creative Cities*, in: *Handbook of Creativity Cities*, Ed. D.E. Andersson, A.E Andersson, Ch. Mellander, MPG Books Group, Cheltenham 2011, p. 39.

always been and always will be the inhabitants. It is nothing else but the people, through their own intelligence, desires, motivation, education and the ability of creative thinking that become the most important factor of the development of cities – a factor more important than the location, natural resources or access to the market. Therefore, the future success of the city is determined by the creativity of both the inhabitants and the authorities. Creative cities must therefore recognize, attract and support talents – so they must create convenient conditions both to work and live in. The aforementioned quality of life is undoubtedly influenced by the quantity, quality and availability of various networks of systems as well as objects and equipment elements of public infrastructure.

At this point, it should be stated that creative people form the basis for creative cities functioning. However, in order for cities to function efficiently, they also need other types of people, including, among others coordinators, specialists in interpersonal contacts or administrators. Some may perceive them as less interesting, but it is a dangerous way of thinking, because a creative city is based on, and fully uses, mixed resources and widely uses diversity. Sometimes they include "ordinary people", however, due to its open, innovative and participative nature such people are able to strengthen the general potential of the city, which undoubtedly makes it possible in the future to achieve greater and more durable successes[19].

The issues of functioning and creating creative cities is especially significant nowadays, when for the first time in the history of the world more than half of all the people live in cities. "Yet there are special reasons for thinking about the problems of cities today in terms of creativity and innovation – or lack of it. Today many of the world's cities face periods of transitions largely brought about by the vigor of renewed globalization. These transitions differ from region to region: in some areas, like Asia, cities are growing, while in others, such as Europe, old industries are disappearing and the value added in cities is created less through what is manufactured and more through intellectual capita applied to products, process and services"[20]. "In the new configuration of cities, creativity is one of the currencies"[21].

Richard Florida proposed a model for formation of creative areas in the form of a 3T triad, which consists of: technology, talent and tolerance. Simultaneous emergence of these three factors determines the formation of creative centres concentrating the creative class, which is nowadays becoming the decisive

[19] C. Landry, *The Creative City: A Toolkit for Urban Innovators*, Earthscan, London 2008.

[20] *Ibidem*, p. XII.

[21] *Ibidem*, p. XII.

factor for the possibilities of development of contemporary cities or regions. Creative cities are characterised by highly developed economic and residential systems, thanks to which all forms of business activities can still be conducted, both economic and technological as well as social, artistic or cultural. Creative people move very often to these centres not only as a result of traditional motives, such as a developed labour market, transport and social infrastructure, but also because of access to culture and art or the diverse possibilities of entertainment. It is also worth stressing that in the opinion of Florida, modern economy and societies operate in a place, rather than the space[22].

In the contemporary world, and thus in the cities of the 21st century, importance is gained by the offered quality of life, which means that we live in the times of increased demand for cities (places) fostering the development of creativity[23].

The tendency will certainly solidify and it is strengthened by, among other things:

- development of technology,
- growing requirements and social expectations,
- demographic transformations,
- global competition and the ease in transferring people and capital,
- knowledge,
- higher employee expectations.

A creative city is thus a city capable of creating economic growth, creating jobs and improvement in the quality of living of the inhabitants. Creative cities are also cities characterised by great ethnic and social diversity, where culture and art occupy an important place. Such open communities where creative people meet, equipped with innovative technology and operating in the conditions of tolerance and respect for dignity of the human person, beneficial factors are created which are favourable for earning a high income and they become an important factor in the development of cities.

Creative ideas in the next place should be processed into specific products or services. The stage of practical use of the potential of creative ideas in the literature on the subject is defined as an innovative process and the implementation of a creative idea as innovation. Thus creativity is a "starting point for innovation; the first is a necessary but not sufficient condition for the second. From this perspective, creativity comes first and provides the impetus and content for many forms of innovations"[24].

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22 R.L. Florida, *The Rise of the Creative Class: Revisited*, Basic Books, New York 2012, pp. 228-265.

23 G. Claxton, B. Lucas, *The Creative Thinking Plan: How to Generate Ideas and Solve Problems in Your Work and Life*, Pearson Education, London 2007, pp. 122-228.

24 C. Andriopoulos, P. Dawson, *Managing …*, *op. cit.*, p. 30.

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Chapter 2

Innovations in the public sector and their impact, on the social-economic development processes

Krzysztof Jarosiński

Introduction

When seeking answers to the question about the new shape of cities in the 21st century in the first place an attempt should be made to settle the basic problem, namely whether towards the demographic, social, economic, organisational and political changes rapidly appearing in the contemporary world, the so far traditionally perceived cities as areas gathering numerous and diverse functions, they may maintain their position in the previous spatial and functional structure. We are, after all, dealing with diverse concepts of the settlement development, including big cities, which more or less effectively pave the way in the sphere of local and regional development planning[25].

The answer to the above question is not easy, although now at the threshold of the 21st century an accelerated development of cities is observed worldwide, but in a slightly different form. On the one hand, we can observe cities where the

[25] Over decades the most important phenomena related to the development of cities were agglomeration processes and following with different intensification processes related to the gradual reduction in the number of inhabitants of cities for metropolitan areas. In some circumstances deglomeration processes were hindered and already at that time another phase of growth in interest in large cities by the society was observed. This interest appeared in slightly different, changed social and economic conditions . This process proceeds in a slightly different formula, where the main condition is to provide inhabitants with high living standards in cities. The repeated increase in the number of inhabitants of cities and increase as well as the general increase in the value of the urbanisation index prove clearly that we are dealing with another phase of agglomeration processes, caused, however, by completely different groups of factors.

development is mainly of a demographic nature and manifests itself in fast growth in the number of inhabitants, especially as a result of migration processes. In such a situation, overpopulation leads to many economic and social problems, especially to difficulties in the implementation of infrastructural investments and, as a result, leads to a reduction in the quality of life. Vigorously developing settlement units with no sufficient resources of their own, which would allow to effectively remove the problems of development nature and normally new investments are delayed and, as a result, forced. This model of development is typical of areas with a low-level of socio-economic development. Although such cities can impress a great number of inhabitants, in reality they are in a truly difficult situation in respect of difficulties with solutions to the living problems of inhabitants. Cities of this type are not able to provide the inhabitants with the appropriate quality of life.

On the other hand, reference should be made to cities developing in a sustainable way under the model assuming the anticipation of technical and social infrastructure development. Cities of this type are developing on the basis of a widely available socio-economic infrastructure. The development of the population and economy in such a formula already has defined back-up facilities. The surplus of production capacity in the sphere of technical infrastructure and common access to the social infrastructure provide sustainable development over a longer time. Such a state is, however, possible in the event of making investments in advance in the concerned scopes. Therefore, investment outlays according to this model should take place earlier, so that the infrastructure is available at an appropriate quantity and quality level in advance in relation to the gradually increasing demand for services.

Since the 1970s the new approach to the issue of development of cities has been gradually clearing the way. It is a result of experience gained on the basis of the above presented two scenarios. The third road to development is smart development. It is about cities continuing the development on the basis of a new group of factors of technical, technological and organisational nature as well as economic, social and political. It could be stated today that these are settlement units offering the inhabitants a new quality of life towards the use of achievements in the sphere of research and development and consequently occupying a good competitive position in relation to other cities, where no activities were undertaken aimed at the transformation of the economic structure and development in the sphere of technical and social infrastructure. It can be assumed that we are dealing with a new category of settlement units, especially cities "*fleeing ahead into the future*", which are characterised by modernity and creativity in searching for new solutions. Therefore, it can be

assumed that we are dealing with settlement units whose development is of a highly "*smart nature*"[26].

There are many examples of cities in the world which adopted such a way of development. At the same time, it should be borne in mind that the development of smart contemporary cities is not a common path of development, available easily to the general public. We can indicate here other examples of unbalanced development, chaotic and even examples of the regression of cities, especially where the previous development factors and resources have been exhausted, and, at the same time it was impossible to carry out restructuring such municipal areas and assign new directions of development based on other purposes and new factors.

The most difficult situation is observed in the case of settlement units, whose development in the past was based on specialised economic functions, which as a result led to a more complex and comprehensive socio-economic development. A characteristic example of such a development path are cities based in the past on extractive industry, metallurgy or some scopes of heavy industry. The process of transformations is evolutionary. This means that the postulated and desired changes are taking place gradually and it is not possible to conduct restructuring processes in a short time. This is determined by the scope of changes, as well as capital outlays necessary for the start-up of restructuring processes. In this process we are dealing with taking over the past economic functions and their extensive development of a quantitative nature through a generation of new functions and leading to the development of an intensive nature based on qualitative factors. This is possible thanks to paying greater attention to the innovative processes which are essentially the basis of the abovementioned changes.

Innovations thus become, both in terms of the private sector and the public sector, the basic and the most important factor for shaping the new directions of the development of cities in the 21st century. Therefore, the answer should be given to the question with regard to the possibility of creating new innovative solutions and with regard to the possibility of their implementation to the broadly understood practice.

[26] "*In an increasingly urbanized world, creating intelligent cities is essential. Inefficient transport and water systems, pollution, increasing security risks and access to effective telecommunications are just some of the challenges central to a city achieving its financial, economic, social and environmental goals*", Ch. Schlosser, UN Human Settlements Programme, Intelligent Cities EXPO 2011, Brighton 2011.

2.1. The essence of innovation in the socio-economic development

The innovative processes are, in the contemporary world, one of vital groups of factors with a strong impact on the socio-economic processes. The power of the impact of innovation may be compared to the basic development factors, which should include capital, human resources, natural resources or other base values transferred from past periods such as, for example, the existing state of development of an infrastructural nature.

The notion of *"innovation"* has its own quite long history, the meaning of the word "*innovation*" should be sought in Latin, where the word *"innovatis"* means diverse behaviour, which had to lead to explanations of new phenomena so far unknown, as well as to behaviour of a creative nature, and thus to create totally new things. In such a perspective, the meaning of the word innovation means the behaviour of creative nature leading to creating a new reality, which previously was unknown or reality related to situations previously unknown. The word initially had its narrow conceptual scope, however, along with the passage of time and development of socio-economic sciences it found its real reference in many domains of science. With regards to socio-economic science, the notion of *"innovation"* found its place by assigning it a specific definition meaning for phenomena and processes taking place in the economy and the society at different reference levels.

On the ground of economics, the innovative processes were perceived as one of the factors which can positively affect the dynamics of development processes. The colloquial meaning of the word "innovation" refers to the creative process consisting in the formation of new things so far non-existent. It refers both to tangible things, which in principle leads to a narrow sense of the production sphere, as well as to more broadly understood applications in the intangible sphere and conceptual, which may in particular include the phenomena occurring in the sphere of organisation, management, diverse creative processes and their applications. In fact innovative processes carry change, with regard to the essence, namely transformation of the initial situation to a new quality, a different dimension upon the implementation of the generated innovative solutions.

In the literature on the subject, it is assumed that the notion of innovation as an economic category was proposed by J.A. Schumpeter in 1911[27]. The notion involved a search for new and effective methods of production and locating these products on the market. Although the depiction of the issue of innovation

[27] J.A. Schumpeter, *Das Wesen und der Hauptinhalt der theoretischen Natiolaloekonomie*, Duncker und Humblot, Leipzig, 1908, p. 150-161, B. Wixted, *Innovation System Frontiers*, Springer Verlag, Berlin-Heidelberg 2009, pp. 16-18.

proposed by J.A. Schumpeter had quite a broad context, it was limited however, to production in the company and the distribution of goods on the market. The sphere of interests includes problems related to generating new solutions which, in respect of the already existing ones, could expressly stand out. It is necessary to pay attention to:

- seeking for and the implementation of new manufacturing methods which were previously unknown or not used,
- launching new goods which the consumers previously did not know,
- Searching for and opening new sales markets and source of supply or finally,
- searching for and introducing new methods of management and organization in companies[28].

Innovations in the perspective of J.A. Schumpeter were perceived as one of the factors which can significantly contribute to increasing the rate of economic growth. They were already granted a highly practical dimension, where creative processes, namely invention and creativity were supposed to lead to creating innovations, which were supposed to be applied in economic processes. It is very important to state, that Schumpeter introduced a new concept of innovation as the main, central explaining variable of economic progress. In his theory, innovations are viewed as new combinations of many categories, they do not make a distinction between technical, institutional and organizational innovations[29].

The most important point in the definition proposed by J.A. Schumpeter is reference to the meaning of the word "new". The author combined the notion of innovation with the creation of a new dimension of reality, he did not recognise the dissemination of the worked out solutions which in his opinion were imitative and were defined as imitation. The key issue as regards the approach to the creative process as defined by J.A. Schumpeter was the practical use of the developed accomplishments. Only in such a meaning could new solutions obtain the name of innovation in the context of the economic development factor. At the same time it was important that the implementation of solutions of an innovative nature involved the achievement of measurable economic benefits.

It should be pointed out that J.A. Schumpeter focused on innovations, which had mainly a technical dimension, and thus ones that today could be defined as inventions. However, it should also be borne in mind that the formulated theory of innovation referred essentially to the situation present in companies and was

[28] G.M.P. Swann, *The Economics of Innovation*, Edward Elgar. Northampton 2009, pp. 11-12.

[29] M. van der Steen, *Evolutionary Systems of Innovations*, Van Gorcum and Comp., Assan 1999, pp. 5-7.

perceived by J.A. Schumpeter as a source of generation of the competitive advantage over other companies under the conditions of a capitalist economy. Also it should be remembered that at that time the main factors of production in the common sense were soil, production and capital. Schumpeter referred to innovation "*as an engine of economic growth*"[30]. Nobody, therefore, thought in terms of categories that for us today have a more contemporary dimension and thus valuation did not cover such factors as knowledge, information, capacity to generate new solutions in the broad meaning of the notion that extends not only to the area of production, but also to the area of science and has its broader social dimension. Change in the paradigm of innovation in the economy as compared to the primary concept of J.A. Schumpeter is indeed the natural consequence of the evolutionary transformation of views that he disseminated. In the contemporary world we are dealing with another dimension of technique and technology, which in fact determine the competitive position of companies, cities, regions and states. Still, as regards the creative process and innovations, the causative factor is a creative unit and consequently, creative teams. At the moment, these dependencies are well recognised, and thus creativity, invention and innovativeness are a result of creative human operations. For this reason, presently in the 21st century these dependencies do not raise such doubts. Long studies of innovation have led to a widely used, standard classification scheme capturing the major types of innovation. The main classification of types of innovations are presented below:

- product innovation, the introduction of a goods or services that is new or which represents a significant improvement over its predecessors,
- process innovation, representing the implementation of a new or significantly improved method of production,
- organisational innovation, the application of a new organizational method or arrangement[31].

J. Bessand and J. Tidd have identified the phenomenon of innovation as "*The process of translating ideas into useful new products, processes and services*"[32]. Innovation can take many forms, but finally these can be reduced to four main dimensions of change:

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30 L.K. Mytelka, K. Smith, *Innovation Theory and Innovation Policy: Bridging the Gap*, UNU, Maastricht 2001, pp. 4-15, G. Dosi, *Source, Procedures and Microeconomic Effects of Innovation*, Economics of Innovation, ed. by Ch. Freeman, Edward Elgar Publishing Comp., London 1990, pp. 107-143.

31 J. Clark, B. Good, P. Simmonds, *Innovation in the Public and Third Sectors*, Nesta, Working Paper: 08/2008, London 2008, pp. 3-14.

32 C. Andriopoulos, P. Dawson, *Managing, Change, Creativity and Innovation*, Sage Publications Ltd., London 2009, pp. 28-29.

- production innovation (changes products or services),
- process innovation (new ways of creating and delivering products and services),
- position innovation,
- paradigm innovation (a shift in long-held assumptions about organisation)[33].

Production innovation refers to innovations in the development of new or just improved products. Process innovation, this type of innovation, centre on the improvement of processes rather than products or services. New ways of doing things are introduced into the organisation and production and service operations, materials input, information flow mechanisms or any other equipment used to produce goods or services. Position of innovation refers to the creation of new markets for new products, generally on the basis of product and process innovations. It is, at this point, necessary to perceive innovation as a process, which, in a continuous mode should accompany changes taking place in an organisation and be one of the factors of development of organisations in many aspects.

Innovations can be perceived also on diverse levels of competences and applications. Bearing in mind the complexity of the development process, we can distinguish several levels of innovation. According to the classification proposed by C. Andriopoulos and P. Dawson, we can distinguish three main levels of innovative solutions applications:

- incremental innovations, it means that we try to improve small changes that are generally based on established knowledge and existing organisational capabilities. Refinements and modifications to existing products would be examples of such types of innovation,
- modular innovations. This kind of innovation refers to middle range innovations that are more significant than simple product improvement,
- radical innovations, are the kinds ofs innovations accrued when current knowledge and capabilities become absolute and new knowledge is required to exploit uncharted opportunities[34].

For some period of time the presence of a new phenomenon related to the *diffusion of innovations* via many channels of information has been observed. This process significantly accelerates and expands the scope of innovative solutions applications. At this point, it is worth mentioning the theory of

[33] *Ibidem*, p. 28.

[34] *Ibidem*, pp. 30-31.

diffusion of innovations made popular by E. Roger[35]. According to the views of the author, innovations diffusion is a long-term process, where innovations are transferred through diverse distribution channels under the whole socio-economic system. At this point the four most important factors related to innovation diffusion should be pointed out:

- innovations,
- communications channel,
- time,
- social system[36].

The process of creating innovation and propagating them in the economic and social spheres is continuous and long-lasting. External effects of this process can be difficult to identify due to the potential for enhancing the transfer of solutions. We are therefore faced with a situation characteristic of where the centres with the potential for creativity offer the possibility of the continuous implementation of innovative solutions, transfer by diffusion solutions for other areas of development (see table 2.1).

Table 2.1. Main innovation management patterns

Innovation strategy	Existence of strategy planning in the mid and long term, according to the external and internal factors
Management system	Innovation systems Project management: portfolio, risk and continuity of the innovation project Capturing a high level professional profiles
Innovation culture	Creating and open minded culture in the organisation
Creativity	Development of professional careers Rotation between areas and mechanisms to encourage new ideas among employees
Project management	Knowledge management
Product innovation	Relationship with suppliers as a source of ideas Design thinking
Process innovation	Advanced methods and their application in product development. Advanced productivity tools in process Operative flexibility
Commercial	Brand management

Source: Prepared on the basis of A. Sanchez, A. Lago, X. Ferras, J. Ribera, *Innovation Management Practices, Strategic Adaptation and Business Results: Evidence from the Electronic Industry*, Journal of Technology Management & Innovation, 2011, Volume 6, Issue 2, Universidad Alberto Hurtado, Santiago 2011, p. 11.

[35] Diffusion is the process in which an innovation is transferred through different channels over time among the members of the social and economic system. It is a special type of communication, in that the messages are concerned with new ideas. Communications is a kind of transferring process in which participants create and share many in formations one to another in order to reach a mutual understanding, E.M. Rogers, *Diffusions if Innovations*, Free Press, New York 2003, p. 6.

[36] *Oslo Manual. Guidelines for collecting and interpreting innovation data*, OECD, European Commission, Brussels 2005, pp. 82-84.

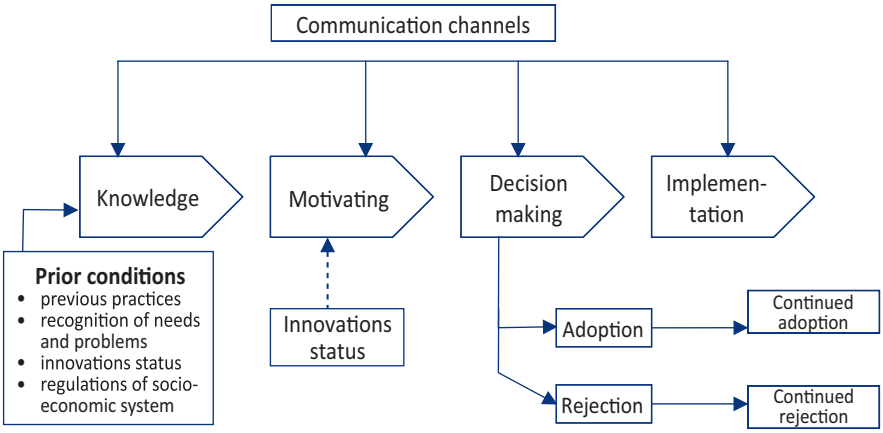
Innovations were defined as new ideas, new ways of action and new kinds of activity in the sphere of manufacturing. The effects of creative behaviour, as defined by E.M. Roger, may be considered innovative if they are the object of interest of units or larger groups as worthy enough to implement creative work results to practical applications. The author pays attention to two scopes of innovations and especially the technical and technological dimension, which is most often associated with the innovation process that can be considered *hardware* as well as *software*, as a result of which new resources of information arise, referring to the generated new technologies[37].

Information channels constitute measures by means of which innovations can be transferred among the entities, organisations, units and other participants of information exchange. Information can thus be transferred in a diverse manner. Transfer of information may take place in a free manner by means of public information channels or also in any other manner and it is important that the ways of information transfer are given the possibility of their effective use. The third element of innovation diffusion is time, considered one of the vital factors related to innovation implementation. The factor of time is important from the point of view of assessing the degree of innovative solutions implementation. In such a perspective, it may be deemed in connection with the results of implementing new solutions as the basis for the construction of the effectiveness assessment meter of the innovation diffusion process. The fourth element is the socio-economic system. This system may consist of diverse entities, groups and units which take action to achieve the intended goals. In such an understanding these can be natural persons, informal groups, professional groups, organisational units, companies administration or other communities which are connected by the need to achieve a common result (see chart 2.1).

According to the graphic illustration, the innovation diffusion process proceeds in accordance with the logistic curve. The general form of the logistics curve formula and its course in the area of variability may often be used to illustrate social phenomena! It can easily be noted that in accordance with the chart 2.2, initially the process of innovation adoption would proceed relatively slowly, from a certain point a fast process of solutions popularisation begins which, in turn, leads to achieving a high level of saturation. As a consequence, attention is transferred to other solutions and the process of adopting new solutions may start again in another point of time.

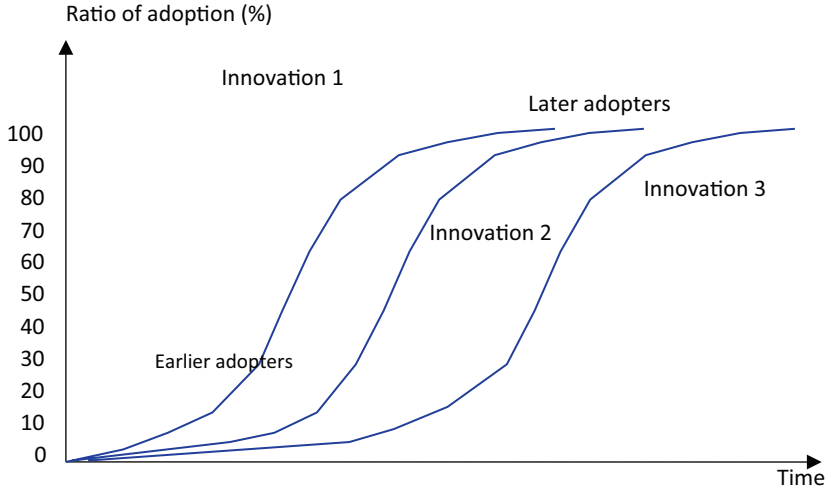
[37] E.M. Rogers, *Diffusions...*, *op. cit.*, p. 6.

Chart 2.1. The Diffusion of Innovations



Source: Prepared on the basis of E.M. Rogers, *Diffusions if Innovations*, Free Press, New York 2003, p. 150.

Chart 2.2. Absorbing of innovations ratio



Source: Prepared on the basis of E.M. Rogers, *Diffusions if Innovations*, Free Press, New York 2003, p. 11.

The process related to the diffusion of innovations triggers significant changes in the society's economy. It actually means spreading achievements resulting from invention and creativity of a relatively limited group of creators to a wider plane of recipients. The recipients of innovations transferred by means of distribution channels achieve here certain external benefits. Many of them do not participate in the creative process leading to obtaining solutions of

an innovative nature, however, by means of the diffusion mechanism they become participants and consumers in this process. The innovation diffusion mechanism is clearly visible in many sections of activity in the economic and social sphere. It is also easy to indicate numerous examples confirming this opinion.

An interesting direction of research was adopted already in 1961 by T. Burns and G. Stalker. In their works they focused on studying the essence of innovation in the sphere of organisation. In fact they were attempting to bring closer the importance of research on organisations and the possibilities of implementing new solutions of an innovative nature. On the basis of research, two systems were distinguished: management and the implementation of innovative solutions:

- *the Mechanistic system* based on the existing organisation as well as known and appropriate technologies in connection with the hardly flexible stable market of the recipients of products and services,
- *the Changing system* based on continuous changes in connection with the dynamically changing market[38].

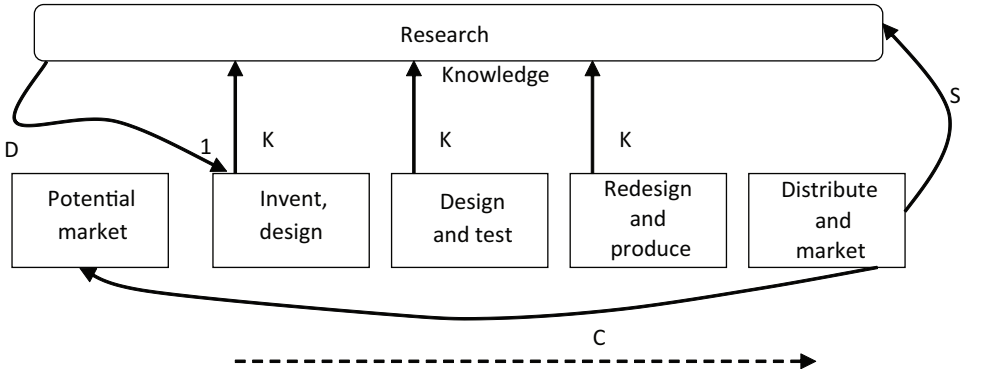
It may easily be noted that in the second case, there are better conditions for creative actions and initiating innovative processes. The dynamic system of relations leads thus to a completely new situation in terms of quality, consisting in forcing activation in innovative processes. Traditionally, innovations may be perceived and defined in many dimensions. Observations prove that innovative processes can occur traditionally at the technical and technological level as well as in other dimensions such as, for example, economic, financial, organisational and a scientific level. The new approach to the issue of innovativeness in the society and economy makes the scope of possible development-oriented innovative solutions applications actually unlimited. On the other hand, the mentioned observations prove that the scope of possible applications is continuously expanding, while works in this direction include new fields, frequently characterised by a high degree of complexity and at the same time a high level of specialisation. However, innovations always, regardless of the problem context, should be perceived as a process, a continuous operation consisting in creating and implementing new solutions to the already recognised and well-established phenomena and processes. The continuity of changes is thus timeless, though from the point of view of creators and researchers it is often subordinate to goals not very remote and, at the same time, measurable economic or social advantages.

[38] C. Andriopoulos, P. Dawson, *Managing...*, *op. cit.*, pp. 28-29.

In the traditional perspective most often innovations are levelled with the development and launching of new products, services, or new technologies. Therefore, they were oriented at highly practical and economically justified actions, referring to the selected problematic scopes of the sphere of production and sales of goods and services. This classic approach to the development issue under conditions of creating innovative solutions was and still is in some scopes justified and understandable, since it refers to important regulators in the market economy, especially the competition mechanism which in the past had an effective impact on the behaviour of consumers and created clear relationships between producers. This ground was the basis for the model innovations concepts to appear.

In the past, existing models of innovation presented innovation as a linear phenomenon where each aspect was considered modular and unconnected to other parts of the innovation process. The theory identifies two traditional approaches to innovation; the "technology push" and the "demand pull". Former innovation is seen as an exogenous factor of development and driven only by scientific advances. The latter approach refers to innovation as a response to demands for new products and processes[39]. Chain-linked innovation model has been presented on chart 2.3.

Chart 2.3. Chain-linked innovation model



Source: Prepared on the basis of A. Léger, S. Swaminathan, *Innovation Theories: Relevance and Implications for Developing Country Innovation*, "Discussion Papers" no. 743, German Institute for Economic Research, Berlin, November 2007, p. 3.

[39] A. Léger, S. Swaminathan, *Innovation Theories: Relevance and Implications for Developing Country Innovation*, "Discussion Papers" no. 743, German Institute for Economic Research, Berlin, November 2007, pp. 2-5.

Uncertainty is a main concept: innovation is defined as an "*exercise in the management and reduction of uncertainty"*. Uncertainty refers to following aspects: the technical level of the innovation and the market response to its introduction. The presented model identifies major paths in the process of innovation. The main chain of innovation (C) starts with the invention, based on market information or technological advances (D)1, which will be developed, produced and introduced onto the market. This process includes *feed-back* loops (F, f) and linkages between science, researches and innovation (K). The innovator belongs to the common team of knowledge and tries to solve the problems (1). The innovator comes back with new knowledge and continues the innovation chain in the case of the needed knowledge being available or resorts to research if it is not; the results of the researchers are used in the innovation chain. At least, the results of the innovation process feed back into the scientific field (S)[40].

In this model, the "*market-pull*" and "*technology push*" aspects of innovation are interdependent. Demand will be met if the appropriate knowledge and new techniques and technologies are available, and an innovation will be realized only there, where a market for it exists. The system of innovation thinking and innovations implementing places emphasis on the interactive activity, in which enterprises in interaction with each other and supported by institutions and organizations, such as industry associations, R&D, innovation and productivity centres, standard setting bodies, universities and also vocational training centres, play a key role in bringing new products, new processes and new forms of organisation into economic use[41].

Universities and other schools and public research institutions are very important as a source of innovations activity. The public research institutions generate new knowledge by conducting their own research and diffuse knowledge into the economy to the public sector and to the enterprises of the private sector[42]. It should be noted that in the contemporary world a clear shift of the centre of gravity was observed with regard to the effective shaping development processes. The main issue seems to be the human factor considered *modus vivendi* of any actions. In such a perspective, creative thinking and entrepreneurial behaviours should be considered the basis for potential benefits and successes in the future. Human capital and its quality are becoming as

[40] *Ibidem*, p. 4.

[41] *Ibidem*, p. 8.

[42] M. Fritsch, Ch. Schwirten, *Enterprise-University Cooperation and the Role of Public Research Institutions In Regional Innovation System*, Industry and Innovation, Volume 6, Copenhagen Business School, Denmark, Copenhagen 1999, pp. 69-71.

important as the financial capital. The former is a causative factor, it is responsible for the directions and quality of actions, the other is a supplement, but also a necessary condition. Clearly, without investment capital the best prepared projects containing a large innovative load, new technical, technological solutions or organisational solutions, both in the private sector and in the sphere of the public sector at the local or regional level, cannot be effectively implemented and developed. Therefore, in this new approach and new perspective of the issue of development, innovations should be perceived as the dimension of the positive co-existence of the abovementioned groups of factors.

Innovative processes, as it has been mentioned, play an increasingly important role with regard to diverse settlement units. In particular, great interest in the creation of innovative solutions is observed in larger settlement units. It results mostly from a considerable complexity of socio-economic processes taking place in cities, but also involves the possessed social and economic potential and therefore the capacity to create innovative solutions. There we are dealing with the concentration of strictly economic operations, implemented by private sector entities, we are also dealing with operations in the area of public services for which entities being part of the public sector are responsible and also we are dealing with a great complexity of interrelationships with multilateral and multidirectional intra-sectoral connections and inter-sectoral. Large settlement units are thus typical poles of growth, where based on a broad selection of factors, namely the concentration of capital, the quantity and quality of human resources and mutual relations between them, as well as diverse exogenic factors occurring in respect of the functions performed by these units, innovative processes may develop particularly quickly and find a prompt way towards the implementation of diverse solutions. The processes can be generated both in the sphere of the real economy and entail the achievement of economic benefits, they may also entail the functioning of the public services sphere providing services of a social nature by diverse organisational units of the public sector that participate in the development processes.

2.2. Innovations in the public sector

Under new management conditions in the public sector with regard to the existence of numerous relationships of a local and regional nature, as well as further relationships resulting from integration processes within international organisations and towards globalisation processes, the innovative processes in the 21st century are becoming, in large cities, the main factor of a pro-

development nature. This phenomenon is a natural consequence of the functions performed by large settlement units in relation to the remaining area. The concentration of many functions is essentially possible only in large settlement units, having a relevant intellectual, scientific, organisational potential and efficient operating administration, as well as possessing considerable capital resources or the capacity to generate specified cash flows which may be used for financing projects supporting the socio-economic development.

Innovative processes in large settlement units are gradually replacing the previous development factors, considered to be traditional. They include scopes of activities that enable the implementation of solutions leading to improving the effectiveness of management in both the sphere of the real economy and in the sphere of public services. It seems that creativity as well as the generation of solutions of an innovative nature as compared to the existing social and economic structure is becoming the only acceptable direction of development of large settlement units. By the implementation of innovative solutions, large settlement units can maintain their competitive position in relation to other areas with regard to the quality of life. It should be noted that otherwise, reference only to the extensive development factors that have already played an important role in the past, can lead to deterioration in the competitive position of cities and limitation in location attractiveness, which may result in the clear deterioration of the standard of living and later to population changes. As a result of these processes the phenomena of a deglomeration nature may take place, consisting in strengthening the position of the metropolitan area and the simultaneous weakening of the position of centers.

A particular role is assigned at this point to entrepreneurial behavior in the public sector. In the public sector almost in the same manner as in the private sector, the role of managers increases being able to effectively organize and manage the complex processes in organizations or companies of the public sphere[43]. It is worth emphasizing that the complexity of processes in the area of the public sector puts high requirements in relation to the managerial staff, in particular in the sphere of the decision-making process, which, in turn, involves the need to have high qualifications, often higher than in the traditionally understood private sector enterprises. In cities, significantly diversified tasks are observed, both in the social and economic sphere for which public entities are responsible. For this reason innovative processes should be to some extent stimulated by public authorities, and the recognized new solutions should be implemented relatively quickly into the practice of the public sector entities[44].

[43] J.Ch. Westland, *Global Innovation Management. A Strategic Approach*, Palgrave Macmillan, New York 2009, pp. 234-235

[44] P.G. Klein, J.T. Mahoney, A.M. McGahan, Ch.N. Pitelis, *Toward a Theory of Public Entrepreneurship*, Danish Research Unit for Industrial Dynamics, Working Paper No. 10/07, Copenhagen 2009, pp. 3-5.

The role of managers in the process of innovative solutions implementation is particularly important. The process of creating innovation in organizational units of the public sector, especially in large cities, proceeds under slightly different conditions than in the case of commercial companies of the sphere of the real economy. On the one hand, they try to use endogenous conditions for development, potential as well as their own resources residing in the administrative structures and in their own companies and organizational units, on the other hand, however, the parties are obliged to openness and multilateral relations of an external nature and to cooperate in innovations. It can be assumed that managers in public organizations must perform the role of a catalyst connecting many diverse functions, goals and opportunities in a logical and sequential sequence leading to the implementation of innovative solutions. Often for that purpose specialized organizations may be formed, involved in the implementation management of innovative processes[45].

Obtaining full benefits related to activating innovative processes in the system of the city requires a system perspective of these problems. T. Bland, B. Bruk, D. Kim, K.T. Lee indicate the need for separating in this process three main directions of activities, which include:

- idea generation,
- acceptance,
- implementation[46].

In the first place it is important to pay attention to the potential present in the organisation or more broadly to the potential, which may be taken into account with regard to the possibilities of generating new ideas and the invention of particular people, groups and environments. It also involves the possibilities of creative thinking and generating innovative solutions by managing teams, managers and leaders of groups. It is concerned not only with the ability to generate solutions strictly of an innovative nature, but also the skill of the effective implementation of such solutions to specific practical cases. An important point is acquiring acceptance in undertaking activities and the ability to justify the usefulness of research, creating new solutions and future benefits related to their implementation[47].

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45 E. Sørensen, J. Torfing, *Collaborative Innovation in the Public Sector*, The Innovation Journal: The Public Sector Innovation Journal, Volume 17(1), 2012, www.innovation.cc, pp. 8-10.

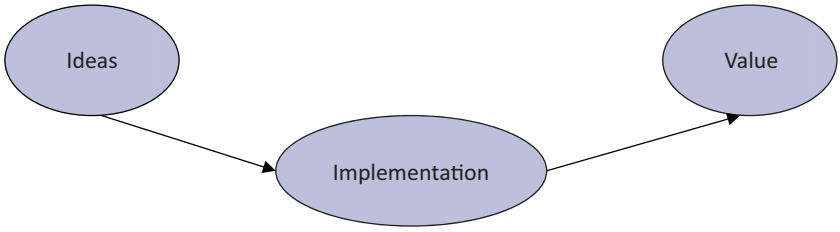
46 T. Bland, B. Bruk, D. Kim, K.T. Lee, *Enhancing Public Sector Innovation: Examining the Network -Innovation Relationship*, The Innovation Journal: The Public Sector Innovation Journal, Volume Volume 15(3), 2010, www.innovation.cc, pp. 2-11.

47 F. Hacklin, *Management of Convergence in Innovation*, Springer Co. Verlag, Heidelberg 2008, pp. 25-26.

The concept and theory of innovation has developed mainly around private business, with an historic focus on product innovation. Innovation in services is more difficult to define and identify, particularly innovation in public services. Innovation in the public sector does not always result in new public services, but may be linked to institutional renewal, new forms of governance, process innovation, digitization and/or organisational improvements (e.g. changes in management techniques, the introduction of performance management or strategic planning), etc., in which case it is not always labelled as "innovation"[48].

Innovation in the public sector is the process of creating of new ideas and solutions and turning them into real value for society at a local, regional or at a state level. This applies to public authorities at different levels, political organisations, as well as employees of the public sector (see chart 2.4). The point is to run good mechanisms leading to the improvement of the performance of the public sector and the real economy. Public authorities at various levels must take on tasks in the sphere of creation of innovation in different areas: in the area of administration, within the sphere of public services and stimulate the development of entrepreneurship. To do this, they should support creative and innovative thinking and all good ideas. The result may be to raise conditions for the wider creation of new values in the public sector[49].

Chart 2.4. Innovation in the process of value creation in the public sector



Source: Prepared on the basis of Ch. Bason, *Leading Public Sector Innovation. Co-creating for a better Society*, Bristol 2010, pp. 33-34.

The implementation of innovation in the public sector is a much more complex process than in other sectors of the economy. Such a situation is the impact of different conditions of the entities belonging to the public sector. In particular this applies to public administration and its activity at different levels of competence, it also applies to companies involved in the provision of services directly and also applies to other organisational units of local

[48] P. Cunningham, A. Karakasidou, *Innovation in the Public Sector*, Policy Brief 2009, No 2, Manchester 2009, pp. 2-7.

[49] Ch. Bason, *Leading Public Sector Innovation. Co-creating for a better Society*, Bristol 2010, pp. 33-34.

government at a regional and local level and at a state level, as well as non-profit organisations that deal with the sphere of public services. In this context, it can be assumed that there are at least three groups of factors that determine the implementation of innovation in the area of public services:

- the right approach to the process of innovation in public services, characterised by changes of a permanent nature, requires a good understanding of the changes. We are dealing here with a process that in terms of the public sector must be continuous. It is necessary to understand the nature of innovation,
- the positioning of innovation as a normative "good" in public policy and as a resultant of policy making of public authorities on different levels,
- the adoption of an appropriate model of innovation for public services, the solutions from the sphere of manufacturing cannot always find the right application[50].

Actually new studies on innovation in the public sector identified a number of different forms by which innovation processes may take place in the public sector, at the service level or at the local, regional and also state policy level. On the service level we observe the following forms of activities:

- new characteristics and design of services and products as well production processes,
- new ways of delivering services or interacting with clients,
- new or altered ways in organising and management in the field of activities,
- new or altered ways of interacting with other organisations and knowledge bases,
- new concept of world views, belief systems, missions, financing and new strategies.

On the policy level we observe the following forms of activities:

- new policies and policy instruments,
- new ways of organising or administrating activities,
- new or improved ways of interacting with other organisations,
- new world views, belief systems, missions and strategies[51].

[50] S.P. Osborn, L. Brown, *Innovation in Public Services*, (in:) *Hanbook of Innovations in Public Services*, ed. S.P. Osborn, L. Brown, Edward Elgar Publishing Ltd, Northampton 2013, pp. 5-8.

[51] *Ibidem*, p. 9-10, S. van Thiel, B. Steijn, M. Allix, *New Public Managers in Europe: Changes and Trends*, (in:) *New Public Management in Europe. Adaptation and Alternatives*, ed by Ch. Pollitt, S. van Thiel, V. Homburg, Palgrave Mcmillan, New York 2007, pp. 90-102.

This study also recognized the types of barriers and drivers for innovation, i.e. social phenomena that hinder or encourage innovation activities in such institutions. The following represent some of the important barriers to public innovation:

- size and complexity; the subjects of the public sector are mainly complex and large-scale organisational entities that may develop internal barriers to innovation,
- heritage and legacy; public sector organisations and entities are prone to introduce new practices and procedures,
- professional resistance; there exist professional groups with their own communities of practice, rationalities and perspectives,
- risk aversion; public organisations are under the control of politicians and other public groups, and employees are not rewarded for risk taking,
- the need for consultation and unclear outcomes; the large range of stakeholder involvement generates a strong requirement to control and review any changes,
- the absence of capacity for organisational learning; there may be a lack of structure or mechanisms for the enhancement of organisational learning,
- public resistance changes; in the public sector, we observe a higher level of risk-averse,
- absence of resources on many levels; there may be a lack of financial support or shortages of the relevant skills or other support services and qualifications,
- technical barriers, there may be a lack of technical and technological support to solve the existing and future problems.

At the same time there are a number of significant factors creating the innovations process in the public sector. It is necessary to point out the following factors to support the process of innovation in the public sector:

- problem-oriented drivers; it is necessary to promote innovative thinking people in order to solve certain problems,
- non-problem oriented drivers; innovations may improve on the former situation,
- political push; strategic changes require strong, top-down political will,
- growth of a culture in organisations; assessment practices may stimulate the innovations process in the organisation,
- existing support mechanisms for innovation; authorities may implement policy measures aimed at encouraging the funding of the innovation process,

- capacity for the creation of innovation; public sector employees often have high levels of professional expertise, mobility, creativity and problem solving,
- competitive drivers in the public sector; performance targets may encourage the creation and use of innovative approaches,
- technical and technological factors; technical and technological innovation can be an important determinant for subsequent innovation in the future,
- non-Governmental Organizations (NGOs) and private enterprises; models developed by NGOs and private companies may be implemented by public sector units[52].

For the purpose of the survey, the term "innovation in the public sector", was defined as a process of implementing a new and/or significantly improved product, service or process within the responsibility of a public organisation. It is observed on the national, regional and local level. This process could include efforts to improve the uptake and flow of innovative practices throughout the public sector organisations above all.

The term "*policies and initiatives in support of public sector innovation*" refers to any national, regional or sectoral policy or public initiative aimed at improving the efficiency and/or effectiveness of the public sector and/or the quality of public services through such innovation, notably, but not exclusively, initiatives labelled "innovation" or "modernisation"[53].

Promoting innovation in the public sector appears to be widespread and seems to have been growing in focus in a number of countries, including Austria, Bulgaria, Denmark, Finland, Italy, Latvia, the Netherlands, Portugal, Turkey and the UK. In other countries, i.e. Brazil, it is more recent. However, it is sometimes associated with the implementation of innovative goods and services (i.e. in Austria) rather than dealing with process innovation within the public sector itself[54].

The public sector plays a key role as a regulator, service provider and employer and accounts for an important share of the economy in the developed countries. There are many functions and roles of the public sector. These are the development and maintenance of the trust in public authorities, the creation of law, the assurance of social security, the creation of an institutional framework of conditions of cooperation between the public and private units, the provision of public services and to respond to the needs of citizens and businesses at

[52] *Ibidem*, pp. 2-10.

[53] *Ibidem*, pp. 11-19.

[54] B. Wixted, *Innovation System…*, *op. cit.*, pp. 13-32.

a European, national, regional and local level. The innovativeness of public institutions across Europe has a bearing on competitiveness and growth on a local, regional and state level. The consistency and efficiency of the operation of public services are of key importance for development. On a positive note, good government can address market failures that would otherwise inhibit the emergence of new industries and the provision of public services. On the negative side we should point out that excessive bureaucracy and overregulation imposes significant and unnecessary costs on business and citizens[55].

The public sector entities are a very important part of the national economy. They are responsible for the development of mechanisms to ensure the financial stability of the state, as well as actions to foster growth, competitiveness and employment. Following the Europe 2020 Innovation Union the European Commission is piloting the European Public Sector Innovation Scoreboard (EPSIS) as a basis for further work to create and implement public sector innovation[56].

Successful initiatives across the EU confirm that innovation is the very important answer to meet all the challenges of the European economy. Public sector innovation on several levels seems to now be a basic factor in the globalisation process and societal challenges all over the world. The European Public Sector Innovation Scoreboard is the first EU attempt to better understand the innovation in the public sector. It has been developed based on the experience of earlier national and regional projects. Europe needs more and better data on the public sector innovation in order to help translate policy ambition into wide-ranging innovations on the ground. In particular, it will inspire further actions and systemic support for public sector innovation under the new EU programming period, notably in the perspective of the Horizon 2020 and Cohesion Policy [57]. Innovation processes in the public sector were the codification of EU law. They were considered to be one of the factors stimulating the development and are considered, in addition to investment capital. Innovation in the public sector is one of the factors creating smart growth cities.

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55 *European Public Sector Innovation Scoreboard 2013*, European Commission, Brussels 2013, p. 6.

56 *Ibidem*, p. 6.

57 *European Public Sector Innovation Scoreboard workshop*, 10th May 2012, Maastricht University, Brussels 2012, pp. 2-5, *The Open Innovation Programme*, Nesta, London 2013, pp. 18-29.

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Chapter 3

Management in the public sector

Agnieszka Barańska

Introduction

The history of management theory dates back to the beginning of the 20th century. Many researchers attempted to define new solutions and to develop new methods that would allow for the better use of capital in the economy, and thereby improve the efficiency of the management of a capitalist economy. It seems that the problem has become significant enough to improve efficiency, both enterprises and research centres carried out advanced work on new concepts of the organization of enterprises, the functioning rules and the implementation of new techniques and technologies. Learning about managing is a subject to achieve evolutionary change. Concepts and management models have followed naturally with the changing political, economic and social environment and were correlated with the development of other sciences both economic and social. Also bearing in mind that the researchers searched for the ready solutions that could be used in the wider economy. This search was the need to search for new solutions which would lead to the improvement of the economic efficiency of production and would allow a better impact on the market. The 21st century brings a lot of intense change, which made itself known at the level of the Member States, sectors and branches of economic and social life. The new direction of searching for effective management methods has become the research on the wider public sector. It has become clear that the General enterprises, different entities and agencies expressly do not subject clearly and not complying with the generally accepted methods dedicated to management in respect of the entities of the private sector. We are therefore

dealing here with an important and innovative approach to slightly different terms and ways of their implementation in relation to all entities which under certain criteria, can be included in the public sector.

3.1. The evolution of the views on the conditions and possibilities to implement new management concepts

The search for skills and abilities to effectively manage dates back almost to the beginning of the functioning of the organized forms of human communities. The search for effective methods of control of the diverse phenomena of a social or economic nature was a natural consequence of often an unconscious need to facilitate the achievement of different goals. At that time, such behaviour would be difficult to recognize in terms of scientific research, but rather in terms of intuition. Because the search was associated with a simple need to streamline operations. Thus, precursors in terms of management in a quite legitimate way, through their experience contributed to bringing in the form of scientific management.

A scientific approach to the management of issues appeared at the beginning of the 20th century. There were also pro-American thoughts, conceived such as acting executive management, including: planning, organizing, motivating and controlling, called the classic functions of management. The emergence of new concepts to classify and therefore give rise to the emergence of the three main approaches to management called "look classic, behavioural and quantity". Of interest to the first Management theorists was called the scientific organization of work, including ways to increase productivity at work, and ways to increase the effectiveness of the administration.

One of the most recognized management pioneers was the creator of "*scientific management",* F. Taylor called the "classic of the organization"[58]. He showed that it is possible to apply a scientific approach in relation to the issues of the organization and the development of real science management, whose objective is to obtain the most effective methods for the implementation of each task. F. Taylor was the creator of the "Functional Structure", setting out the rules for the work management, based on a thorough analysis of the work[59]. The creator of the administrative direction in the classical approach to the management, H. Fayol, argued that management is common for all activities in business, government, households, and the process itself defined as a "*universal*

[58] V.S. Bagad, *Principles of Management*, Technical Publications, Pune 2009, p. 22.

[59] R.K. Singla, *Business Studies*, FK Publications, New Delhi 2009, p. 110.

set of specific functions-planning, organizing, issue orders, coordinate and control"[60]*.* The figure, which brought a huge contribution to the Management Sciences was M. Weber, who developed the so-called "Theory of formal authority structures". M. Weber described and identified the activities of bureaucracy as the ideal form of organization, which is equated with the most rational form of collective action and the purest type of rational rule. Bureaucracy is a reasonable increase in the typical-ideal intentional characteristics of bureaucracy[61]. An ideal Model of bureaucracy was presented by M. Weber in "*The Theory of Social and Economic Organization".* He distinguished three types of power: the rational (legal)-based on the belief of legacy's rules and normative rules of power and those who according to them have the power to execute commands, the traditional-associated strongly with the belief of the sacredness of timeless traditions and legitimized the status of those who are performing according to their power and charisma, based on some specific and exceptional qualities of character, heroism, the sanctity of the individual as well as the normative patterns of conduct and governance of what they revealed, or laid down[62]. M. Weber considered the bureaucratic model to be the most effective form of Organization for a specific purpose.

A precursor to the concept of management and one of the greatest management theorists, P. F. Drucker, in his studies has defined management as "*social function and free-spirited, concerning people, deeply embedded in the culture".* The author listed and described the seven determinants of good governance:

- it mostly concerns people,
- is deeply embedded in the culture,
- needs clear values, which require its objectives and tasks, that matches participants together with organizations,
- should lead to the fact that the organization is capable of learning,
- requires communication,
- requires a structured system of indicators,
- must be clearly oriented to the basic and the most important outcome, which is a satisfied customer[63].

Undoubtedly the most important part of the scientific achievements of P.F. Drucker, was the theory of management by objectives, based on the concept

[60] V.S. Bagad, *Principles..., op. cit.*, pp. 23-25.

[61] R. Swedberg, O. Agevall, *The Max Weber Dictionary*, Stanford University Press, Stanford 2005, pp. 18-20.

[62] P. Breiner, *Translating Max Weber Exile Attempts to Forge a New Political Science*, European Journal of Political Theory SAGE Publications Ltd, London, Thousand Oaks and New Delhi 2002, 3(2)133-149.

[63] P.F. Drucker, *Managing the public service institution*, Public Interest, New York 1973, No 33, pp. 43-55.

that it is precisely the objective of the company to the leadership of the explanation, prediction and control of activities in such a way that not a single idea, such as for example, maximizing profits. P.F. Drucker cited five characteristics of the purposes including: enabling the company to clarify the entire range of economic phenomena in the form of several broad statements, check those statements in real life situations, the prediction of behaviour, improving future results as a result of the analysis of past experience and to facilitate the examination of the merits of the decision in the course of their making, and not only when it turned out to be wrong. In applying this concept, the first thing to arise is to determine the purpose of the entire organization, then as a result of this, there is the creation of the disaggregation of their targets for specific employees. The objectives of the corporation are set so the organization at the highest level, resulting from their individual objectives are the agreed results in agreement between an employee and his immediate supervisor[64]. The concept of management by objectives proposed by P.F. Drucker, has become for many years, until modern times one of the most recognized and widely used methods of management. The author certainly did not believe that the concept of management by objectives would be the most popular method of business management in the 21st century and the basis for advanced information systems.

Also, in this context, to draw attention to the concept of M.P. Follett, who considered the possibility of the attainment of the objectives set by management, would be the ability, skill, commitment and creativity of the people involved in the various processes. Also paying attention to the differences of opinion occurring in groups and the importance of conflicts that may appear in it[65]. Similar views in accordance with the current behavioural was expressed by CH.I. Barnard. In accordance with the concept of the developer the company can only function efficiently if the objectives of the organization and the objectives and needs of workers are mutually correlated and remain in a state of balance, with particular regard to the importance of the authority as well as the ethical and social obligations of the managers to the public[66]. You might also want to cite the current quantitative in management. The achievements of this movement has been linked with numerous achievements that have had a significant impact both on the development of management theory, and are also reflected in the practice of management. The main representative of mainstream quantitative management is included by Robert McNamara.

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64 M. Armstrong, *Armstrong's Handbook of Performance Management*, Kogan Page Publishers, London 2009, p. 14.

65 J.R. Schermerhorn, Jr, *Management*, John Wiley&Sons, New Jersey 2010, p. 34.

66 R. Kreitner, *Principles of Management*, Cengage Learning, Boston 2009, pp. 45-47.

One should also pay attention to the other researchers: Ludwig von Bertalanffy, Norbert Wiener and Talcott Parsons, who perceive the possibility of combining and complementarity of the regulations resulting from the diverse approaches to managing within the scientific, administrative, behavioural recognition and quantification. The views of these scholars have given a very good starting point to shape the new mainstream, referring to the theory of social systems.

One may also like to cite the views of R.W. Griffin, who defined management as *"a set of activities involving the planning and decision making, organizing, conducting, IE. managing and monitoring aimed at enterprise resources (human, financial, material and information), carried out with a view to achieve the stated objectives in a smooth and effective way"*[67]. Of particular importance in this approach is that each operation shall be assigned, consisting in the extracted complex actions (processes), as well as the efficient and effective implementation of the objectives of the organization.

3.2. Characteristics of the public sector and its place in the economy

The public sector along with the fast development of economic sciences, especially in the first half of the twentieth century permanently entered into a new recognition of the State of the economy and society. As early as during the great depression, and in the following years, there has no longer been debate on the essence of the public sector, but to implement adequate conditions for the actors that make up these sector management methods. These conditions also gave birth to the concept of New Public Management, which, in fact, directly developed with the concept of the New Wave of Management. That concept appeared at the beginning of the 20th century, as a response to the demand for the use of new management methods in the industry[68]. As far as the New Wave of Management relates in its initial shape for selected industries, in particular for the automotive industry in the United States, the New Public Management, referring to the achievements of these solutions in the industry, it was oriented on a wider range of applications, which naturally was associated with relatively high complexity of the contract referring to the public sector.

Management in the public sector has become a subject of interest to many Member States and Governments especially during the great depression and subsequent years. The development of democratic systems in the world, the

[67] R.W. Griffin, *Management*, Cengage Learning, Mason 2012, pp. 6-7.

[68] J. McAuley, J. Duberley, P. Johnson, *Organization Theory*, Pearson Education Limited, Harlow 2007, pp. 435-436.

growth of the prosperity of citizens observed after World War II led to a State of prosperity. If in the early years this concept successfully made its way in many societies of developed countries, however, as a result of the globalization processes and the transfer of the crisis phenomena, it became difficult and the need to implement the new management methods in the scale of the states with regard to private enterprises and particularly important in relation to units of private and public sector entities. At that time, progressively weak interest in the problems of the public sector were also reflected in the literature on the subject. The issue was initially treated as of secondary importance, although there were significant and many cues about the need to pay more attention to the problems of the public sector, including in particular the rationality and effectiveness of the management with regard to the expenditure of public funds.

Management in the 21st century is the requirements of the changing circumstances and to seek new and innovative perspectives and solutions. It is necessary to undertake research initiatives that require the creation of coordinated actions and synergies between science and business. Therefore, it becomes especially important to search for the implementation and customization of new management concepts to meet the needs of the public sector. The search for new methods of management in the public sector to improve the efficiency of management by improving the efficiency of the institutions and bodies of the public sector, which largely determines not only the effectiveness but also the dynamics of the development of the economy.

The public sector is the part of the economy, which deals with the provision of goods and services for the State and citizens. The general definition of the public sector includes government ownership or control rather than mere function and thereby includes, for example, the exercise of public authority or the implementation of public policy. When pictured as concentric circles, the core public service in central and subnational government agencies defines the inner circle of the public sector. In this case, the distinction of the public sector from the private sector is relatively straightforward-it is evident in terms of employment relationships and the right of exercising public power[69].

According to the theory of J.M. Keynes it is the public sector that is a major tool of State intervention[70]. It ensures the implementation of the basic functions of the Member States on the structure of institutional administration, it is necessary for the functioning of society and the modern economy. Activities of

[69] *Encyclopedia Britannica*, http://www.britannica.com/EBchecked/topic/482500/public-sector Online. [10 June 2014]. (dostęp?)

[70] J.L. Wallis, B.E. Dollery, L. McLoughlin, *Reform and Leadership in the Public Sector: A Political Economy Approach*, Edward Elgar Publishing, Massachusetts 2007, pp. 109-111.

the public sector cover a diverse range of material. A part of the services carried out at the level of the public sector is provided at the State level, which includes: education, health, the provision of social protection for citizens, the guarantee of national security and land-use planning space. Also a part of the public service is carried out in the framework of the local government and also non-profit organizations namely, foundations and associations.

In the framework of local government is the specific range of services, which include technical services, including services in the field of public transport, water supply, electricity and heat, sewage and municipal infrastructure in cities, as well as social services, including health care and education. The scope and functioning of the public sector in different countries depend on various factors which consist of values, traditions, rules for the organization of the State, as well as economic considerations. Each country determines the size of the public sector, taking into account the various factors. The public sector is associated with the creation of policy and the provision of a range of public services. According to the functional criteria, the public sector, diversifying it consists of State institutions and General Government and organizational units performing exclusively or mostly from its own resources and non-commercial public tasks that manage public assets, taxes, manufacturing and delivery of public goods. These include all the units of a State and local government having a legal personality. Taking into account the ownership criterion-the public sector is the set of all State and municipal corporation and unincorporated entities that are subject to State and local governments.

The public sector is considered to be part of the national economy, it is part of the social system. The financing of the public sector is based on the basis of the generally accepted mechanism and money circulation in the economy. As a general rule the financing of public tasks is carried out by means of budgetary resources, in the framework of the State budget and the budget of the local government units. Financial power budgets, and hence, financing public tasks carried out by the system adopted public tributes or taxes levied at the State level, as well as taxes and fees charged at the level of local government units. It can be applied at the national, regional and local level. The public sector can be divided into General Government and territorial administration, each of which provides specific services and public goods, to forms of public sector organizations including the State institutions whose activities are directly coordinated by the Government. Within the public sector a priority in the 21st century is to apply appropriate individual competences and tasks management methods. This condition in the modern world becomes a key element when it comes to the proper fulfilment of public tasks, as well as when it comes to

searching for opportunities to improve the efficiency of management in the public sector.

Bearing in mind the nature of the financial funds, which are distributed to the general public purposes defined exhaustively, separately in relation to specific groups and organizational units, in consideration for the management in the public sector should particularly take into account matters relating to the economy in the budget in the public sector. In countries with a developed democracy we are essentially dealing with the existence of explicit duality of power, and hence distinct competences and the duties referred to should be implemented in a mandatory format. Therefore, in addition to management in the public sector, which in the narrower approach already applies directly to individual companies, entities and organizational units not having a legal personality, it is also necessary in-depth research coverage of public sector finances. Therefore, management in the public sector and public sector finances, in the light of the latest research, in two main ranges of problems have arisen, which must be treated in a discriminatory manner. This approach satisfies the condition for the comprehensive analysis of developments in the public sector and can guarantee effective problem-solving that a modern economy brings.

3.3. Complementarity between the private and public sectors

Taking into account the criterion of ownership in a market economy let us extract three sectors: the public sector (public administrations), the private sector (producers, consumers), non-profit organizations (foundations, associations). The boundary between the public and private sectors is neither clear nor permanent. In some cases it is well defined: assets get transferred from the public to the private sector through privatization, assets that remain in state ownership are clearly public. The process of outsourcing, whereby private companies provide all or part of services, makes the boundary less clear[71]. Public organizations differ from private organizations to being multifunctional, having a politically elected leadership and would not usually operate on a market. The public sector plays a specific role in the functioning of the State. On the one hand, it is responsible for the provision of public services for the benefit of society as a whole, on the other hand, it provides facilities for the proper functioning of the private sector. Therefore, the position of the public sector is passing, because it deals with the provision of the diversified services of public service which is in relation to the support functions. The public sector

[71] N. Flynn, *Public Sector Management*, Sage Publications Ltd, London 2007, pp. 2-4.

is engaged in the provision of services of a special nature, which are not oriented when it comes to the manufacturing process to generate surpluses, but rather to meet specific needs. Often the services provided in the public sector are free, such as services in the field of public security, the protection of the country, health care or services provided at the local level in the framework of regional or local structures. Part of the services may be provided in return for payment, which does not change however the essence and nature of meeting the needs.

The public sector and the private sector are interlinked, they coexist with each other, and their mutual relationship is conditioned by various factors. Here you can specify the organization of the state, the type of economy, legal considerations, and economic considerations. In a democratic society, the public sector, although its boundaries are difficult to uniquely designate, can be easily outlined. The specific binding of the public sector with the private, is based primarily on the financial and functional aspects. The public sector, by means of taxes, fees, etc., finances services and goods for citizens from the private sector. Both sectors combine the financial system, whose task is to adjust the behaviour of the entities belonging to the sectors and the relationship between them. There are three models of the relationship between sectors: a model, a model of balance and imbalance and a neutral model. The balance areas of the sectors are clearly separated, the proportions between the sectors can be different, but it cannot be a sharp change, therefore, the social and political system has a stable character. The second model, which shows a different kind of relationship between the sectors is a model of global imbalances, in which there are discrepancies between the public and private sector. This imbalance may be the result of at least four groups of causes: economic, social, political and technical. In the model there is the so-called neutral. the relative imbalance, changes are conditioned by politics and doctrine, it depends largely on the strength and efficiency of the State because it is the public sector entities, including the state, local governments and other entities meeting the criteria of inclosing them to that sector which play an important role in organizing the production of services the market mechanism is not able to provide. In this sense, the State is guided by the principle of cost-effectiveness, which applies in its entirety to private companies, but shall be guided by the principle of social justice, to supply a given quantity and quality of service to customers.

Seeking opportunities for joint ventures in the field of investment tasks of the public sector is justified in different causes. One of the most important is a significant and increasing pressure from a number of stakeholders on the State budget and the budgets of the units of local government, in the direction of new investment projects, this situation leads to the search for new solutions,

which could result in generating additional funds of their own or other investment funds, especially from the private sector. An important consideration is the changing political and economic environment to public sector entities, following the route of the liberalization of economic policy. According to G. MacKechnie and F. Litton[72] , posting new tasks on the part of the Government for the benefit of the local government administration at different levels is associated with the withdrawal from existing tasks ('roll back the state'). The common barriers to regional and local development are often constrained by the level of income of their own regional or local units in relation to the changes in the terms of reference of their own. The search for new forms of co-financing investment projects is seen as a way of eliminating these barriers.

3.4. The management of the public sector to face the challenges of development in the 21st century

The end of the 20th and beginning of the 21st century was marked by a significant increase in socio-economic activities in the world. This activity covers diverse areas of the economy, of politics, of transformation and also covers terrorist acts on an unprecedented scale, as well as numerous armed conflicts, which in the age of globalization has led to the destabilization of the existing world order and has become one of the factors in the search for new ways of development. It should also be pointed out, particularly in the Europe of economic and political factors and, in particular, the integration processes, including: the extension of the new members of NATO as well as the accession of new members to international organizations such as the European Union or GAT.

Appearing with them, new problems relating to the functioning of the public sector have led to the extraction of the teachings of the new management sub discipline-public management. The problems facing the organization today have a significantly different dimension than those that existed until the end of the 20th century. The causes of their formation should not only be mainly the far-reaching change of civilization, but also the new reality of social conditions, technological, ecological and political communication. A number of changes and new conditions, which the 21st century brings affect a significant trend

[72] G. MacKechnie, F. Litton, *Theory and Practice in Public and Private Sector Management*, International Journal of Public-Private Partnerschips, SHU Press, Sheffield 1998, Vol. 1, pp. 4-5; K. Jarosiński, *Partnerstwo Publiczno-Prywatne w Polsce w okresie transformacji. Teoria i praktyka* [in:] *Polityka regionalna i samorządność* (ed.) Z. Strzelecki, Warsaw School of Economics, Warsaw 2006, pp. 41-43.

apparent in the public sector, which is adapting to the international situation and globalization processes. The consequences of these processes are noticeable in almost all areas of social life. Socio-economic results in the fact that management becomes a challenge for the management team and stakeholders, and this need gives rise to the search for new, innovative solutions.

As a result of the wide ranging reform of public management processes, models of public management have developed, thereby defining governance in the public sector as a process involving not only the administration but also the organization of measures to achieve objectives while maintaining the principles of effectiveness and organizational performance, and assuming that the implementation of the new management concepts will now get the job done which in turn will fulfill the role of the State to its citizens. Management in the public sector is a distinction between administration and management, the forms involving the orderly arrangement of resources to follow previously defined procedures and rules, the latter which involves discretion in the management of resources to achieve a set of objectives. In practice, both activities occur in public services, many activities require administration rather than management and many managers are engaged in both[73]. The organization of financial intermediaries may be on a monopolistic, oligopolistic or competitive basis. In a monopolistic system, the financial intermediary is usually a public agency such as government and quango or a health corporation. In an oligopolistic system, finance can be controlled by public agencies[74]. Management in the sense of exercising some discretion, requires that managers think and act to find the best ways of achieving some target or objective, using and directing other people's skills. In this sense the managers become distinct from the various professions in the public sector[75]. The essence of a new approach to public management should be the implementation of modern management tools. This process is continuous and as such a formula must be continued still considering that there is a presence of anisotropic changes, especially at a regional and local level. So we have to deal with the emergence of the numerous problems of a structural nature in many settlement units and especially in big cities, on the other hand, there has been a rapid and dynamic development of parts of them. So we have to deal with, at the beginning of the 21st century, the fiscal imbalances and deepening of differences in the levels of development, which tend not to apply to the Member States as a whole, and only settlement

[73] N. Flynn, *Public Sector...,* op. cit., pp. 2-4.

[74] C. Donaldson, G. Karen, S. Jan, C. Mitton, V. Wiseman, *Economics of health care financing*, Palgrave Macmillan, New York 2005, p. 66.

[75] N. Flynn, *Public Sector...,* op. cit., pp. 2-4.

units, where local conditions and factors of endogenous development in a meaningful way to differentiate these units between each other.

In a market economy and the tough monetary policy of the central banks the major problem which public sector bodies must face is a shortage of cash, which could be used for the implementation of the legitimate objectives. In this respect, we are dealing with the greatest disparities. There are, therefore, cities and regions with very low development potential, where further development is affected by the phenomena of a regression. On the other hand, we have to deal with the cities and regions, which, by virtue of their positions and growth potential show strong growth trends, which in conjunction with the regional authorities in development policy now achieve good results, and in the future by adopting a whole range of development objectives in order to build smart cities, this will lead to, in the 21st century, positive changes of quality.

3.5. Trends in the sphere of managing in the public sector

Consolidating the position of the public sector in the economy has created a new paradigm of management in the public sector. The theoretical treatment of competent management in previous years for the realm of the real economy and, therefore, strictly business-oriented to improve the results of the management of enterprises, have seen a gradual evolution in the direction of the search for new and appropriate methods of socio-economic processes management in terms of the specificity of the developments in the public sector. Already at the first attempts of a distinct approach to matters relating to the management of the various bodies and organizational units forming part of the contract the divine design of the public sector, it became clear that the use of mainstream classical methods of management may not bring good results. This resulted from the specific nature of public sector entities as well as quite separate objectives which organizational units were put into the implementation. It was, therefore, the indirection of use on the one hand, the scientific achievements deriving from the classical management theory, which could after adjustment meet the expectations associated with the optimization of socio-economic processes in the public sector.

Efforts to improve the functioning of the public sector resulted in the fact that there was a new, managerial approach, public administration model based on management of the classical approach. The beginning of a new Public Management dates back to the eighties of the 20th century. Changes in the public sector taking place in many OECD countries since 1980 were crucial to

the creation of New Public Management (NPM) and associated with the doctrine of the public good and the creation of best practices[76]. In many countries, as a general rule, they happen to be replacing the traditional to tighten up the administration of the public sector, the new arrangements proposed under the concept of New Public Management. The new managerial approach to public administration, appeared first in the UK, Australia and New Zealand in the 1980's, and since the early 1990's has gained its place in the United States[77].

Classification based on four models of public management presented by G. B. Peters, which as the most practical model indicated, derived from economic theory and experience from the private sector, market management, known as New Public Management[78]:

- market Government,
- participative Government,
- flexible Government,
- deregulated Government.

New Public Management has introduced a managerial approach to the management of the public sector, which is closely associated with the creation of the rules of society and the provision of a range of public services. The concept of the new Public Management, thoroughly established and proven in the sphere of the private sector in regard to management methods and attempted to implement solutions, ideas and management techniques to the conditions prevailing in different organizational entities of the public sector. The main purpose of the application of the methods in the framework of the New Public Management has become, above all, increased efficiency, effectiveness, and efficiency of the management of organizational units of the public sector. According to the assumptions, it would be the through the use of suitable solutions, the adoption by organizations as part of a long planning horizon and a long strategic perspective, a stronger orientation of the activities of public entities to achieve the required objectives and the intended results. At the same time, it became clear and specified as part of the management concepts used within a reasonable range of market mechanisms. There are also some dangers, if management in the public domain adopts models drawn from outside organizations. That is not to say that management in the public sector cannot learn from management in the private sector, or vice versa. Specific management

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[76] Ch. Hood, *The "New Public Management" in the 1980s: Variations on a theme*, Accounting, organizations and Society, Vol. 20, No. U3, Great Britain Power, London 1992, pp. 93-109.

[77] A. Dunsire, *Administrative Theory in the 1980s, A Viewpoint*, Public Administration, New Jersey 1995, no. 73, p. 17.

[78] G.B. Peters, *The Future of Governing: Four Emerging Models*, Lawrence University Press of Kansas, Kansas 1996, p. 30.

ideas can be transferable. What is not transferable is the model of management– its purposes, conditions and tasks[79].

Improving performance in the public sector units as a result leads to the improvement of the efficiency and effectiveness of public organizations in accordance with the concept of New Public Management. In the end, it has become possible through the use of new methods of management, which eventually led to wider changes both in terms of the perception of the public sector, as well as the use of specialized tools. At this point, consideration should be given to the concept of Lean Management, so-called "slim management", whose essence is to simplify the organization and management. J.P. Womack and D.T. Jones developed the elements characteristic of Lean Management: focusing on creating value for the customer, where in the public sector this means focus on the citizen; analysis of value streams in order to eliminate wasteful, continuous flow, continuous improvement and a towed system[80].

One of the good examples of new developments that have emerged in the process of governance in the public sector is the combination of investment capital leading to the implementation of investment projects in the public sector, in the framework of public-and private-sector capital resources. In the framework of the search for solutions in this respect, the Organization a new formula included under the concept of Public Private Partnerships (PPP). An important feature of public-private partnerships is to establish a long-term cooperation between the public and the private sectors, in order to carry out projects in the field of services of general interest, but it is important to preserve the principle of separate actors and to guarantee the conditions for the attainment of the objectives of these separate entities. A distinctive feature of such projects is therefore to seek solutions that will ensure the simultaneous achievement of the stated objectives and the objectives of private operators of a commercial nature.

Conformation of new forms of cooperation between the public sector and the private sector involves the transfer of instruments and forms of governance appropriate to private sector entities to the functioning of the public sector. These instruments must, however, be adapted to the specificities of the occurring phenomena. The concept of Lean management requires public cooperation with the private sector, which is defined as Public Private Partnerships (PPP), which have become a popular policy instrument in many Western European countries. GAMS increasingly refer to PPP as an important instrument to

[79] D. McKevitt, *Alan Lawton, Public Sector Management*, Theory, Critique and Practice, SAGE Publications, London 1994, pp. 54-55.

[80] J.P. Womack, Dan T. Jones, *Lean Thinking*, Free Press, New York 1996, pp. 20-23.

modernize public policy with the assumption of the involvement of private actors in the provision of services, or in the Sharma of policy goals, which will increase quality and give better value for money. Conformation of new forms of cooperation between the public sector and the private sector involves the transfer of instruments and forms of governance appropriate to private sector entities to the functioning of the public sector. These instruments must, however, be adapted to the specificities of the occurring phenomena. The concept of Lean management requires public cooperation with the private sector, which is defined as Public Private Partnerships (PPP), which has become a popular policy instrument in many Western European countries. GAMS increasingly refers to PPP as an important instrument to modernize public policy with the assumption involvement of private actors in the provision of services, or in the Sharma of policy goals, which will increase quality and give better value for money[81].

Under market economy conditions, the scope of the tasks of the participating entities in the process of public service obligations was subject to a clear change. In this field, as a result of the impact of factors on the nature of the market, there was a polarization of process solutions, management methods and removal of the traditional barriers between the public and private sector. The generalization of the idea of public-private partnerships could find fertile ground in particular at a local and regional level. They can be effectively implemented within the framework for action by international financial institutions, such as by the International Monetary Fund, the World Bank, the European Bank for Reconstruction and Development, as well as in the framework of the budget of the European Union, where the main instruments of support from the European Union, when it comes to participation in the activities of the public-private nature, the structural funds remain. One should assume that the modernization and expansion of the infrastructure of the countries of Central Europe will still be run by private companies over the long term. However, this requires a change in approach to the principles of mutual cooperation between the customer and the person liable to pay, and the contractor. It should therefore work towards increasing the participation of substantive public entities at the State and local government entities and companies planning new investments.

It should also be pointed out that the possibility of a wider use of the method of investment management should be used, known under the name of Project Finance (PF). This method gives one completely new possibilities for the realization of the investment in the public sector with the private sector.

[81] Ch. Pollit, S. von Thiel, V. Homburg, *New Public Management in Europe Adaptation and Alternatives*, Palgrave Macmillan, London 2007, p. 71.

According to the International Project Finance Association (IPFA) the definition of Project Finance means the financing of long-term infrastructure, industrial projects and public services based upon a non-recourse or limited recourse financial structure where project debt and equity used to finance the project are paid back from the cash flow generated by the project.

Following the management methods that can significantly affect the improvement of the functioning of the public sector is a smart organization, which is based on knowledge management and its basic assumptions are the guiding principles of rationality and logic and reengineering, including processes for the quick execution of tasks by giving up traditional structures based on the functional division of tasks, to process structures[82]. The aim of the concept is to obtain maximum efficiency, cost reduction and construction of new, service-oriented business processes of the organization.

At the turn of the 20th and 21st centuries, there has been a significant acceleration in the search for new, efficient methods of management, which, in the conditions of globalization, rapid integration processes in the world, as well as the development of new techniques and technologies necessitate rapid progress based on new factors of development. Therefore, in addition to traditional economic factors and to some extent increasingly important technical and technological factors such as creativity, invention, innovation and a wide range of activities which may refer to the outside of the investment factors of development. Such an approach creates a new reality of the affluent societies, where more and more attention to human capital is applied. This dimension has today become one of the main conditions for socio-economic development. Creativity and innovative behaviour are seen today as the dominant factor in development. This means that in the 21st century, linking the classical factors of development and innovative approaches to problems creates a completely new quality, which can bring significant benefits in relation to the traditionally perceived development of an extensive.

There is no doubt that cities have an important function in the socio-economic development, and their development brings benefits not only at the local level. Analysis of the process of managing in the public sector tends to formulate the conclusion that in the 21st century a new, functional model of cities has arisen. One of them is the development model recognized under the name "Smart City". Currently, the term is used in relation to a growing number of cities in the world, but the definition is not clear, there are no specific clear criteria of classification, Smart City for innovative cities. However, surely it can

[82] M. Hammer, J. Champy, *Reengineering the Corporation: A Manifesto for Business Revolution*, HarperCollins Publishers, New York 2009, pp. 34-36.

be concluded that one of the most important objectives in the framework of the concept, the Smart City is the modern, intelligent management of the city. This is about creating such conditions for the functioning of urban areas, where you can in a relatively short time significantly improve the quality of life of the inhabitants. Important mainstream considerations under the formula, the Smart City to increase the attractiveness of the functional areas and propose alternatives in relation to those seen in past deglomeracive processes, as a response to nuisance and lowering the quality of life in cities. The primary factor here is the management of public affairs in such a way as to bind together the urban development potential and to create a new profile of the city.

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Chapter 4

Creativity and innovation in modern cities. Example of the socio-economic development of the city of Vienna (description of case study)

Krzysztof Jarosiński, Grzegorz Maśloch

Introduction

The City of Vienna belongs to one of the most important cities not only in the European Union, but it also belongs to the group of the most attractive and very rapidly developing cities in the world.

Vienna, as compared to other cities in Europe or in the World, is not a large city, its area covers only 41,487 ha, however, it is an area with a relatively high standard of living of the inhabitants with its stable situation and it has already been observed for many years. This statement is confirmed by extensive research conducted by independent scientific-research institutes, research conducted by specialised ranking companies, as well as research carried out independently originating from the environment of public administration and universities and colleges.

Selecting the city of Vienna as an object of study was the result of a broader analysis carried out in relation to many cities in developed countries. The attempt to answer the question of what the city should look like in the twenty-first century, according to the criteria of evaluation used in the development of different rankings of cities, it is necessary to study the actual situation in the cities in different ranges. It is important to take into account the standard of living, the range of implementations of innovative technical solutions, technological, and the organisational management of natural resources,

especially energy, and environmental protection. The city of Vienna may be subject to further analysis and can be considered a model city, where a number of innovative solutions have been used.

Vienna is a city where the above-mentioned processes had already been taken at the end of the twentieth century, and will be continued in accordance with the planning documents in the XXI century. According to those documents, the work in this direction is consistently carried out and furthermore, the objectives of a strategic nature are gradually achieved. The city authorities placed special emphasis on the creativity of the residents and their innovative behaviour, which should lead to significant changes in both quantitative and qualitative terms. The city authorities have set themselves a difficult task of maintaining and improving the living conditions while reducing the consumption of natural resources.

4.1. Socio-economic characteristics

Vienna belongs to the group the cities all over the world with the greatest economic potential. Vienna is an East-West hub of international businesses location. Austria's capital is a leader in terms of conference tourism. It is the number one congress city in the world. Vienna is also the most innovative city in Europe, and offers the highest quality of life for its inhabitants. Vienna is promoting itself, it says, to become the broadband superstar of Europe. Vienna is among the top ten cities, with top marks for several internet criteria: connection speed, WIFI availability, innovation and open government data. Vienna is also the top location for international organisations. Over the last years it has been one of the four headquarter of the United Nations. It is the headquarters of other organizations such as the Organisation of Petrol Exporting Countries (OPEC), the Organisation for Security and Cooperation in Europe (OSCE), the International Atomic Agency (IAEA), and the United Nations Industrial Development Organization (UNIDO). It is also an important hub of international diplomacy. Vienna is a city which conserves natural resources and saves energy.

It can be stated that Vienna is quite a phenomenon when it comes to the city. The population of the city is relatively stable and reaches the level of approx. 1.8 million inhabitants within the administrative boundaries of the city[83]. Thus, we are dealing with a mid-size city, taking into account the categorisation of cities in the world. The following table 4.1 presents the most important geographic data of the city.

[83] Municipal Departments 28, 37, 41 of City Government. Vienna 2013.

Table 4.1. Geographic data of the city Vienna (2013)

Total area • Built-up area (2010) • Green space (2010) • Bodies of water (2010) • Roads, streets (2010)	41,487 ha 14,680 ha (35.4 %) 18,912 ha (45.6 %) 1,930 ha (4.6 %) 5,965 ha (14.4 %)
Length of city boundaries	136,5 km
Northernmost border point	Border point 60 in the cadastral district of Stammersdorf, located approx. 1,400 m north-west of „Rendezvous" inn (21st municipal district)
Easternmost border point	Border point 176 in the cadastral district of Kaiserebers– dorf-Herrschaft (22nd municipal district), approx. 700 m north of Gänsehaufen-Traverse
Westernmost border point	Westernmost corner of the wall around the Lainz Wildlife Preserve, approx. 1,000 m north-west of „Altes Dianator" gate (13th municipal district)
Southernmost border point	Approx. 370 m south-west of „Schutzengelkreuz" in the cadastral district of Unter-Laa (10th municipal district)
Longest street	Höhenstraße (17th and 19th districts) – 15.0 km
Shortest street	Irisgasse (1st district) – 17.5 m
Highest building	Donauturm tower in Donaupark (22nd district) – 252.0 m

Source: Prepared on the basis of: Municipal Departments 28, 37, 41 of City Government, Vienna 2013.

As mentioned above, the high standard of living of the inhabitants of Vienna is justified, since it is based on 39 specialised evaluation meters included in ten problem groups. The concept of assessing the level of life in cities was suggested, among others, by Mercer LLC based in New York, which for many years has been conducting research in this respect with regard to over 200 cities worldwide. At this point, it is worth mentioning the main evaluation indexes groups, constituting a basis for the construction of rankings of cities in the world from the point of view of the standard and quality of life. The following evaluation meter groups should be mentioned:

- "…political and social environment (political stability, crime, law enforcement, etc.),
- economic environment (currency exchange regulations, banking services, etc.),
- socio-cultural environment (censorship, limitations on personal freedom, etc.),
- health and sanitation (medical supplies and services, infectious diseases, sewage, waste disposal, air pollution, etc.),
- schools and education (standard and availability of international schools, etc.),

- public services and transportation (electricity, water, public transport, traffic congestion, etc.),
- recreation (restaurants, theatres, cinemas, sports and leisure, etc.),
- consumer goods (availability of food/daily consumption items, cars, etc.),
- housing (housing, household appliances, furniture, maintenance services, etc.),
- natural environment (climate, record of natural disasters)"[84].

According to the adopted methodology of cities classification, the table 4.2 presents a ranking of cities for 2011 and 2012 from the point of view of life quality in cities. As it may be observed, Vienna obtained the highest mark and is placed in first place on the list in 2011, in 2012 as well as in 2013 which can be observed in the materials to be published.

Table 4.2. Mercer Quality of Living Survey. Worldwide Rankings 2012

Rank		City	Country
2012	2011		
1	1	Vienna	Austria
2	2	Zurich	Switzerland
3	3	Auckland	New Zealand
4	4	Munich	Germany
5	5	Vancouver	Canada
6	5	Düsseldorf	Germany
7	7	Frankfurt	Germany
8	8	Geneva	Switzerland
9	9	Copenhagen	Denmark
10	9	Bern	Switzerland
10	11	Sydney	Australia
12	12	Amsterdam	Netherlands
13	13	Wellington	New Zealand
14	14	Ottawa	Canada
15	15	Toronto	Canada
16	17	Berlin	Germany
17	16	Hamburg	Germany
17	18	Melbourne	Australia
19	19	Luxembourg	Luxembourg
19	20	Stockholm	Sweden

Source: Prepared on the basis of: Quality of Living Worldwide City Rankings Survey, Mercer LLC 2012, New York 2013. http://www.mercer.com

[84] Quality of Living. City Survey, Mercer LLC, New York 2011, p. 3-12.

It is undoubtedly of enormous prestige for the city, although these type of rankings should be approached at some distance. It is obvious that comparing cities from various cultural areas, climatic areas, having various demographic and economic potentials may have some discrepancies. However, despite this comment Vienna obtaining high marks constitutes the basis for granting this city an attribute of exceptionality. Attention should also be paid to the fact that the high position of Vienna when it comes to life conditions has been recorded also in other rankings and evaluations that are run by various centres in the world.

It is worth noting a list prepared in 2013 by "the US-American Internet ranking platforms "list25.com". Vienna was ranked in first place among the 25 "Best Cities For Young People To Live In". Second place goes to New York, followed by Malta, Melbourne, Salvador, Dubai, Vancouver, Prague, Edinburgh, and Paris".[85] Vienna is top ranking because it has almost everything young people would probably be looking for in a city. Its history, culture, economy, environment, relationships between people living there are important as well as just the fact that it is the most liveable city in the world[86].

It should be emphasised that it is placed at the top of the list also in the next list entitled the "Green City Index". The European Green City Index measures the environmental performance of European cities. The methodology was developed by the Economist Intelligence Unit in cooperation with Siemens. The Index takes into consideration cities in eight categories – CO_2 emissions, energy, buildings, transport, water, waste and land management, air quality and environmental governance. It also takes 30 individual indexes. Sixteen of 30 indexes explain the quantitative data and aim at measuring the current performance of the city. The remaining 14 indexes constitute the qualitative measures of the cities[87]. In order to illustrate the relationships among particular cities included in the "Green City Index" the table 4.3. presents the results for 30 European cities. In the ranking Vienna holds a very high, fourth position when it comes to the criteria approved to prepare the list.

[85] The US-American internet ranking platform: www.list25.com.

[86] *Ibidem*.

[87] *European Green City Index, Assessing the environmental impact of Europe's major cities. A research project conducted by the Economist Intelligence Unit*, sponsored by Siemens, p. 36.

Table 4.3. Green City Index

Place	City	Score
1	Copenhagen	87.31
2	Stockholm	86.65
3	Oslo	83.98
4	Vienna	83.34
5	Amsterdam	83.03
6	Zurich	82.31
7	Helsinki	79.29
8	Berlin	79.01
9	Brussels	78.01
10	Paris	73.21
11	London	71.56
12	Madrid	67.08
13	Vilnius	62.77
14	Rome	62.58
15	Riga	59.57
16	Warsaw	59.04
17	Budapest	57.55
18	Lisbon	57.25
19	Ljubljana	56.39
20	Bratislava	56.09
21	Dublin	53.98
22	Athens	53.09
23	Tallinn	52.98
24	Prague	49.78
25	Istanbul	45.20
26	Zagreb	42.36
27	Belgrade	40.03
28	Bucharest	39.14
29	Sofia	36.85
30	Kiev	32.33

Source: *Prepared on the basis of: European Green City Index, Assessing the environmental impact of Europe's major cities. A research project conducted by the Economist Intelligence Unit*, sponsored by Siemens, p. 10, http://www.siemens.com/entry/cc/en/greencityindex.htm

It should be emphasised that in recent years extensive research is being conducted concerning cities, which makes it possible to prepare numerous rankings considering a substantial number of factors, which, as a result, enables quite a precise determination of the actual position of a given city when it comes to reliable information with regard to its socio-economic situation. These

rankings have featured Vienna for many years among the first of the first few places in these type of lists. It is not by error, but rather the adoption of a given development policy of the city at the end of the 20th century, with the assumption that the actual measurable effects of this policy would be visible in the 21st century. In 2014 it can be stated for sure that Vienna had met the previous conditions within the development nature, while the adopted strategic planning system and financing of the planned development projects result in the fact that the goals set in the new strategic document for development of the city (ESP) will be effectively implemented assuming more ambitious goals, construction of a smart city based on creative behaviours, wide implementation of innovations as well as the application of new management mechanisms at the level of local government. Therefore, it may be noted that the city of Vienna in spite of clear achievements will continue its "escape" ahead.

As with regards to the number of population, Vienna in recent years had a stabilised demographic situation and no significant changes were observed when it comes to the dynamics of change in the population situation. Since 2010 the situation has changed in the direction of population acceleration. It seems from source information as well as estimates presented by the representatives of respective organisational units in the Municipal Council of Vienna that the years to come are to bring faster growth in population (approx. 25 thousand or more)[88]. The current demographic situation in Vienna is presented in the table 4.4.

[88] The increased growth in the number of inhabitants in Vienna in relation to the situation observed in the past decade, may become, for the public government of the city, a difficult challenge, with the assumption that the previous standard of living will not decrease. In particular, attention should be paid to: the situation concerning housing, the situation on the labour market, maintaining access to social and technical infrastructure and ensuring the openness of the city in the demographic, cultural and economic as well as tourist dimension. This means the need to assign a new dimension to the policy of the city and the need to perform difficult and capital-absorbing investments, both in the sphere of social infrastructure and concerning economic infrastructure. As it appears from the source information, the city will face the need for undertaking new investment projects of restoration and development nature. However, it seems that the city authorities under the conducted financial policy will be able to collect from various sources a sufficient number of capital for financing the abovementioned projects. This task is seemingly easy, although it is commonly known that numerous endogenic and exogenic factors and their impact can lead to the need to conduct a restrictive financial policy.

Table 4.4. Population in Vienna 2012

Demographic information	total	men	wemen
Population*	1,741,246	836,116	905,130
Foreign citizens*	400,911	201,815	199,096
Residents with a migration background	602881	291,325	311,556
Natural change	1,861	2,110	-249
Live births	18,265	9,566	8,699
Deaths	16404	7,456	8,948
Net migrations	22,314	10,642	11,672
– Inflows	90,441	48,637	41,804
– Outflows	68,127	37,995	30,132
Naturalisation	2,491	1,132	1,359
– Persons born in Austria	771	382	385
– Person born abroad	1,720	746	974
Live expectancy at birth	797	771	824
Live expectancy at the age of 60 years	230	211	250

* Population at the beginning of the year 2013.

Source: Prepared on the basis of: Statistic Austria, calculation: Municipal Department 23 of City Government. Vienna 2013.

In order to recognise the demographic situation of Vienna, the special nature of this city, which was shaped in the remote 18th century times should be taken into account. As it appears from source materials, Vienna has always been an international city. Vienna held the concentration of the intellectual life of Europe of that time, therefore the city was the centre for the intellectual elite of contemporary Europe, regardless of the country of origin. This phenomenon was completely normal. After all it is commonly known that thoughts and ideas do not respect any boundaries or are subject to limitations of a political nature so easily. Vienna thus held a concentration of many intellectuals who found a fertile ground for intellectual development. Vienna was also the target for investors from many parts of Europe who perceived Vienna as an opportunity for development and indirectly they became one of the factors affecting the development of the city. The international position of Vienna in terms of population has its historical conditions, while the 21st century is a continuation of this process, which for the inhabitants of Vienna is a completely natural thing and of which they are proud. Therefore, Vienna cannot be considered a city strictly belonging to Austria. On the one hand, Vienna is the capital, the region as well as the district. However, the numerous impacts of minorities of an external origin allow the city to hold its international character. Data relating to the place of origin of residents from the EU states in Vienna are presented in the table 4.5.

Table 4.5. Residents of Vienna born in other EU member states other than Austria (as of 1. Jan. 2014)

Country of birth	Total	
	absolute	%
Belgium	900	0.41
Bulgaria	12,528	5.77
Croatia	9,894	4.55
Cyprus	163	0.08
Czech Republic	16,618	7.65
Denmark	511	0.24
Estonia	246	0.11
Finland	663	0.31
France	4,226	1.95
Germany	46,121	21.23
Greece	2,424	1.12
Hungary	19,193	8.84
Ireland	445	0.20
Italy	6,843	3.15
Latvia	490	0.23
Lithuania	546	0.25
Luxembourg	363	0.17
Malta	47	0.02
Netherlands	1,586	0.73
Poland	44,467	20.47
Portugal	865	0.40
Romania	25,663	11.81
Slovakia	12,785	5.89
Slovenia	2,081	0.96
Spain	2,666	1.23
Sweden	1,104	0.51
United Kingdom	3,794	1.75
Total	217,232	100.00

Source: Prepared on the basis of: Statistic Austria, calculation: Municipal Department 23 of City Government, Vienna 2013.

As results from the data contained in the table, Vienna is indeed a multinational city. Among the inhabitants of the European Union the greatest group in terms of population at the end of 2013 were Germans, (46,121, which constituted 21.2% of the total number of foreigners from the EU living in Vienna). The second as to the number group of inhabitants were Poles who in that same period amounted to 44 ,467 people which constituted 20.5% of all foreigners living in Vienna. It should also be pointed out that there was a significant number

of inhabitants originating from such countries as Romania, Bulgaria, the Czech Republic, Hungary as well as Slovakia, which amounted as of 31 December 2013 to 25,663; 12,528; 16,618; 19,193 and 12,785 respectively. In total, at the end of 2013 the number of foreigners from the EU living in Vienna was fixed at 217,232 people[89]. However, this number is incomplete, since it does not include foreigners living in Vienna coming from states outside the EU. It is necessary to pay attention to the newcomers from such countries as Turkey, Bosnia-Herzegovina, Serbia, Montenegro, Russia, Ukraine or Belarus and citizens from other states of the Balkan Peninsula as well as far-located states. Data relating to citizens from these states were not presented due to limited access to the source.

It is also worth remembering that within Vienna we are dealing with inhabitants of nationalities traditionally related to Austria whose citizens have inhabited Vienna for many decades, they already have their families as well as the status of citizens of Austria. In this aspect, ethnic research is practically impossible, although it is commonly known that people having the status of national minorities and at the same time the citizenship of Austria constitute a significant part in the structure of the population of Vienna. This means that both the foreigners living in Vienna, as well as the naturalised population living for generations in Vienna form a unique, specific structure of population, which clearly determines the cultural and economic aspect of the city. Data relating to the concerned issues in comparison to the selected cities and regions of the EU are presented in the table 4.6 and chart 4.1.

Table 4.6. Population in NUTS-2 regions at the beginning of the year, gender-disaggregated data

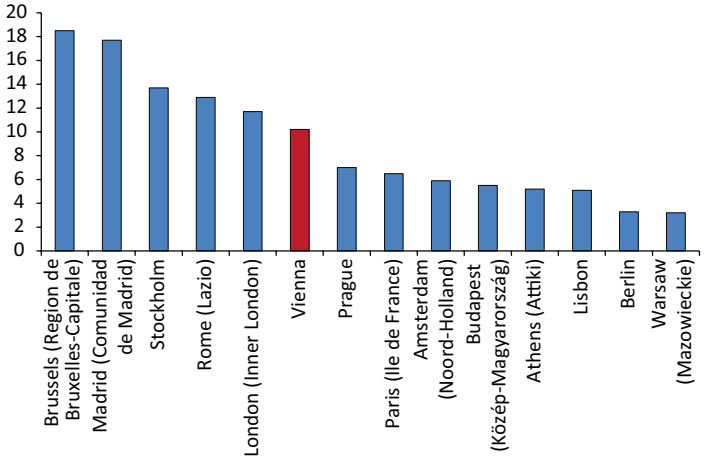
NUTS-2 region	1995			2012			Total population change in %
	Total	Men	Wemen	Total	Men	Wemen	
Attiki (Athens)	3,735,432	1,809,442	1,925,990	4,109,074	2,006,614	2,102,460	10.0
Berlin	3,472,009	1,668,648	1,803,361	3,501,872	1,717,645	1,784,227	0.9
Bratislavský kraj (Bratislava)	.	.	.	606,537	287,296	319,241	.
Bucureşti – Ilfov (Bucharest)	2,337,293	1,108,026	1,229,267	2,264,865	1,063,485	1,201,380	-3.1
Comunidad de Madrid	5,039,452	2,427,138	2,612,314	6,387,824	3,081,302	3,306,522	26.8
Helsinki-Uusimaa	1,293,573	617,424	676,149	1,549,058	750,126	798,932	19.8
Hovedstaden (Copenhagen)	.	.	.	1,714,589	838,935	875,654	.
Île de France (Paris)	10,858,975	5,261,307	5,597,668	11,914,812	5,751,960	6,162,852	9.7
Közép-Magyarország (Budapest)	2,907,113	1,357,148	1,549,966	2,985,089	1,396,949	1,588,140	2.7
Lazio (Rome)	5,154,261	2,489,905	2,664,356	5,774,954	2,778,452	2,996,502	12.0
Lisboa (Lisbon)	2,593,283	1,240,510	1,352,773	2,823,798	1,334,822	1,488,976	8.9
London (NUTS-1)	6,893,300	3,322,000	3,571,300	8,136,284	4,044,981	4,091,303	18.0

[89] Statistic Austria, calculation: Municipal Department 23 of City Government, Vienna 2013.

Mazowieckie (Warsaw)	5,056,847	2,438,615	2,618,232	5,285,604	2,529,656	2,755,948	4.5
Noord-Holland (Amsterdam)	2,463,611	1,210,217	1,253,394	2,709,822	1,333,811	1,376,011	10.0
Praha (Prague)	1,214,584	572,385	642,199	1,241,664	602,987	638,677	2.2
Région de Bruxelles-Capitale (Brussels)	951,580	451,572	500,008	1,159,448	567,308	592,140	21.8
Stockholm	1,708,502	831,251	877,251	2,091,473	1,036,083	1,055,390	22.4
Vienna	1,542,667	717,748	824,919	1,731,236	830,937	900,299	12.2
Yugozapaden (Sofia)	2,165,613	1,053,271	1,112,342	2,131,233	1,027,472	1,103,761	-1.6

Source: Prepared on the basis of: Statistic Austria, calculation: Municipal Department 23 of City Government. Vienna 2013.

Chart 4.1. Population development 2002-2012 in %



Source: Prepared on the basis of: Vienna in Figure 2014, Statistical analyses on the City of Vienna, Vienna 2014, p. 9.

Vienna has a huge potential regarding higher education. Higher education is commonly considered the natural base of scientific development, educating highly specialised staff and it constitutes an important starting point for any activities of a creative and innovative nature. Colleges create their potential through the scientific-teaching staff development as well as by the recruitment of students, education and promotion. In the academic year 2011/12 181,678 students studied in total at Vienna's universities and colleges. This number includes 162,323 people studying in the so-called full-time programme. The largest number of students in in the academic year 2011/12 were educated at the University of Vienna (in total 87,986 people). In addition, 25,828 people studied at the Technical University and 24,053 were students studying at the

University of Economics. It is worth noting the private colleges. This form of education is not particularly popular in Vienna. In total, in in the academic year 2011/12, 2,017 people studied at private colleges[90].

It is worth emphasising the fact that the dominant form of education in Vienna is free education at public colleges. Public colleges in Vienna, as in entire Austria, are open. This means that the right to receive education and study at public colleges is granted to students from all over the world. On the basis of the data concerning students studying in Vienna, coming from the member states of the EU, it should be pointed out that the total number of students in 2013 amounted to 25,957 students, which meant that among all the students almost 15% (14.7%), were students coming from the member states of the EU. The largest group were students from Germany. In in the academic year 2011/12, 13,771 students from Germany studied at public colleges, which was 53.1% of all students coming from the member states of the EU. The second group were students from Italy, 2,304 people, while the third in terms of number group were students from Bulgaria – 1,477 and then from Slovakia and Poland (1,349 and 1,304 respectively). The data relating to the number of students in Vienna in the academic year 2011/12 are presented in the table 4.7.

Table 4.7. Number of students in Vienna in the academic year 2011/12

Universities/Colleges	total	men	wemen
Total	181,678	83,673	98,005
Universities of applied sciences*	11,554	6,725	4,829
Teacher training colleges*	4,984	1,144	3,840
Public universities**	162,323	74,695	87,628
• among them the University of Vienna	87,986	31,707	56,279
• among them theVienna University of Technology	25,828	18,977	6,851
Among them the Vienna University of Economics and Business	24,053	12,494	11,559
Private universities	2,817	1,109	1,708

* Not included further training courses.

** Regular students.

Source: Prepared on the basis of: Statistic Austria, calculation: Municipal Department 23 of City Government. Vienna 2013.

Vienna constitutes an important tourist destination. Owing to the tremendous cultural and historical values and its multi-nationality, the city is visited by a large number of tourists. And so, in 2012, in accordance with the information of the

[90] Statistic Austria, calculation: Municipal Department 23 of City Government. Vienna 2013.

Statistical Office of Austria in Vienna 12,262,828 nights' accommodation were recorded, of which 2,240,750 nights' accommodation for tourists from Austria, while for tourists from abroad 10 022 078 nights' accommodation[91]. It should be borne in mind that Austria, apart from many competitive advantages having their basis in economic potential, belongs to the group of countries eagerly visited by tourists. The goal of tourist trips are thus cities and regions located in the western, mountainous part of the country where ski tourism has been evolving for many decades. In spite of what is indicated by the numbers, Vienna is a particularly important tourist destination. It is worth pointing out that the general number of accommodations in Vienna in 2012 was more than 7-times higher than the number of inhabitants of Vienna. It should be borne in mind that tourism constitutes an important factor of the development of the city and for this reason tremendous financial outlays are made related to the maintenance of the tourist attractiveness of the city and the adjustment of the infrastructure to the needs of people visiting the city[92].

Detailed numeric data describing the tourist traffic in Vienna as compared to other capitals of the regions are presented in the table 4.8.

Table 4.8. Tourist traffic in Vienna as compared to other capitals of the regions in 2012

Provincial capital	Tourist overnight stays		
	total	from Austria	from abroad
Vienna	12,262,828	2,240,750	10,022,078
Salzburg	2,486,516	689,473	1,797,043
Innsbruck	1,441,026	372,766	1,068,260
Graz	943,817	444,501	499,316
Linz	793,315	383,925	409,390
Klagenfurt	391,091	199,934	191,157
Bregenz	314,583	104,031	210,552
St. Polten	154,840	100,250	54,590
Eisenstaedt	51,845	28,593	23,252

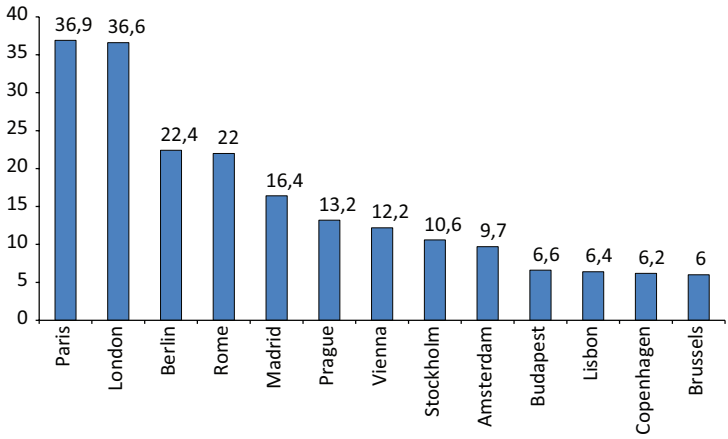
Source: Prepared on the basis of: Statistic Austria, calculation: Municipal Department 23 of City Government. Vienna 2013.

An additional illustration in the scope of development of incoming tourism to Vienna may constitute a comparison of major European cities. The Chart 4.2. presents the general number of accommodation in selected European cities.

91 Statistic Austria, calculation: Municipal Department 23 of City Government. Vienna 2013.

92 *Ibidem*.

Chart 4.2 . General number of accommodation in selected European cities in 2011 (in mln)



Source: Prepared on the basis of: Statistic Austria, calculation: Municipal Department 23 of City Government. Vienna 2013.

As with regards to the labor market, the situation in this respect is not too good in Vienna. In 2012, registered unemployment amounted to 9.5%, when at the same time unemployment rates by sex, age and NUTS 2 regions in Vienna amounted to 7.9%[93]. The data related to the labour market in Vienna are presented in the table 4.9.

Table 4.9. Labour market 2012

Employment and unemployment	total	men	women
Employment with compulsory insurance	963,141	492,859	470,282
Gainful employment	870,055	434,749	435,306
Gainful employment, standard forms	786,384	399,182	387,202
among them freelance service contract	9,349	4,685	4,664
Min. Employment and minimal freelance service contracts	83,671	35,567	48,104
Employees in minimal employment	72,791	31,302	41,489
Minimal freelance service contracts	10,880	4,265	6,615
Self-employment	93,086	58,110	34,976
Persons registered as unemployed	83,016	49,022	33,994
Unemployment rate (registered rate) in %	9.5	10.9	8.1
Unemployment rate (EU rate) in %	7.9	8.7	7.0

Source: Prepared on the basis of: Statistic Austria, calculation: Municipal Department 23 of City Government. Vienna 2013.

[93] Unemployment rates by sex, age and NUTS 2 regions (%),http://appsso.eurostat.ec.europa.eu.

4.2. Finances of the city of Vienna

A particularly important issue in cities that began the implementation of efficiency-oriented development programmes based on knowledge is, as already mentioned, ensuring a stable source of financing over a long-term perspective. The city of Vienna has a relatively complex administrative structure, consisting in the fact that it performs a strictly municipal function as a local government unit as well as towards performing regional functions. Vienna is thus, within its administrative boundaries, a district and a region. Holding these two functions it has thus, accordingly, larger capital resource. Another matter would be the fact of being the capital city of Vienna where, owing to the performed functions, the city was incorporated into the financing system of tasks within the state budget.

In 2013 the budget of Vienna amounted to over 12 billion Euro. The main streams of budget incomes are inflows under participation in the state budget income (43.0%). It should be assumed that this is a fairly high level of indirect budget supply. However, it should be remembered that this amount comprises financial flows directed from the state budget for the benefit of the city and region budget. It was associated with the need to provide the financing of tasks of a local (municipal) nature as well as tasks of a regional nature. The second largest stream of income were the city's own taxes (10.5%). It is also worth noting the income of the municipal companies (6.6%), as well as the co-financing of educational tasks (6.2%). The structure of Vienna's income includes a relatively large share of income in the category of other income (13.6%)[94]. Vienna's income is presented in the tables 4.10 and 4.11.

Table 4.10. Vienna's income and expenses

Specification	The draft budget 2013 (EUR)	Execution 2013 (EUR)
Incomes	11,851,430000	12,471,102,575.57
Expenses	12,220,278,000	12,471,102,575.57
Difference	-368,848,000	0.00

Source: Prepared on the basis of: Rechnungsabschluss der Bundeshauptstadt Wien für das Jahr 2013, Wien 2014 r., p. V.

[94] Rechnungsabschluss der Bundeshauptstadt Wien für das Jahr 2013, Wien 2014 r., p. VIII.

Table 4.11. Vienna's revenue 2013: The draft budget and execution

Specification	The draft budget 2013		Execution 2013	
	EUR	%	EUR	%
Own taxes	1,329,804,000	11.2	1,303,484,791.94	10.5
Shares in state taxes	5,346,710,000	45.1	5,371,212,946.00	43.0
Fees	433,016,000	3.7	443,530,286.45	3.6
Fees for services	647,406,000	5.5	661,841,697.59	5.3
Deposit of Wiener Stadtwerke	677,937,000	5.7	692,363,977.52	5.6
Education subsidy	716,739,000	6.0	772,328,993.86	6.2
Current deposits of municipal enterprises	808,797,000	6.8	825,158,600.56	6.6
Capital inflows of municipal enterprises	126,822,000	1.1	133,490,273.91	1.1
External revenue	228,713,000	1.9	541,334,935.75	4.3
Internal Loans	34,200,000	0.3	26,637,299.21	0.2
Other income	1,501,286,000	12.7	1,699,718,772.78	13.6
Sum	11,851,430,000	100.0	12,471,102,575.57	100.0

Source: Prepared on the basis of: Rechnungsabschluss der Bundeshauptstadt Wien für das Jahr 2013, Wien 2014 r., p. VIII.

With regard to expenses, it is worth paying attention to the relatively high investment rate (14.3%). Investment expenses in the city were characterised by a relatively high level. For a long time the city has performed complex investment projects, especially in the sphere of infrastructure, whose implementation requires a long-term financing system. Continued projects and costs arising from the strategic plan for the development of the city (SEP), projects to be undertaken in the future will result in the fact that the relatively high investment rate will also be continued in the years to come. Investment rate in connection with current expenses performed within the budget give as a result a complete image of the financial economy. It is also worth remembering that some part of the budget funds has been directed to debt service, i.e. EUR 308,253,918.26, which was 2.5% of total budget expenses. Public debt service and the problem of managing the debt does not constitute a greater threat to the city. As it appears from the source information, the city has very good creditworthiness and plans in the future to use funds of a return nature as one of the source for investment financing. Such a scenario of financing investment projects in the future under the conditions of the presence of public debt is relatively safe due to the low interest rate of credits. The city is also considering making use of the return funds under international financial institutions, especially from the European Investment Bank. Owing to the high level of economic development, Vienna has limited possibilities of access to financial means under the EU

structural funds and the Cohesion Fund. Larger possibilities in this respect belong to other, poorer regions of Austria.

Table 4.12. Expenses of Vienna in 2013: project and execution

Specification	Project 2013		Execution 2013	
	EUR	%	EUR	%
Employee benefits:				
– Municipal Office	1,505,526,000	12.3	1,505,526,000	12.3
– Teachers	585,824,000	4.8	585,824,000	4.8
• Wiener Stadtwerke	493,154,000	4.0	493,154,000	4.0
Social insurance:				
• Municipal Office	757,256,000	6.2	757,256,000	6.2
• Teachers	201,647,000	1.7	201,647,000	1.7
– Wiener Stadtwerke	319,580,000	2.6	319,580,000	2.6
Administrative and current expenses	1,464,831,000	12.0	1,464,831,000	12.0
Current transfers	4,811,302,000	39.4	4,811,302,000	39.4
Debt service	321,407,000	2.6	321,407,000	2.6
Investments, loans for investments, capital transfers, securities and shares	1,719,756,000	14.1	1,719,756,000	14.1
Other outflows	39,995,000	0.3	39,995,000	0.3
Total	12,220,278,000	100.0	12,220,278,000	100.0

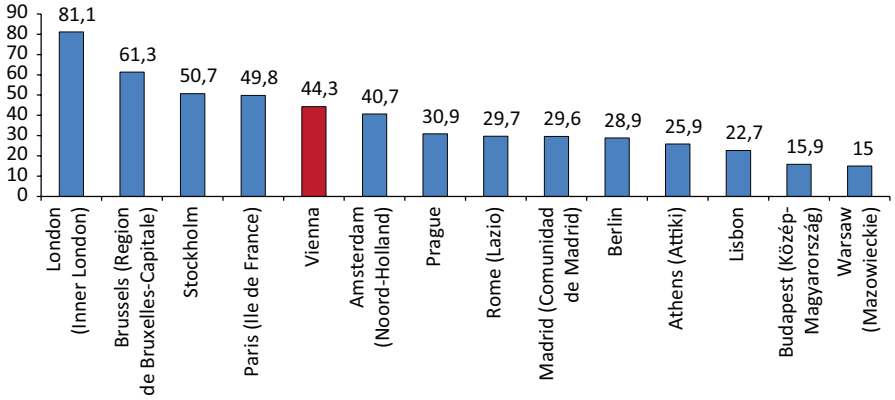
Source: Prepared on the basis of: Rechnungsabschluss der Bundeshauptstadt Wien für das Jahr 2013, Wien 2014.

4.3. Vienna as compared to other EU cities[95]

It is worth noting the economic situation of Vienna from the point of view of Gross Regional Products per capita in 2010 as compared to European cities. Vienna in such a comparison came sixth with the value of EUR 44.3 thousand per capita. The high index level characterised cities with specialised economic, administrative and political functions (London and Brussels). A higher index level than in Vienna, was also recorded in Copenhagen and Stockholm, namely in cities traditionally characterised by the higher costs of products and services. A higher level was also recorded in Paris. The place of Vienna in this ranking should be considered as exceptionally good, considering the fact that Vienna is a relatively small city and performing its defined functions that have not changed for years. The data concerning Gross Regional Product per capita 2010 in EUR 1,000 in the selected cities of Europe are presented in the chart 4.3.

[95] See: Wien in Europa. Europa in Wien. Europabericht der Stadt Wien 2013, Stadt Wien, Wien 2013. p. 13.

Chart 4.3. Gross Regional Product per capita 2010 in 1.000 EUR



Source: Prepared on the basis of: Vienna in Figure 2014, Statistical analyses on the City of Vienna, Vienna 2014, p. 13.

It is also worth paying attention to the simultaneously conducted research by scientific-research institutes and specialised consulting companies and the research of their findings of the condition of cities in the world. At this point a ranking prepared under the research of the Global City Index (GCI) would be unnecessary[96]. It is illustrated by comprehensive figure of 84 cities all over the world, measuring globally across 26 metrics in five dimensions: business activity, human capital, information exchange, cultural experience and political engagement[97].

According to the results obtained under the list of the GCI findings the situation of European cities as compared to a group of cities from around the world looks slightly different. Detailed findings and the ranking of cities are presented in the table 4.13. A set of indexes adopted for analysis has significantly emphasised the position of big cities. In the ranking, Vienna in 2014 was in 16th position. However, this does not mean a relatively worse situation of the inhabitants of Vienna in relation to cities holding higher positions. Basically the position of Vienna in the above ranking depended on the selection of measures and evaluation indexes comprising the final GCI result. Undoubtedly, the system of cities in the presented ranking was heavily influenced by two groups of

[96] The Global Cities Index provides a comprehensive ranking of the leading global cities from around the world and includes the companion Emerging Cities Outlook (ECO), which measures the potential of cities located in middle and high-income countries to become even more global. See more at: http://www.atkearney.com/research-studies/global-cities-index#sthash.37V32Rn7.dpuf.

[97] *Ibidem*.

factors: business activity and human capital. In this group of measures some of the largest cities in the world were in top position due to their large economic and demographic potential. Establishing impartial rankings for cities is determined by many factors of an individual nature. It is therefore difficult to clearly assess the real position of cities. The position in particular rankings can thus, to a limited extent, be subject to some changes. However, regardless of this, Vienna was in the past and is still at the top.

Table 4.13. Global City Index (GCI) years 2008, 2010, 2012 and 2014

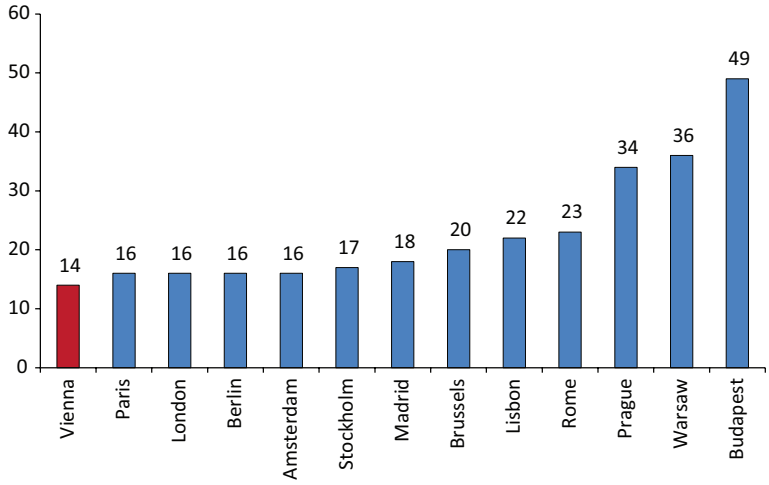
Specification	2014	2012	2010	2008
New York	1	1	1	1
London	2	2	2	2
Paris	3	3	4	3
Tokyo	4	4	3	4
Hong Kong	5	5	5	5
Los Angeles	6	6	7	6
Chicago	7	7	6	8
Beijing	8	14	15	12
Singapore	9	11	8	7
Washington	10	10	13	11
Brussels	11	9	11	13
Seoul	12	8	10	9
Toronto	13	16	14	10
Sydney	14	12	9	16
Madrid	15	18	17	14
Vienna	16	13	18	18
Moscow	17	19	25	19
Shanghai	18	21	21	20
Berlin	19	20	16	17
Buenos Aires	20	22	22	33

Source: Prepared on the basis of: A.T. Kearney. Global Cities Index and Emerging Cities Outlook, http://www.atkearney.com/documents/10192/4461492/Global+Cities+Present+and+Future-GCI+2014.pdf/3628fd7d-70be-41bf-99d6-4c8eaf984cd5

An interesting supplement to the aforementioned rankings may be the so-called Big Mac-Index. Its structure and cognitive value is relatively simple and easy. This index informs how much work should be devoted on average in particular cities to buy a commonly known Big Mac. This measure has its great cognitive value, since Big Mac is a standardised chain product and it basically does not vary in its form in different places. The Big Mac Index illustrates the

purchasing power calculated by working time. The chart 4.4. presents the results of the discussed index for selected European cities. In the ranking Vienna in 2012 occupied the first place, where the average time of work necessary to buy a sandwich was 14 minutes.

Chart 4.4. Big Mac-Index 2012 in minutes



Source: Prepared on the basis of: Vienna in Figure 2014, Statistical analyses on the City of Vienna, Vienna 2014, p. 14.

It is also worth mentioning the research findings by the Innovation Cities Global Index. From the methodological point of view the Index presents the position of a city, which was determined based on the basic factors of health, wealth, population, geography as well as potential relative to peers. The final 450 cities had data extracted from the city benchmarking. The Index refers to 162 indexes. Each of the benchmarking data was scored by analysts using the best available qualitative analysis and quantitative statistics.[98] According to the research findings included below, in 2013, the position of Vienna was presented in two specifications. The first one is a global specification, so the position of Vienna was presented on the background of all cities worldwide included in the research and finally presented in the so-called list of the 100 highest classified cities (see table no. 4.14 and chart no. 4.5). The second specification refers to European cities. It is also worth remembering that the two specifications used the same methodology. Among all the cities worldwide included in the ranking

[98] http://www.innovation-cities.com/innovation-cities-top-100-index-2012-city-rankings/7235

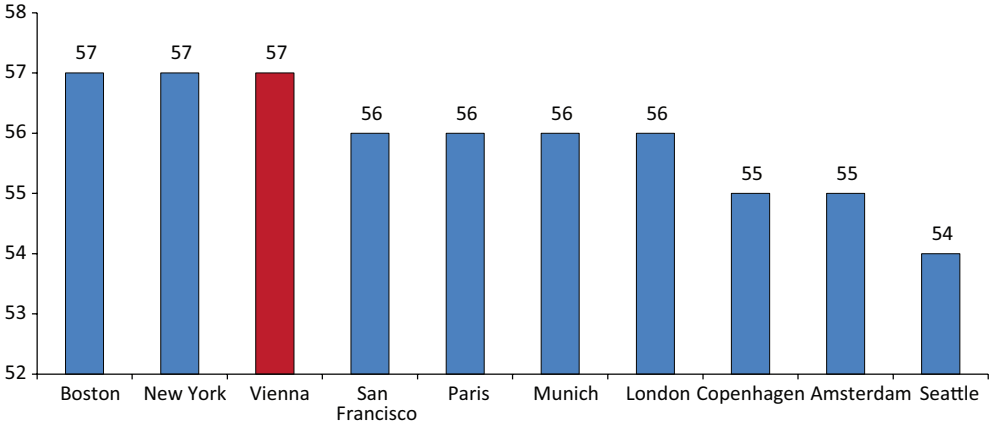
Vienna was classified in 3rd position, right after Boston and New York. In the European ranking, Vienna occupied the first place.

Table 4.14. Innovation Cities Top 100 Index 2012-2013: City Rankings

Rank	City	Country	Index Score
1	Boston	United States	57
1	New York	United States	57
3	Vienna	Austria	57
4	San Francisco Bay Area	United States	56
5	Paris	France	56
6	Munich	Germany	56
7	London	United Kingdom	56
8	Copenhagen	Denmark	55
9	Amsterdam	Netherlands	55
10	Seattle	United States	54

Source: Prepared on the basis of: http://www.innovation-cities.com/innovation-cities-top-100-index-2012-city-rankings/7235.

Chart 4.5. Ranking of Innovation Cities according to Innovation Cities Top 100 Index 2012-2013.



Source: Prepared on the basis of: http://www.innovation-cities.com/innovation-cities-top-100-index-2012-city-rankings/7235

A great asset of Vienna and its high position recorded in the above rankings as well as the high position when it comes to the evaluation of inhabitants is the attained level of the technical and social infrastructure development. The high level of services in connection with the conducted tariff policy (prices for

services policy) is the result of a conscientious and consistent policy with regard to infrastructure development and continuous care for ensuring suitable financial measures directed at the current provision of services and funds for financing new investment projects. Despite the high level of infrastructure within Vienna, still a long-term investment policy is conducted which aims at the improvement in the availability of services and their quality. It can, therefore, be concluded that Vienna in order to maintain its high position has become a city in continuous development. This paradigm of development is a good pattern to be followed, where tradition meets modernity based on the stimulation of creative behaviours in any possible field and the implementation of a wide range of innovative solutions. Bearing in mind the cities of the 21st century, Vienna has become a model city where, through its complexity, it has been possible to develop directions for development in line with the expectations and challenges of modernity.

Public utility companies in Vienna, although dealing in operations known and specified in enumerative ways, are organisational units which pay particular attention to processes related to creative thinking and the generation of innovative solutions and improvement in management methods in the operational perspective, short-term, as well as in the strategic – long-term perspective. Among all the public utility companies and organisational units involved in the provision of public services, attention should be paid to: waste management linked to the power use of waste, the city transport system, being an intelligent link of the operating, diverse subsystems, as well as the public health service based on innovative solutions for the provision of services in Vienna, as well as in a broader national aspect. The three abovementioned scopes of operations of the public authorities of the city, due to the solutions used, are presented further in the book in the form of a case-study. It is also worth indicating housing[99] and the whole water and sewage management, or policy and social services. Owing to the limited volume of the book, these aspects of the city operation cannot be discussed in more detail.

Bearing in mind the development potential evaluation of settlement units, the general socio-economic situation should be taken into account, including the real economy sector as well as the activity of the public sector. From this point of view, a good cognitive material is the test of macroeconomic measures and measures typical of the situation of the public sector in the regional and local perspective. For these reasons, the submitted study contains an analysis and assessment of gross domestic product per capita in selected EU cities as well as the situation concerning the purchasing power measured by means of

[99] See: *Housing in Vienna. Innovative, Social and Ecological*, Wohnservice Wien, Vienna 2008, pp. 5-25.

the Purchasing Power Standard index. The analysis of the above measures may constitute a good starting point to evaluate the development potential in terms of the implementation of guidelines contained in the strategy "Europe 2020". Table 4.15 presents research findings of gross domestic product per capita and changes in 2004-2011 in selected cities of the European Union.

Table 4.15. Gross Domestic Product per capita in EURO in selected cities in Europe (current prices)

Specification	2004	2005	2006	2007	2008	2009	2010	2011
EU	21,600	22,400	23,600	24,900	25,000	23,400	24,400	25,100
Berlin	23,900	24,400	25,400	26,600	27,800	27,900	28,700	29,300
Budapest	16,800	18,600	19,400	21,300	23,000	20,600	21,100	21,800
Bucharest	6,100	8,900	10,500	13,900	16,900	13,500	14,500	16,500
Hamburg	48,400	49,100	49,700	50,900	52,200	49,800	51,700	52,500
Copenhagen	50,700	54,400	55,100	57,700	57,400	55,900	62,200	61,500
Cracow	8,200	9,800	11,400	12,800	14,600	12,400	14,000	14,600
Madrid	25,800	27,300	29,100	30,500	30,900	30,200	29,500	29,600
Manchester	27,000	27,600	29,200	30,400	25,800	23,100	24,600	24,200
Munich	54,300	54,100	55,300	57,700	55,500	54,600	56,600	58,900
Paris	72,200	75,000	75,900	77,000	81,800	78,500	82,600	85,100
Prague	18,800	21,500	24,200	27,400	32,000	28,900	30,500	31,200
Stockholm	44,600	45,900	47,700	50,500	49,300	44,800	50,700	56,200
Warsaw	15,200	18,800	21,300	24,600	28,300	24,800	28,300	29,100
Vienna	38,100	39,500	41,400	42,900	44,000	43,000	44,300	45,600
Wroclaw	7,500	8,900	10,200	11,900	14,400	12,600	14,200	14,700

Source: Prepared on the basis of: http://epp.eurostat.ec.europa.eu, 2014.

It is worth noting that in the discussed period gross domestic product per capita in the European Union increased by EUR 3 500, which meant an increase by 16.2%. At the same time, significant differences were recorded in selected cities in the development when it comes to the height of this index. The highest dynamics of the index was recorded in Bucharest, where GDP per capita increased by 170.5%. Significant increase, though not so high, was also recorded in the cities in Poland. Consideration must be given to Wroclaw, Warsaw and Cracow where changes in the index amounted to 96.0%; 91.4% and 78.0% respectively. In addition, relatively high dynamics of the index were also observed in Prague (66.0%). In the remaining cities covered by the research, in accordance with the data included in table 1, the dynamics of changes of the index was at a much lower level. For instance, in Hamburg and Munich an increase was recorded of 8.5%, in Madrid of 14.7%, and in Paris of 17.9%. At the

same time, in Manchester a decrease was recorded in GDP per capita by as much as EUR 2 800, which corresponded to reduction of 10.4%[100].

Faster growth in the GDP index per capita in cities with a relatively lower initial level should be considered a very positive phenomenon. These changes prove a clear acceleration on the development pace of these cities after the expansion of the European Union in 2004. Faster dynamics in the GDP growth may be regarded a general truth in the regions with a lower level of economic development calculated by the value of the index in the base year. However, taking into account the absolute value level of the GDP index per capita in the group of surveyed cities in the discussed period an increase was recorded in the range between the values in cities relatively wealthier as compared to the group of cities from states that accessed the European Union since 2004. For instance, in cities where the aforementioned dynamics was shaped at a relatively low level in the group of surveyed cities (Copenhagen, Stockholm, Vienna), absolute increase in the value of the index was EUR 10,800, 11,600 and 7,500 respectively per capita. It is worth noting the position of Warsaw, where the absolute value of the index increased by EUR 13,900.

Attention should also be paid to changes in the relation of the average value of the GDP index per capita for the European Union and the value of indexes in the analysed cities. Research findings in this respect are presented in table no. 4.16. A graphic illustration was also presented in chart no. 4.6, but for better legibility of the chart, findings are presented for the selected nine cities. As it appears from the graphic illustration, in the group of surveyed cities, maintenance of specified regularities can be clearly observed. Firstly, in relatively wealthy cities characterised by a relatively high GDP index per capita, we are dealing with a relatively stable and increasing situation. Although in a relative perspective increases in index value in the discussed period were not significant, however, taking into account the index level in the base period, as has already been mentioned, often increase in the value was observed significantly exceeding the average measure for the European Union appropriate for particular periods of the research in 2004-2011. Secondly, in part of the surveyed cities within new member states that joined the European Union in 2004 and later, high dynamics of growth in the index were observed, however, at a relatively low initial level in 2004, which in fact meant in comparison to rich cities smaller increases in the absolute perspective. However this model did not include some cities covered by the research as e.g. Warsaw, where both the level of the index and the pace of its changes were characterised by relatively high values. Thirdly, the emergence of a phenomenon of regressive nature was observed in terms of

[100] http://epp.eurostat.ec.europa.eu, 2014.

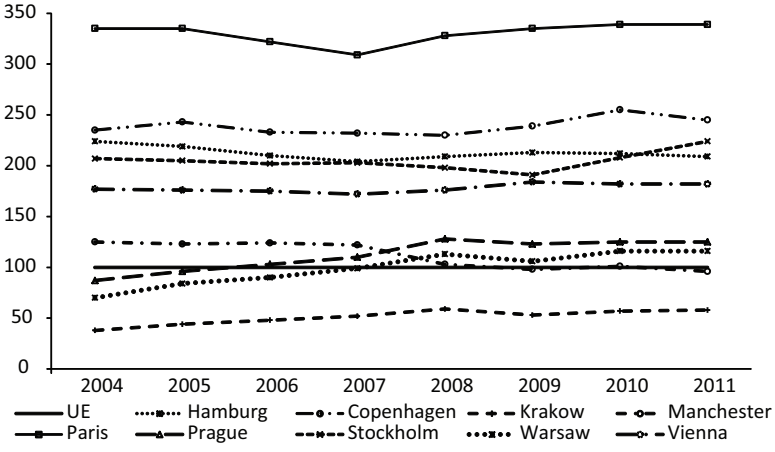
the GDP index. Such a city in the studied group is Manchester. The city is an example of economic and social changes taking place in Europe. As a typical industrial city with the dominant importance of mining and heavy industry, currently it requires far reaching changes of a restructuring nature towards an innovative knowledge-based economy and modern technologies.

Table 4.16. Gross Domestic Product per capita as compared to the average values of Gross Domestic Product per capita in the European Union 2004-2011 (current prices, EU as 100.0%)

Specification	2004	2005	2006	2007	2008	2009	2010	2011
EU	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Berlin	111.0	109.0	108.0	107.0	111.0	119.0	118.0	117.0
Budapest	78.0	83.0	82.0	86.0	92.0	88.0	87.0	87.0
Bucharest	28.0	40.0	45.0	56.0	68.0	58.0	59.0	66.0
Hamburg	224.0	219.0	210.0	204.0	209.0	213.0	212.0	209.0
Copenhagen	235.0	243.0	233.0	232.0	230.0	239.0	255.0	245.0
Cracow	38.0	44.0	48.0	52.0	59.0	53.0	57.0	58.0
Madrid	120.0	122.0	123.0	122.0	124.0	129.0	121.0	118.0
Manchester	125.0	123.0	124.0	122.0	103.0	98.0	101.0	96.0
Munich	252.0	241.0	234.0	231.0	222.0	233.0	232.0	235.0
Paris	335.0	335.0	322.0	309.0	328.0	335.0	339.0	339.0
Prague	87.0	96.0	103.0	110.0	128.0	123.0	125.0	125.0
Stockholm	207.0	205.0	202.0	203.0	198.0	191.0	208.0	224.0
Warsaw	70.0	84.0	90.0	99.0	113.0	106.0	116.0	116.0
Vienna	177.0	176.0	175.0	172.0	176.0	184.0	182.0	182.0
Wroclaw	35.0	40.0	43.0	48.0	58.0	54.0	58.0	58.0

Source: Prepared on the basis of: http://epp.eurostat.ec.europa.eu, 2014.

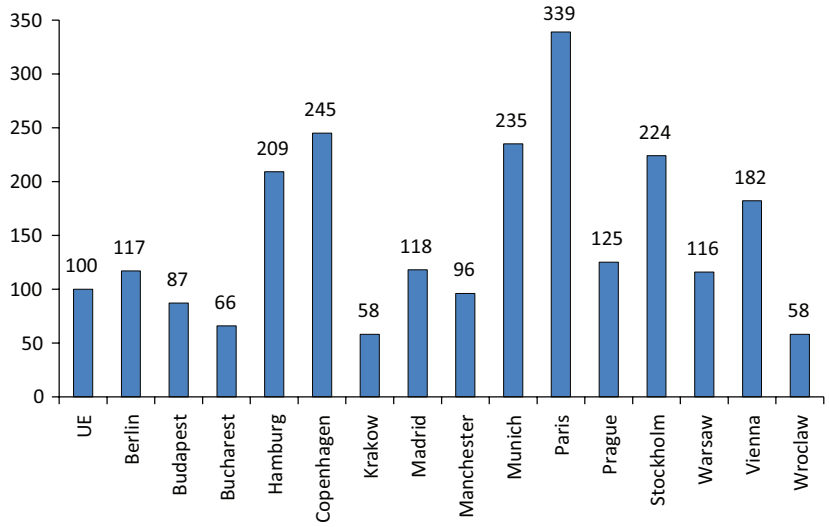
Chart 4.6. Gross Domestic Product per capita as compared to the average values of Gross Domestic Product per capita in the European Union 2004-2011 (current prices, EU as 100.0%)



Source: Prepared on the basis of: http://epp.eurostat.ec.europa.eu, 2014.

An additional illustration of the processes taking place are illustrated in chart 4.7. It presents the relation of GDP value per capita in cities covered by the study to the average GDP index per capita throughout the European Union. Differences in this respect in the regional perspective are well recognised and constitute, as was mentioned, support allocation conditions as part of the cohesion policy of the European Union. With regards to the comparison of municipal centres these differences are definitely higher, especially when it comes to the richest cities and on the other hand the poorest. For instance with regard to funds of the European Regional Development Fund one of the support criteria is GDP index per capita in the country as compared to the average for the whole European Union whose value cannot exceed 75%[101]. The scope of the index level for cities covered by the research is relatively high. It is worth indicating cities, where the level of the discussed index is very high (e.g. Paris or Copenhagen), while on the other hand we are dealing with cities, where the index level slightly exceeds the level of 50% of the average of the European Union. The group of these cities includes, among others, Wroclaw, Cracow or Bucharest.

Chart 4.7. Gross Domestic Product per capita as compared to the average values of Gross Domestic Product per capita in the European Union in 2011 (current prices, as 100.0%)



Source: Prepared on the basis of: http://epp.eurostat.ec.europa.eu, 2014 r.

[101] Regulation of the European Parliament and the European Council (EU) No. 1301/2013 of 17 December 2013 on the European Regional Development Fund and specific regulations concerning the goal "Investments for growth and employment" and on repealing the Regulation (EC) no. 1080/2006, Article 4 paragraph 1.

Analysing the gross domestic product expressed in the standard of purchasing power it should be stated that there were clear differences in the group of surveyed cities. The average value of the PPS index for the whole European Union in 2004-2011 increased by EUR 3,500, i.e. 16.2%. The situation of cities when it comes to the GDP index level per capita expressed in the purchasing power standard differs quite substantially from the situation expressed by the clear GDP index calculated per capita in particular cities.

When it comes to cities traditionally regarded as rich, where the GDP index for a number of years is maintained on a relatively high level in the group of cities covered by the research, GDP indexes in the standard of purchasing power were lower than the GDP indexes per capita in the pure form. For instance, in Hamburg the index was lower by EUR 1,800 per capita, in Munich by EUR 2,000 per capita and in Vienna by EUR 4,300 per capita. Detailed data in this respect are presented in table 4.17 and 4.18 and illustrated in chart 4.8. It is also worth mentioning data for Manchester whose relatively bad situation, characterised by the reduction in the GDP index per capita in 2004-2011 by EUR 2,800, in the case of the GDP index per capita expressed in the purchasing power standard (PPS) has decreased by EUR 1,700.

Table 4.17. Purchasing power standard per capita in the European Union in 2004-2011 (in EURO)

Specification	2004	2005	2006	2007	2008	2009	2010	2011
EU	21,600	22,400	23,600	24,900	25,000	23,400	24,400	25,100
Berlin	22,400	23,600	24,700	26,000	26,700	25,900	27,500	28,300
Budapest	28,100	29,900	32,400	33,100	34,900	34,500	35,300	37,100
Bucharest	15,900	18,900	21,000	24,800	30,400	27,200	29,200	32,500
Hamburg	45,400	47,300	48,200	49,700	50,200	46,300	49,500	50,700
Copenhagen	37,800	39,400	40,100	42,300	41,700	40,000	45,500	44,800
Cracow	16,800	17,700	19,500	21,400	21,600	21,600	23,400	24,800
Madrid	28,600	29,800	32,200	33,900	33,500	32,000	31,300	31,500
Manchester	24,300	24,800	25,800	26,100	24,600	23,500	23,200	22,600
Munich	50,900	52,200	53,700	56,300	53,300	50,700	54,200	56,900
Paris	64,500	67,900	68,400	69,900	72,300	68,500	73,500	75,800
Prague	35,200	37,300	39,800	44,200	43,600	41,300	42,200	42,900
Stockholm	37,600	38,000	39,500	42,600	42,200	40,100	41,000	43,300
Warsaw	31,100	33,900	36,600	41,000	41,700	43,200	47,300	49,400
Vienna	36,700	37,200	39,300	40,100	40,300	38,300	40,200	41,300
Wroclaw	15,400	16,000	17,600	19,900	21,200	22,000	23,700	24,900

Source: Prepared on the basis of: http://epp.eurostat.ec.europa.eu, 2014.

In parts of the cities it can clearly be seen that the situation with regard to GDP growth in the discussed period was characterised by small growth. This group of cities included cities with a relatively better situation in terms of GDP per capita. However, part of the cities, GDP per capita, expressed in the purchasing power standard reached a lower level as compared to pure GDP index per capita. It is worth paying attention to the situation in Warsaw. While in 2011 the GDP index level per capita was EUR 29 100, the index expressed in the purchasing power standard amounted to EUR 49 400. It should thus be understood that the purchasing situation compared to the purchasing power standard in the European Union was significantly better than indicated by the values of pure GDP index per capita. In the PPS, the index value was higher in 2011 by 97.0% from the average for the European Union.

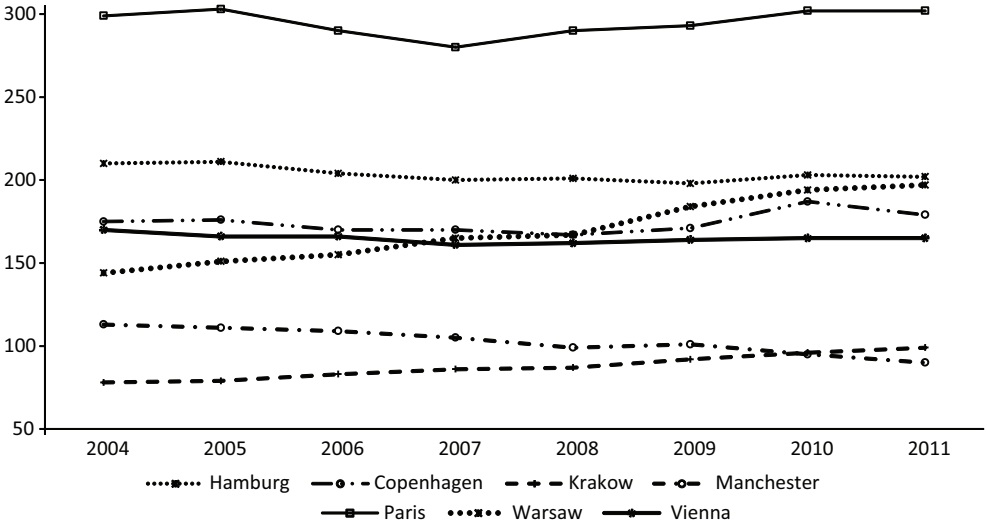
Table 4.18. The relation of purchasing power standard per capita in particular cities as compared to the average measure value in the European Union in 2004-2011 (in %)

Specification	2004	2005	2006	2007	2008	2009	2010	2011
EU	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Berlin	104.0	105.0	104.0	104.0	107.0	111.0	113.0	113.0
Budapest	130.0	133.0	137.0	133.0	140.0	147.0	145.0	148.0
Bucharest	74.0	84.0	89.0	99.0	122.0	116.0	120.0	130.0
Hamburg	210.0	211.0	204.0	200.0	201.0	198.0	203.0	202.0
Copenhagen	175.0	176.0	170.0	170.0	167.0	171.0	187.0	179.0
Cracow	78.0	79.0	83.0	86.0	87.0	92.0	96.0	99.0
Madrid	132.0	133.0	136.0	136.0	134.0	137.0	129.0	126.0
Manchester	113.0	111.0	109.0	105.0	99.0	101.0	95.0	90.0
Munich	236.0	233.0	227.0	226.0	214.0	216.0	222.0	227.0
Paris	299.0	303.0	290.0	280.0	290.0	293.0	302.0	302.0
Prague	163.0	167.0	169.0	177.0	175.0	176.0	173.0	171.0
Stockholm	174.0	169.0	167.0	171.0	169.0	171.0	168.0	173.0
Warsaw	144.0	151.0	155.0	165.0	167.0	184.0	194.0	197.0
Vienna	170.0	166.0	166.0	161.0	162.0	164.0	165.0	165.0
Wroclaw	72.0	71.0	74.0	80.0	85.0	94.0	97.0	99.0

Source: Prepared on the basis of: http://epp.eurostat.ec.europa.eu, 2014.

In 2004-2011 the gross domestic product index per capita expressed in the purchasing power standard was changing significantly especially in cities of the states which joined the European Union at the time of the last expansion of the European Union in 2004. While in some of them the index level reached a level below average for the European Union since 2004, and already in 2011 it reached a similar level to this average or slightly exceeded it.

Chart 4.8. The relation of purchasing power standard per capita in particular cities as compared to the average measure value in the European Union in 2004-2011 (%)



Source: Prepared on the basis of: http://epp.eurostat.ec.europa.eu, 2014.

The course of such a phenomenon was influenced by numerous factors. One of the most important was the rapid transformation process and a substantial increase in expenses in the sphere of the economy as well as in the public sector, including the sphere of business and social infrastructure. As a result the expenses volume had an impact at the GDP level. At the same time, in "new" member states in the EU numerous scopes recorded a relatively lower level of prices which, consequently, made it possible to achieve a better gross domestic product index per capita in the purchasing power standard. According to the graphic illustration gradual transition is visible in the discussed period to higher categories of the index and the achievement by some cities to a level similar or exceeding the value level on average for the European Union. The included chart does not include illustration for all the cities covered by the research. Owing to better clarity of the presented material, only data typical of the concerned time interval are presented. It should also be borne in mind that due to the limited volume of the submitted study, the research did not include further cities which are fully consistent with the presented tendencies of changes. The extended economic and financial research of settlement units will be the subject of further research.

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Chapter 5

Waste management in Vienna in terms of creativity and innovations (description of case study)

Grzegorz Maśloch

Introduction

Waste is an issue that affects all of us. We all produce waste. "Each year in the European Union we throw away 2.7 billion tonnes of waste, 98 million tonnes of which is hazardous. On average only 40% of our solid waste is re-used or recycled, the rest going to landfill or incineration"[102]. This comes from our homes, schools … and businesses. The volume and types of solid and hazardous waste increase all over the world due to rapid economic growth, urbanisation and industrialisation. Improper management of solid waste is one of the main causes of environmental pollution and degradation in many cities.

"If waste is to become a resource to be fed back into the economy as a raw material, then a much higher priority needs to be given to re-use and recycling. A combination of policies would help create a full recycling economy, such as a product design integrating a life-cycle approach, better cooperation among all the market actors along the value chain, better collection processes, an appropriate regulatory framework, incentives for waste prevention and recycling, as well as public investments in modern facilities for waste treatment and high quality recycling"[103]. Table 5.1 shows waste typology, source, and policy responses.

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[102] Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee And The Committee Of The Regions Roadmap to a Resource Efficient Europe, COM/2011/0571 final, p. 6.

[103] *Ibidem*, p. 7.

Table 5.1. Waste Typology, Source, and Policy Responses

Waste Type	Source	Policy Responses
Urban solid wastes, putrescible and non-putrescible solids, semisolids and liquids (residential, commercial, institutional)	human activities	reduce, reuse, recycle, dispose
Demolition waste, quarry rejects	construction sites, quarries	reuse, recycle, dispose
Inorganic nutrient runoffs	fertilizers	reduce, recycle
Oils and oily wastes	industries, mining	reduce, recycle
Hazardous (including clinical) expired drugs, by products of metabolism, chemical toxins, fecal pellets in benthos, contaminated sludge, incineration ash, leachates, ignitable, corrosive, reactive, or toxic	industries, healthcare facilities, household, hazardous wastes, waste disposal facilities	reduce, dispose
E-waste, ammonia and its oxidative products	cell phones, computers, industries, fertilizers, etc	reduce, recycle
Mixed wastes (containing N and P) from livestock	livestock	recycle
Synthetic chemical wastes	pesticides, biocides, fuel additives, cosmetics, etc.	reduce, dispose
Waste products from combustion (greenhouse gases)	vehicle engines, sea craft, energy production	reduce, alternate fuel use

Source: Prepared on the basis of: www.maweb.org/documents.315.aspx.pdf

5.1. Background

The EU has proposed "milestones" proceedings of municipal solid waste (MSW). "By 2020, waste is managed as a resource:

- waste generated per capita is in absolute decline. Recycling and re-use of waste are economically attractive options for public and private actors due to widespread separate collection and the development of functional markets for secondary raw materials,
- more materials, including materials having a significant impact on the environment and critical raw materials, are recycled,
- waste legislation is fully implemented,
- illegal shipments of waste have been eradicated,
- energy recovery is limited to non-recyclable materials, landfilling is virtually eliminated and high quality recycling is ensured"[104].

[104] Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee And The Committee Of The Regions Roadmap to a Resource Efficient Europe, COM/2011/0571 final, p. 7.

The Landfill Directive contains a legal requirement for Member States to progressively reduce the percentage of biodegradable municipal waste disposed of in landfills. The percentage reductions are based on a baseline calculated at 1995 levels. Subject to derogations applicable to a number of Member States in both Western Europe and the CEE, the targets specified in Article 5 of the Landfill Directive are that Member States must achieve or have achieved:

- reduction of 75% by 2006,
- reduction of 50% by 2009,
- reduction of 35% by 2016[105].

Article 5 of the Landfill Directive provided that Members States which, in 1995, disposed of more than 80% of their collected municipal solid waste (MSW) in landfills, could postpone the attainment of the above targets by a period not exceeding four years. Bulgaria, the Czech Republic, Poland, Romania, Slovakia and Slovenia landfilled more than 80% of the MSW in 1995 and hence made use of the four year derogation period. The data relating to waste management in selected EU countries are presented in tables 5.1, 5.2, and 5.3.

Table 5.2. Waste generated in European Union (kilogrammes per capita)

GEO/TIME	2007	2008	2009	2010	2011	2012
Czech Republic	294	306	317	318	320	308
Denmark	707	741	693	673	718	668
Germany	582	589	592	602	614	611
Spain	578	551	542	510	485	464
France	543	541	535	533	537	534
Italy	548	543	533	537	517	529
Hungary	457	454	430	403	382	402
Netherlands	606	600	589	571	568	551
Austria	596	599	588	560	553	552
Poland	322	320	316	315	315	314
Slovakia	310	329	324	335	327	324
United Kingdom	567	541	522	509	491	472

Source: Prepared on the basis of: http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

[105] Waste Management in Central and Eastern Europe, 2020 Obligations. A sector under severe challenge, http://www.cms-cmck.com/Hubbard.FileSystem/files/Publication/06f2315d-88d6-4e74-9add-a0e2c57ac543/Presentation/PublicationAttachment/9172a666-e76f-408e-95ff-a62b69a429c7/Waste%20Management%20in%20Central%20and%20Eastern%20Europe.pdf, p. 9.

Table 5.3. Total waste treatment (kilogrammes per capita)

GEO/TIME	2007	2008	2009	2010	2011	2012
Czech Republic	274	265	277	304	319	308
Denmark	707	741	693	673	718	668
Germany	582	589	592	602	614	610
Spain	578	551	542	510	485	464
France	543	541	535	533	537	534
Italy	490	471	495	508	499	523
Hungary	434	441	427	403	382	402
Netherlands	504	600	589	571	568	551
Austria	585	586	572	537	529	528
Poland	264	263	264	263	255	249
Slovakia	294	303	310	325	312	313
United Kingdom	565	537	517	505	485	465

Source: Prepared on the basis of: http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do.

Table 5.4. Deposit onto or into land (kilogrammes per capita)

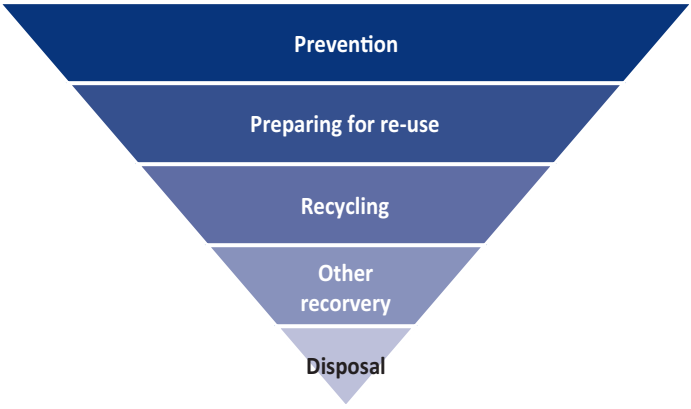
GEO/TIME	2007	2008	2009	2010	2011	2012
Czech Republic	206	198	202	206	206	174
Denmark	37	32	24	23	25	17
Germany	4	3	2	3	3	3
Spain	344	285	314	318	305	294
France	194	171	167	166	149	152
Italy	285	269	258	248	217	215
Hungary	341	333	320	284	257	263
Netherlands	12	9	9	9	9	8
Austria	51	45	36	18	18	18
Poland	239	229	207	195	199	186
Slovakia	241	251	250	262	245	240
United Kingdom	321	285	257	234	199	172

Source: Prepared on the basis of: http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

Waste legislation and the policy of the EU Member States shall apply as a priority order in the waste management hierarchy (see chart 5.1). This "waste management hierarchy" requires that waste prevention be prioritised and promoted, and that disposal (mainly landfilling) have the lowest priority and be minimised[106].

[106] Managing municipal solid waste – a review of achievements in 32 European countries, Publications Office of the European Union, Luxembourg 2013, p. 10.

Chart 5.1. Waste management hierarchy



Source: Prepared on the basis of: Directive 2008/98/EC on waste management.

The benefits of reducing waste and reusing things are:

- prevents environmental pollution,
- saves energy,
- saves money (private and public),
- reduces greenhouse gas emissions,
- helps sustain the environment for future generations,
- reduces the amount of waste that will need to be recycled or will need to be sent to incinerators or landfills.
- allows products to be used in different ways.

Analyzing the municipal waste management systems should recognize charging system. Currently in the economy we find the following options:

- tax system (for any waste type, for special purposes),
- fee system (in general , for specific purposes),
- deposit system (for certain waste type),
- full cost system,(for certain waste types),
- additional cost system (for certain waste types).

The main cost factors are:

- legislation on waste management (local, regional, international),
- actual collection quantities,
- kind and performance of collection system,
- kind and performance of sorting system,
- kind and performance of recycling services,

- prices for collection, sorting, and recycling services,
- subsidies and penalties in the waste management system,
- prices for treatment services (recovery, landfill),
- revenues from recycled materials,
- cost allocation principles[107].

At this point it is worth asking the question, why the waste management system in Vienna can be a good example for other cities that face the problem of municipal waste management arrangement. In addition, it is worth examining the issue, why – despite the fact that waste management in theory and in concepts of local and regional development has been well recognized – a comprehensive solution in this area requires a link and correlates activities of a planning, organisational, technical and technological as well as financial statements.

In addition, it is worth examining the issue, why – despite the fact that waste management in theory and in concepts of local and regional development has been well recognized – few cities can deal with this problem it. It should be borne in mind that a comprehensive solution in this respect require ties and correlates the activities of planning, organisation, technical and technological solutions as well as financial statements. One of the conditions for the effective implementation of modern systems of waste management is the level of resource available to the public authorities and which may be directed to waste management. The choice of the waste management system in Vienna is not accidental. It is the result of a broader research study in terms of waste management in various cities of the World. Vienna has proved to be a city where problems of municipal waste management were recognised relatively early and could, therefore, be completely solved.

Vienna is a city with its own specific and unique approach to ecology. Concern for the environment of the city has been demonstrated here for a long time. Starting from the access to mineral water in the taps, by way of modified, imported aqueducts from the high alpine source. Concern for the environment is reflected in contemporary Vienna's achievements in the field of complex methods of municipal waste management. Today, the city of Vienna is one of the pioneers in waste management and utilisation of waste in the world[108].

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107 *Ibidem*.

108 "In 2010 Vienna was awarded the title "World City closest to sustainable Waste management". It was conferred by the international waste management organisations WTERT (Waste-to-Energy Research and Technology Council) and SUR (Council for Sustainable Use of Resource) in recognition of Vienna's efforts to put the idea of sustainability into effective practice and implement corresponding waste management strategies. Award criteria included data on waste production, recycling, composting and other waste-to-energy processes such as thermal treatment,

"Vienna's municipal waste[109] management system meets its tasks in compliance with superlative environmental and quality standards. A smoothly functioning waste management scheme needs long-term planning, waste avoidance strategies, an attractive collection system, eco-friendly waste treatment, but also environmental awareness training for children and adults. All these measures serve the goal of maintaining Vienna's outstanding quality of life"[110].

5.2. Project description

Development of the City of Vienna is based on the principles of:

- protection of resources,
- holistic views,
- high levels of life while maintaining the equality of the social aspects,
- use of innovations,
- use of new technology.

The management of municipal waste in Vienna is named MA 48 ("MA 48"). "Municipal department 48 – waste management, street cleaning and the vehicle fleet – is part of the environmental division of the City of Vienna administration. With over 3,600 employees MA 48 is responsible for waste prevention, waste collection (residual waste & recyclables) and waste treatment (sorting, composting, fermentation, landfilling, etc.). In addition, MA 48 is in charge of street-cleaning and winter-service in Vienna. MA 48 runs a modern integrated management system (IMS) comprising quality, environmental, industrial safety and risk management"[111].

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fermentation and power generation from landfill gases". See: *Environmental city Vienna – 50% green space*, https://www.wieninternational.at/en/content/environmental-city-vienna-50-green-space-en Online. [10 June 2014].

109 The definition of "municipal waste" used in different countries varies, reflecting diverse waste management practices. For the purposes of national yearly reporting of municipal waste to Eurostat, "municipal waste" is defined as follows: "Municipal waste is mainly produced by households, though similar wastes from source such as commerce, offices and public institutions are included. The amount of municipal waste generated consists of waste collected by or on behalf of municipal authorities and disposed of through the waste management system." See: *Managing municipal...*, *op. cit.*, p. 7.

110 https://www.wien.gv.at/umwelt/ma48/service/publikationen/pdf/abfallwirtschaft-en.pdf. Online. [10 June 2014].

111 http://www.iswa.org/index.php?id=829.

Organization MA 48 comprises:

- waste management[112],
- street cleaning and winter road maintenance[113],
- vehicle fleet and technology centre[114].

"In all, MA 48 collects approx. 1.000,000 tonnes of waste per year. About 35% of all waste (approx. 350,000 tonnes of recyclables, biogenic waste and problematic waste) is collected separately at roughly 4,300 public recyclable collection points, stationary and mobile problematic waste collection points and 19 waste collection centres"[115]. Municipal waste collected in Vienna is shown in table 5.5 and chart 5.2.

Table 5.5. Municipal waste collected in Vienna (average per year)

500,000 t of household waste
130,000 t of other combustible mixed waste
70,000 t of construction waste
130,000 t of waste paper and cardboard
120,000 t of biogenic waste
45,000 t of wood (treated and untreated)
27,000 t of clear and coloured glass
13,000 t of scrap metal and metal packaging
7,000 t problematic and hazardous waste (incl. car wrecks)
7,000 t of plastics
5,000 t of electrical appliances

Source: Prepared on the basis of: http://www.wien.gv.at/umwelt/ma48/service/publikationen/pdf/da-sein-fuer-wien-en.pdf , Online. [10 June 2014]. p. 5.

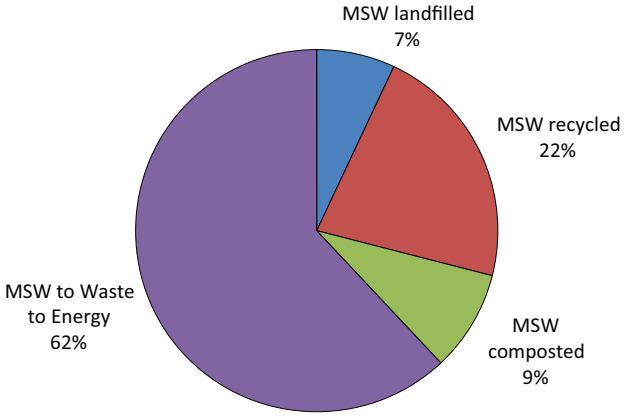
[112] Sammlung von Restmüll, Altstoffen und Problemstoffen, Stadt Wien – MA 48, Vienna 2013, pp. 2-7.

[113] Straßenreinigung in Wien, Stadt Wien – MA 48, Vienna 2013, p. 2-7; Winterdienst in Wien, Stadt Wien – MA 48, Vienna 2013, pp. 2-7.

[114] http://www.wien.gv.at/umwelt/ma48/service/publikationen/pdf/da-sein-fuer-wien-en.pdf, Online. [10 June 2014]. p. 12.

[115] *Ibidem*, p. 5.

Chart 5.2. Waste collected by MA 48 in 2012 (1,055,000 tons; 609 kg/inh.)



Source: Prepared on the basis of: Waste Management in Vienna, MA 48, waste management, street cleaning & vehicle fleet, Stadt Wien, Vienna 2013, p. 3.

System management and waste collection in Vienna is based on multiple solutions. The forms of municipal waste collection is presented in table 5.6.

Table 5.6. Overview: Waste Collection in Vienna

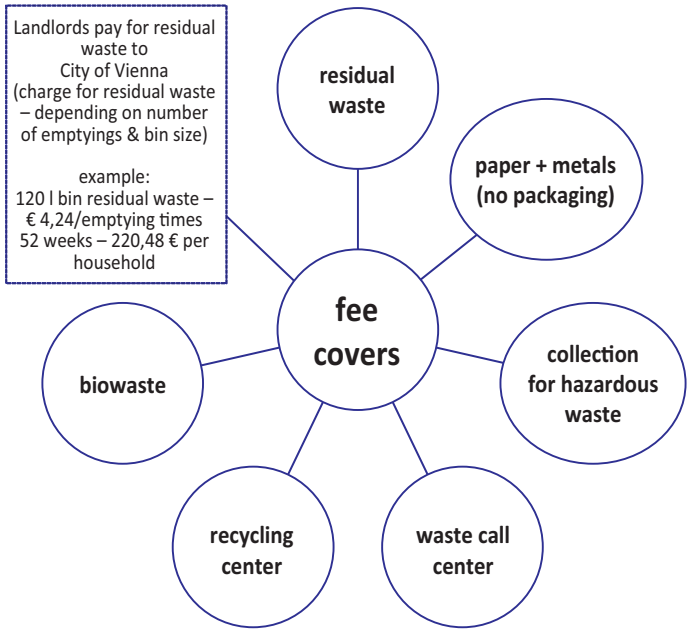
Waste fraction	Quantity kg/cap. a	Inhabitants per Container	Collection System	Collection since
Residual Waste	305.8	8	Curb-side collection	1656/1923
Paper, Cardboard	77.3	19	Curb-side collection	1982
Glass	15.0	204	Drop-off-system	1977
Metal Waste	2.4	298	Drop-off-system	1985
Plastic Packaging	3.3	164	Drop-off-system	1989
Biowaste	43.2	22	Curb-side collection (restaurants, etc.), Drop-off-system	1988

Source: Prepared on the basis of: H. Koller, *Efficient and Comprehensive Waste Management – Example Vienna*, www.iswa.org/.../4%20Efficient%20and%20compreh Online. [10 June 2014].

Vienna used various systems of tariffs, fees and charges for waste management. The fee system in Vienna is as follows:[116]

[116] See: *Collection of Residual Waste. Recyclabes & Hazardous Waste from Households, City of Vienna*, – MA 48, Vienna 2013, p. 7.

Chart 5.3. Fee system in Vienna



Source: Prepared on the basis of: Waste Management in Vienna, MA 48, waste management, street cleaning & vehicle fleet, Stadt Wien, Vienna 2013, p. 23.

"The financing of the collection and treatment of all municipal waste is based on the residual waste fraction in order to create an incentive for separate waste collection. Thus property owners are charged a quarterly waste management fee calculated from the volume of the residual waste containers installed on their properties and the frequency of bin emptying. This residual waste management fee finances the collection and treatment of all waste in Vienna"[117]. The City of Vienna has created all the preconditions to dispose of the city's waste in an ecologically sustainable manner and hence to generate clean electricity and district heating. Vienna covers "with both the highest amount of MSW generated, but the lowest percentage of both material (22%) and organic (27%) – and thus total (49%) – recycling. The relative low level – compared to the rest of the country – of recycling is taking place on the account of the higher share of incineration (around 50%) in the region. Still, this is a high recycling rate compared to other metropolitan regions in Europe"[118]. It should also be emphasized that the success of Vienna in terms of the effective and efficient

[117] *Collection …*, *op. cit.*, p. 7.

[118] Municipal waste management in Austria, European Environment Agency, Luxembourg 2013, p. 10.

management of municipal waste, is associated with a 100% re-use of waste. The use of this is done by recycling and re-use of recovered materials or by incineration, resulting in the produced heat and electricity. One of the factors the solution of choice for the production of energy from the combustion of waste is the structure of the primary energy consumed in Vienna. It is worth mentioning that the city authorities do not take into account the possibility of burning coal.

The good results of the separate and effective collection of municipal waste can only be achieved if all citizens are convinced of the sense and meaning of such proceedings. Good patterns and behaviour cannot be forced with obligatory measures, but can only be achieved by education, information and co-operation. It also appears that the city of Vienna, through pro-social and the open attitude towards residents has built a civil society that agrees to and accepts the proposed conditions associated with the management of municipal waste. It should also be noted that the management of municipal waste in Vienna is performed with relatively small expenditures of household budgets.

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Chapter 6

Development of public transport in Vienna according to new trends of innovations implementing (description of case study)

Krzysztof Jarosiński

Introduction

Firstly, it is worth considering why the Vienna public transport system deserves a closer representation of the sphere of activity of the public sector of the city of Vienna. It seems that the justification of research on the functioning of public transport in Vienna and the presentation of existing solutions in the form of a case study is associated closely with the existing achievements in this sphere, and is associated with the long-term planning of services, in accordance with the expected trends in the development of the city. In particular, it refers to the development of the city of Vienna in the first half of the twenty-first century, and also refers to the high requirements, where innovative solutions are of a high priority.

Today Vienna is called as a one of most innovative cities all over the world. In Europe this city take the first place according to the standard of living and socio-economic potential. Vienna for a long time has held a very good position in many rankings and was third in 2013 after London and Paris[119]. The high position of Vienna city in many international rankings results from the favourable conditions to generate and improve new innovative solutions. Among the 162 factors and criteria in the Innovation Cities Global Index, let us indicate the three main factors: culture, human capital, development of new

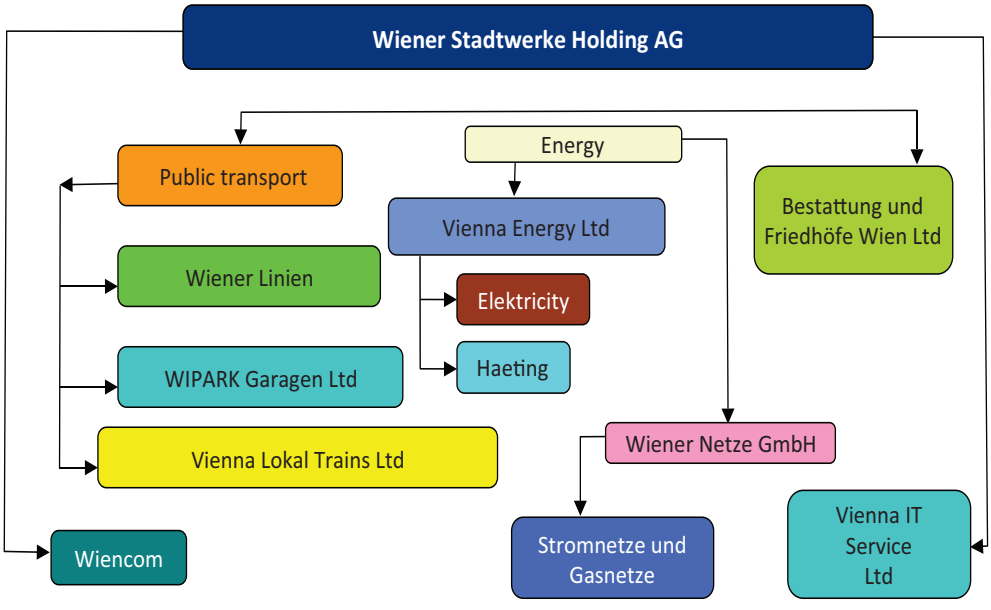
[119] FDi Magazine. The Business of Globalization, Financial Times, 10 April 2012.

technologies and social and technical infrastructure. Public transportation as a part of the technical infrastructure in Vienna is considered to be one of the best developed systems in the group of cities, providing services amid the background of old historical buildings of the city and also in the group of cities at the same time seeking a new formula of development, including development on the basis of new investment areas.

6.1. Development of the public transport system

The public transport of Vienna city has a long history that dates back to the development of the modern city. Strong interest appeared relatively early in the development and implementation of new technical and technological solutions that would improve mobility in the growing distance. Public transport in Vienna city is a coherent system which consists of a series of mutually related and conditioned elements. Referring to the existing functional links between diverse entities and companies involved in the provision of services, a diagram of the organizational structure of the system should be presented. The chart 6.1 is provided below.

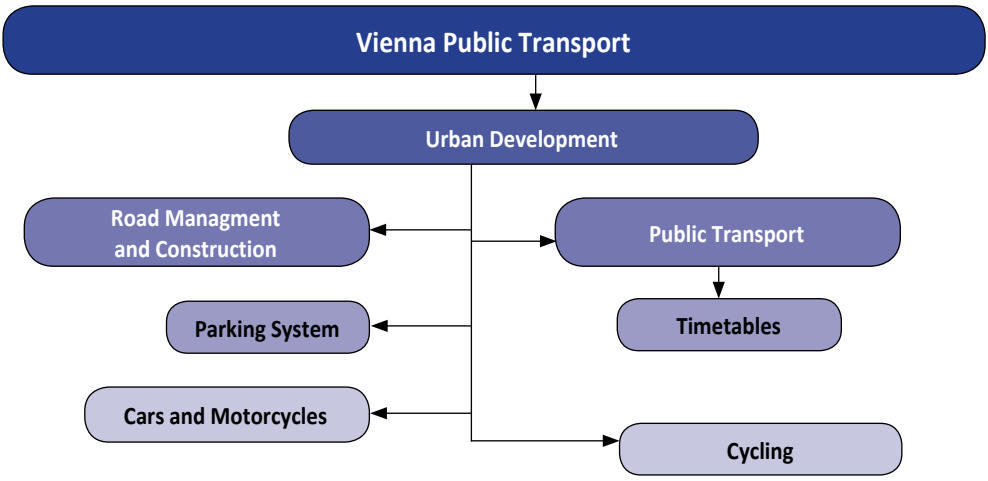
Chart 6.1. Scheme of the Wiener Stadwerke Holding AG Structure



Source: developed on the basis of source materials of Vienna Holding, Vienna 2014.

Referring to the existing functional links between the diverse entities and companies involved in the provision of services, a chart 6.2 of the organizational structure of the system should be presented.

Chart 6.2. Scheme of the Vienna Public Transport System



Source: Schema developed on the basis of Wiener |Holding AG.

The scale of the complexity of the process of providing public transport services in the city, makes the optimisation of the public transport services of an internal nature in the city, and also taking into account the different relationships with the external environment, require the coordinated efforts of a large group of entities involved in the planning, organisation, and direct provision of services at the city level and with regard to the functional area of the outer area of Vienna. From the standpoint of broadly defined socio-economic development the following should be borne in mind:

- urban development,
- cars and motorcycles; high traffic volumes are usually a result of excess supply for motorised traffic. The city of Vienna has relied on the concept of an integrated transport policy: expansion of the cycle network, "public transport", such as the metro and tram network, the construction of bypasses, as well as garages and parking management,
- cycling; in Vienna more cycling means more quality of life in the city. Therefore, it is the desire of the City of Vienna to make cycling more attractive and safer, thus doubling the cycling share of total traffic volume in Vienna until 2015,

- pedestrians; the primary assumptions of the Vienna city policy, giving more space in the traffic and pedestrians to increase their traffic safety. Public roads, paths and open spaces are also places of communication and encounter. These functions can be supported by the appropriate design of the road space,
- parking; parking is partly charged in Vienna. Park-and-ride facilities allow for the easy interchange of the car into a well-developed public transport network. Vienna offers a dense network of parking garages. The parking guidance and information system are supported in the search. A convenient solution to combine both the car and the public transport, are the park-and-ride facilities at key transport hubs,
- public transport, timetables; with 117 metro, tram and bus lines Vienna has an internationally highly acclaimed public transport network. To meet the great demand in the future – in 2020, continuation with the Wiener Linien which annually carries one billion passengers – a gradual expansion of the "public transport" is the focus of an integrated transport policy,
- road management and construction; the streets of Vienna are the lifelines of the city. Modern road construction takes into account the needs of all road users. In this complex process, the Department of Road Management and Construction (MA 28) to achieve the broadest possible consensus in many different fields of interests coordinate many forms of activity[120].

Public transport is therefore closely linked with the development of the City of Vienna, the development of the region and the development within the different links of more than regional. The task of urban development is to provide fundamental planning tools ensuring Vienna's innovative development in line with the social, economic and ecological requirements. It is clear that this task requires cross-border cooperation with neighbouring provinces and countries, particularly in the framework of the European Centrope Region[121]. It should be emphasized that despite the general economic situation of the world, experts anticipate that Centrope will continue its growth faster than the European Union average. The competitiveness of this great sub-region can

[120] Prepared on the basis of statements of planning documents of the city of Vienna and on the Urban Development Plan, Vienna 2014.

[121] Central European Region is located at the middle of the European Union. Centrope consist of four countries, crossing the borders of Austria, the Czech Republic, Slovakia and Hungary. Already today, the four-countries has eight federal provinces. Regions and counties is one of the most dynamic areas in the European Union. Intensified co-ordination of economic, infrastructure, educational and cultural policies at a transnational level will fully expand the social and economic potential of Centrope, Centrope, Central European Region, ERDF, Vienna 2014, pp. 4-12

create new conditions in the future for the location and development of entrepreneurship, innovation and business development. In the twenty-first century Vienna is faced with the need to maintain the existing mechanisms for development, and is faced with the need to launch new development impulses in accordance with the wishes of the people of the city of Vienna, as well as to the obligations arising from the participation in complex regional projects.

For these reasons, the authorities of the city of Vienna are facing new challenges in the area of socio-economic infrastructure. One of the most important is public transport. Previous jobs limited to local self-government tasks have been another dimension. The problems associated with it have been more than on a regional scope. This is due to both the administrative structure of the country, as well as the result of new development challenges undertaken in cooperation with neighbouring countries.

The city of Vienna has many diverse functions at the local and regional level as well as being the capital of the state, at both national and international levels. The public transport system in Vienna is designed to support not only local traffic, but also traffic in the system of regional and international relations. The Urban Development Plan (Stadtentwicklungsplan – STEP) is an important tool in this context. For instance, it specifies whether an area is designated as green space or for traffic purposes, for commercial buildings or housing construction. STEP 05 also defines 13 target areas that have special potential and a key function for the city's further development. The Traffic and Transport Master Plan, drawn up in 2003, sets out the framework for sustainable and ecological transport strategies.

Vienna public transport is part of the Verkehrsverbund Ost-Region VOR (transport association for Austria's eastern regions). Verkehrsverbund Ost-Region is split into eight zones and includes parts of Lower Austria, the Burgenland and all of Vienna. The city of Vienna accounts for one full zone or core zone (Kernzone or "Zone 100").

The slogan, "Wien ist anders" (Vienna is different), is internationally recognized as capturing the spirit of Vienna. In Vienna the urge is to create what people everywhere want and expect from their city. We could find different terms to specify the particular situation in Vienna: Vienna is liveable, Vienna is safe, Vienna is clean, Vienna is green. Securing the city's marketing position requires the constant monitoring of public services. The city government, municipal services and public enterprises are focused on providing comprehensive, highly integrated public services.

Vienna has a well-developed public transport network: underground (U Bahn), trains, trams and buses. The Vienna public transport enterprise

Wiener Linien GmbH operates five underground metro lines, 29 tram and 90 bus lines, of which 24 are night lines. The Wiener Linien vehicle fleet currently consist of over 500 tramcars and almost 500 buses.[122]

The prosperity of the 1950's, named as a Wirtschaftswunder created one major problem of socio-economic development in Vienna, extremely congested city traffic. More and more passenger cars demanded more space. The tramway was especially regarded as an 'obstacle' that should to be removed to make more space for the "faster" cars. From 1958, many tram lines were converted into bus lines. Thankfully this conversion was stopped quickly when it was discovered that buses are just as useless if they are stuck in the traffic. Vienna still has one of the largest tramway networks in the world. At that time the city council was not interested in building a normal-scale metro. Instead of this, it was decided that some sections of the tram network should be put into tunnels, following the example of Brussels in Belgium and a number of German cities.

It was decided that they could be converted into an underground at a later date. The official term for these tracks was "*U-Straba*". In Brussels, where the origin of this method of building a metro system originated, it was called a "*prémetro*", and this term is now used when talking about this kind of public transport system in the cities. In Vienna city three premetro lines were built. Two of these have in the meantime been converted into full metro: the Zweierlinie tunnel, the tunnel along the southern Gürtel and the express tram to Siebenhirten. There are no more new plans for the future for express trams in Vienna.

There are a number of reasons that led to the decision of building a full-scale modern metro: firstly, a new generation of city planners were employed by the city; secondly, they managed to convince the city council that a metro system might provide an answer to the growing traffic problem, and thirdly, Munich, a city of comparable size in Germany, had started to construct a full metro, so that a metro for Vienna became a question of prestige.

Finally the city council decided to build a basic network of three lines — only one of these lines of metro was actually new; the other two lines were programmes of modernisation of the existing lines:

- Line U1: Reumannplatz – Stephansplatz – Praterstern (newly built, 6.1 km),
- Line U2: Karlsplatz – Lastenstrasse – Schottenring (converted and extended underground tram, 3.5 km),
- Line U4: Hütteldorf – Wien valley – Danube Canal – Heiligenstadt (converted old metro line, 16.5 km).

[122] Prepared on the basis of statements of planning documents of the city of Vienna and on the Urban Development Plan, Vienna 2014.

Construction work started in 1969 at Karlsplatz, where all three lines meet in the system's largest station. The first was opened on 8 May 1976. The first newly built section was opened on 25 February 1978 between Karlsplatz and Reumannplatz on line U1 (see table 6.1).

Table 6.1. Characteristics of the metro lines in Vienna

Year	Line	Description
1969		Start of underground construction work
1978	U1	Commissioning of the first section
1982		Completion of the core network from Reumannplatz to Kagran
2006		Completion of the line extension from Kagran to Leopoldau
1980	U2	Completion of the branch line from Karlsplatz to Schottenring
2008		Completion of the line extension from Schottenring to Stadion
2010		Completion of the line extension from Stadion to Aspernstraße
2013		Completion of the line extension from Aspernstraße to Seestadt
1991	U3	Commissioning of the first section
1998		Completion of the section from Johnstraße to Ottakring
2000		Completion of the section from Erdberg to Simmering
1976	U4	Commissioning of the first section (trial operation)
1981		Completion
1989	U6	Commissioning of the first section
1995		Completion of the line extension to Siebenhirten
1996		Completion of the line extension to Floridsdorf

Source: Wiener Linien, Wien 2014.

Development of underground transportation in Vienna based on modern standards are relatively short. Since 1976, however, systematic progress has been made when it comes to the length of the existing subway lines, as well as in terms of the standard of passenger service.

6.2. Public Transportation Map of Vienna

The essential components of the development of the subway in Vienna are systematically extending already existing lines, improving the standard of these lines and the construction of new sections. In addition to those in Vienna, metro lines are a planned investment in improving transport services for the inhabitants. In particular, it is necessary to draw attention to the extension of Line 1 and the construction of a new line marked in the planning documents as

line number 5. The following charts no 6.3 show the diagrams of communication in the framework of rail transport in the region of Vienna and connections in the city centre.

Chart 6.3. Scheme of underground and local trains connections in the Vienna Region 2014

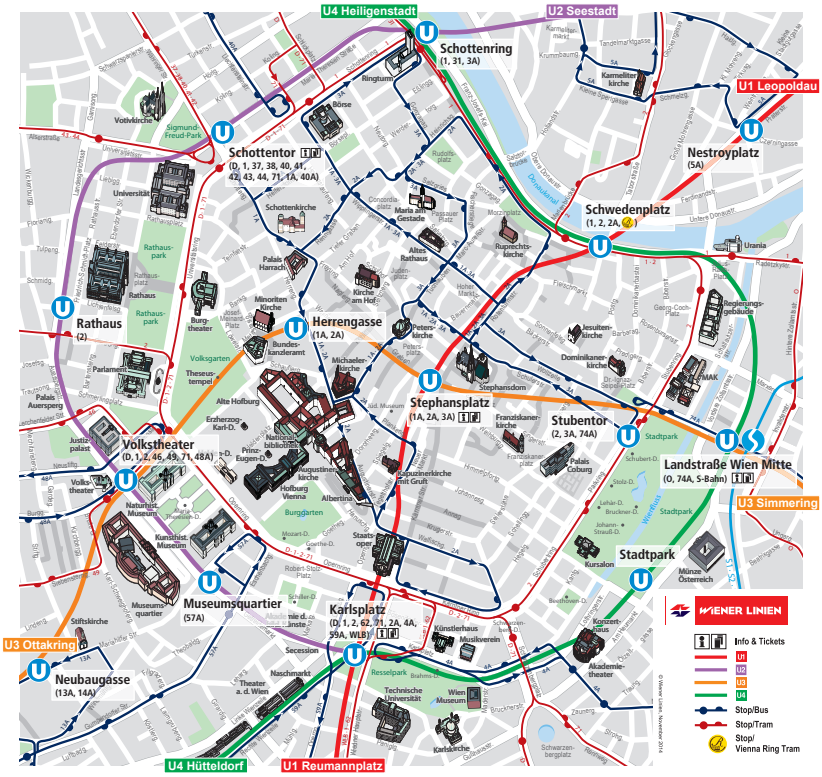
Source: Scheme developed on the basis of information of Wiener Linien GmbH, Vienna 2014.

It should be stressed that the development of the metro network in Vienna, despite the relatively long history and good experience gained at the turn of the XIX and XX century, began only in 1972, and in fact in 1976 upon the entry into service of the first line, acting in accordance with the established in this respect the standards in the world. Thus, it is clear that in a relatively short period of time, the underground communication subsystem has reached a very high carrying capacity and has become the basis for the communication system of the city of Vienna.

6.3. Public transport in Vienna today

According to these figures, the subway in Vienna is the basis of the transportation system in the city Centre-Vienna and communication with the outside areas of the city. At the same time the subway is an important element of the system in the city centre. The existing number of interchange points offer a convenient choice of connections, in accordance with the directions of the development of the city. This system is supported by a number of town high-speed rail (S-Bahn) by designating convenient places of interchange, resulting in significantly improving the communication service of the peripheral areas of Vienna (see chart no 6.4).

Chart 6.4. City Plan of Vienna, main connections of the underground transport system 2014



Source: Scheme developed on the basis of information of Wiener Linien GmbH, Vienna 2014.

Public transport services in Vienna have an integrated character. This means that the correct use of the residents created subsystems, which include various types of means of transport. The most important role in this system is played by

the rail communication, which consists of the listed metro lines, trams, suburban train and railway lines of a regional, national and international base, that support those destinations. An example could be cited as the connections made between the airport and the city of Schwechat. It is necessary to pay attention to the bus communication, which has been developed as a support of the network of rail transport connections, and which provides a connection in the relationships which is not supported by the rail communication (see table 6.2).

Table 6.2. Characteristics of the underground in Vienna city in the year 2013

Number of lines	5
Number of train depots	3
Number of stops	104
Average distance between stops (m)	754.6
Average line length (km)	15.7
Average journey speed (km/h) at peak times, during the day and in the evening	32.5
Network length (km)	82.9
Operational network (km)	79.1
Total length of lines (km)	78.5
Average number of trains in operation (Mon – Fri)	115
Total number of tramcars	762
Underground railcars	446
Type V cars	192
Ultra low-floor articulated trams (ULF)	124
Trailers (control trailers)	96
Available seats	128,832

Source: Scheme developed on the basis of Wiener Linien GmbH, Vienna 2013.

The city of Vienna does not favour individual motorization. Based on systematic research, it is known that the use of cars in the city, has a negative impact on the quality of the communication service of the city. It is necessary to indicate here the considerable absorption of urban space and worsening conditions for the provision of services within the public transport system. For these reasons, the city transport policy involves reducing the number of cars in the city, and also in the future will be aimed at further reducing the number of cars in the city. Within the framework of the transport policy there is a provision for the application of administrative and economic instruments. In the year 2012, as in prior years, the proportion of total journeys in Vienna made using public transport came to 39.0 percent. The city authorities will continue this process. In 2013 the City of Vienna published its new Urban Development Plan, which includes urban transportation concepts. The most important objectives of this plan are:

- a further increase of public transport by 40 percent,
- reducing the share of individual cars by 20 percent,
- increasing the share of pedestrians and cyclists by a total of 40 percent[123].

At the same time, as part of the communication policy, new plans for public transport will be developed. Already 96 percent of residents have excellent access to public transport in their neighbourhoods, so achieving Vienna's ambitious goal will require implementing innovative modern technology, increasing service and reliability, improving comfort and making the system more cost efficient[124]. Vienna's authorities have, in this field, many years of experience that allows the development of ambitious projects in the field of public transport. They refer in particular to rail transport. Planning, management, ticketing and information for this dense public transport network are coordinated centrally, thus ensuring that the system operates with the highest possible quality and efficiency.

An important determinant of the structure of public transport in Vienna is the direction and scope of ongoing and planned investments. In terms of public transport most of the funds are directed precisely on investment in the subway. According to the figures of the Wiener Holding Group investment in underground development achieved, in recent years, a relatively high level. Detailed data on the results of current operations and investments are presented in the table 6.3

Table 6.3. Investment expenditures in the underground of Vienna City in 2013 in millions of EURO. Structure in %

Total of investment	251.9	100.0
Existing network	23.4	9.3
Underground construction work	164.5	65.3
Fleet of vehicles	64.0	25.4

Source: Facts and Figures. Wiener Linien 2013, Vienna 2013. p. 4.

6.4. Investment of Vienna City in public transport

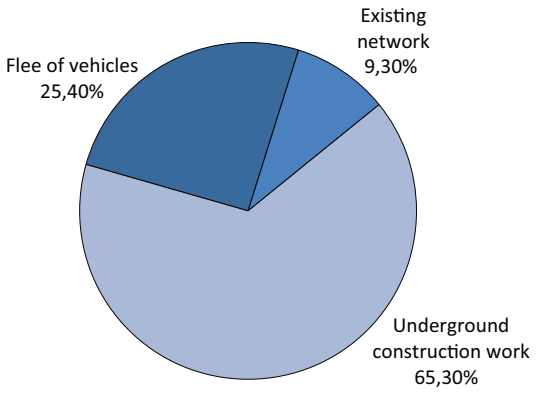
The City of Vienna in recent years in the field of underground public transport, has undertaken a considerable range of investments. Expenses relate to the three main directions of investment. The first is to conduct construction work related to the network expansion of undergrounds. The second one is the

[123] *Annual Report 2013*, Wiener Stadtwerke Group, Vienna 2014, pp. 23-24.

[124] *Vienna Know-How.* Urban Technologies and Strategies GmbH, Vienna 2010, p. 25-26.

modernisation and maintenance of the existing network. The third direction of investment is the modernisation and purchase of fleets for the underground. According to the information provided in the table cited, in 2013 almost 252 million euros was spent on investments in the underground. The biggest share in the total expenditure accounted for expenses related to the expansion of the existing network, more than 65%, the second major item of expenditure investments were investments in rolling stock in public transport (25.4%). The third group of investments were made in the modernisation and maintenance of the existing rail network. In the coming years it is planned to significantly increase spending on investment in the field of restoration and modernisation. This is required for technical reasons and the safe conduct of traffic on the existing network, particularly in the older sections of line U4. The structure of capital expenditures in 2013 are presented in the following chart 6.5.

Chart 6.5. Structure of investment expenditures in underground transport system of Vienna City in 2013



Source: Chart developed on the basis of Wiener Linien GmbH, Vienna 2013.

Transport company Wiener Linien GmbH, which handles the transport of the city, operates within the organisational structure of Wiener Stadtwerke Holding GmbH. This company is a typical public company. Given the importance of communications for the city, the company operates under specific conditions. As can be seen from the table 6.4, the revenue derived from the sale of services does not cover the cost of the ongoing operations of the company. This means that the current activity is conducted under the conditions of occurrence of the deficit in the enterprise. Such a situation is fully tolerated, and is the result of the tariff policy in terms of fees. This policy is set to the best possible satisfaction of the transport needs in the city, with relatively low fees for the service.

Table 6.4. Wiener Linien – Development of business 2012-2013, Financial Results in EUR0 million

Specification	2013	2012	change	in %
Turnover	474.7	477.2	-2.5	-0.5
EBIT	-120.3	-128.5	8.2	-6.4
Financial result	4.0	6.0	-2.0	-32.5
EBT	-116.3	-122.5	6.2	-5.1
Annual losses	-116.3	-122.5	6.2	-5.1
Investments in intangible assets	5.6	4.2	1.4	33.4
Investments in tangible assets	414.0	382.7	31.3	8.2
Investments in financial assets	8.0	7.7	0.3	3.6
Total investment	427.6	394.5	33.1	8.4

EBT – earnings before tax, a measure of a company's ability to produce income on its operations in a given year. It is calculated as the company's revenue less its expenses (such as overheads), but not subtracting its tax liability.

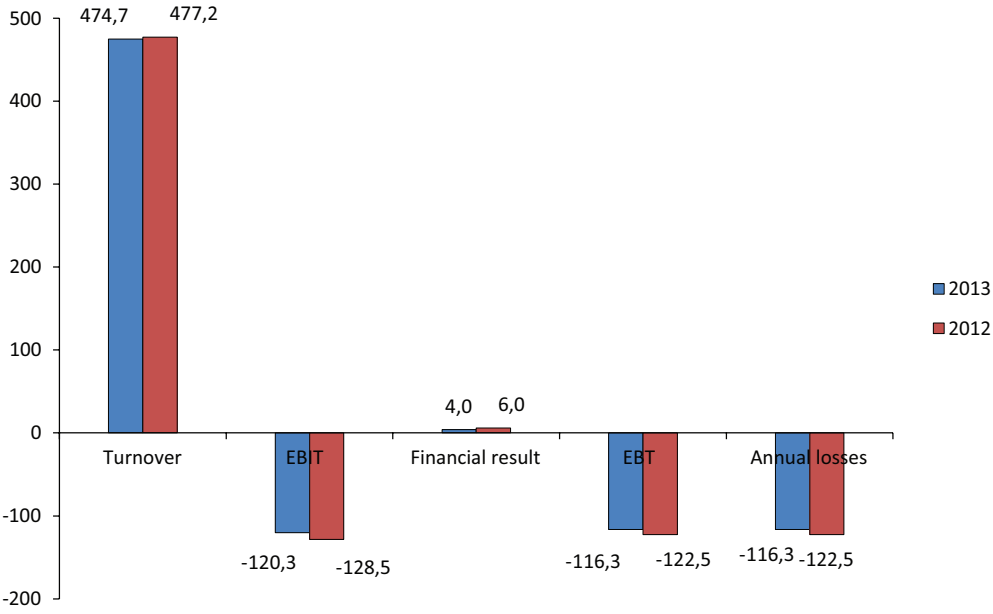
EBIT – earnings before income tax, represents cash available to pay off creditors in the event of liquidation, and, as such, it is closely watched, especially when comparing companies in jurisdictions with different tax laws.

Source: Annual Report 2013, Wiener Stadtwerke Group, Vienna 2014, p. 3.

In 2013, the operating income from services amounted to 474.7 million euros, at the same time, the EBIT amounted to -120.3 million. In 2013 the company obtained a positive financial result of the activities of a financial nature in the amount of 4.0 million euros. This means that the deficit of the company amounted to over 25%. The annual loss of the company was 116.3 million euros in 2013. At the same time the company carries out a broad programme of investment. In 2013, capital expenditures totalled 427.6 million euros. The main part of these capital expenditures are expenditures related to investments in tangible assets, which accounted for 96.9% of total investment spending. Other expenses related to intangible assets and investments in financial assets, respectively, 1.3% and 1.9%.

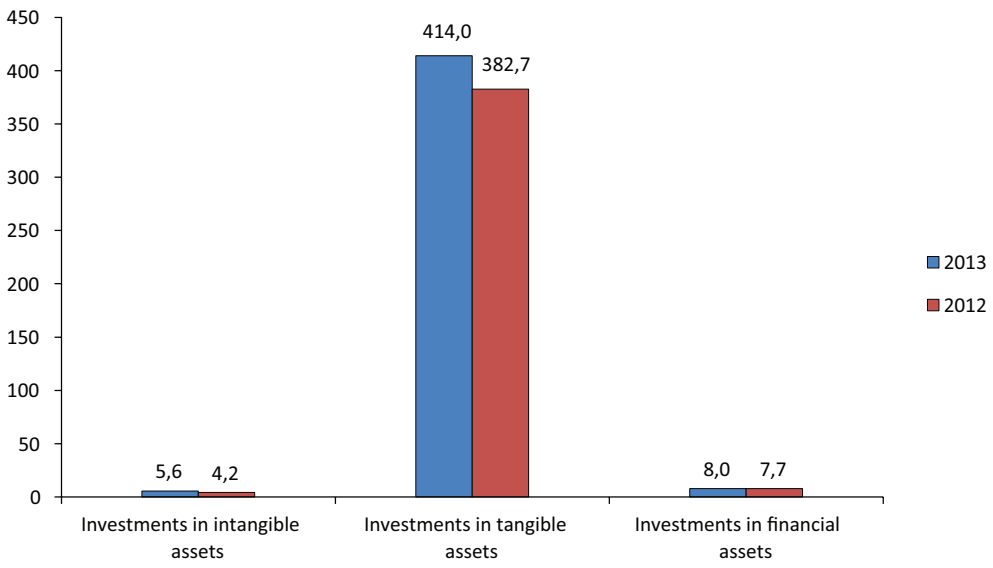
One should also pay attention to the financial performance of the Wiener Stadtwerke capital group. The consolidated turnover of the group in 2013 amounted to 3 088.7 million. The dominant position was occupied by the expenditure of the energy segment. Revenues of this segment in 2013 accounted for 78.7% of total revenues. The second position, when it comes to the amount of revenue, was taken by the transport company Wiener Linien GmbH, whose share of revenues in total revenues amounted to the capital group at the same time to 15.4%. The remainder of the revenue was generated by other activities of the holding.

Chart 6.6. Financial results of Wiener Linien 2012-2013. Financial Results in EUR0 million



Source: own on the basis of Figures of Wiener Stadtwerke, Wien 2014.

Chart 6.7. Investment of Wiener Linien in 2012 and 2013 Financial Results in EUR0 million



Source: own on the basis of Figuress of Wiener Stadtwerke, Wien 2014.

Table 6.5. Financial results of Wiener Stadwerke 2012-2013

Specification		2013	2012	change	in %
Consolidated turnover	EUR million	3,088.7	3,835.9	-731.4	-19.4
Turnover energy segment	EUR million	2,430.4	3,178.7	-748.3	-23.5
Turnover Wiener Linien	EUR million	474.7	477.2	-2.5	-0.5
Turnover Winer Lokalbahnen (WLB)	EUR million	96.1	94.2	1.9	2.0
Turnover funerals and cementeries segment	EUR million	70.4	70.4	0.0	0.0
Turnover car parks segment	EUR million	17.1	15.4	1.7	11.0
Consolidated EBT	EUR million	-330.6	-911.1	580.5	63.7
Consolidated profit/loss	EUR million	0.0	-788.6	788.6	100.0
Return on capital emloyed (ROCE)	%	5.5	4.4	1.1	25.0
Balance sheet total	EUR million	13,428.3	13,347.8	80.5	0.6
Equity ratio	%	34.4	35.5	-1.1	-3.1
Total investments	EUR million	865.4	941.6	-76.2	-8.1
of wchich tangible asstets	EUR million	813.9	857.2	-43.3	-5.1
CAPEX ratio	%	27.4	23.2	4.2	18.1

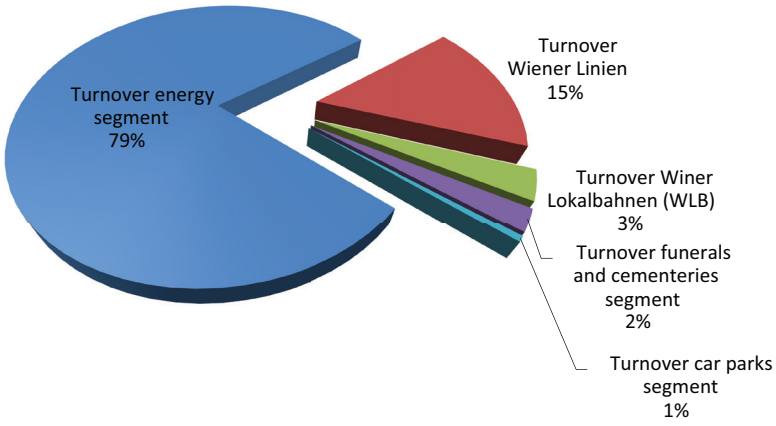
Source: Annual Report 2013, Wiener Stadtwerke Group, Vienna 2014, p. 49.

In third place the public transport enterprise under the name of Wiener Lokalbahnen GmbH (WLB) was placed. Revenues from services in 2013 amounted to 3.0% of this company.

It is also worth quoting figures for the year 2012. In 2013 the situation in terms of income group, as well as the company Wiener Linien GmbH. The company Wiener Linien total revenues lowered by 2.5%, while across the group they fell by 19.4%. This was due to a significant decline in revenues in the energy sector of up to 23.5%. At the same time the transport reduction was only 0.5%. This was due to a decrease of more than 7 million of the number of passengers and structure changes in the structure of tariff fees. The structure of the holding company income is shown in the chart no 6.8.

The issue of determining tariff fees in public transport companies is a key problem for the effective performance of services in the city. Fee tariffs (or prices) for services provided depend on a series of circumstances. The following factors should be considered: economic, social, technical and the local policy of the city authorities.

Chart 6.8. The structure of the holding company income in 2013



Source: own on the basis of Figures of Wiener Stadtwerke, Wien 2014.

The complexity of this issue (determining the cost of fees) results in the fact that the prices for services provided by public utility companies are not free market prices. These prices are a result of the factors relating to the above circumstances. In practice they are official tariffs, approved by the municipality Council of Vienna City, after it has analysed the situation of costs and planned revenue in past periods. It should be emphasised that, regardless of the various degree of independence in operation, fee tariffs are not arbitrarily established by the management of the entities providing services, but are tariffs defined by the City Council in the form of Acts.

Like other public utility services, municipal transport services are basic and popular in nature. They are addressed to all city inhabitants regardless of their income. The market for these services contains a great number of potential customers. The services are comprehensively provided and addressed to all inhabitants of the area where the service is offered, and thus are provided on a social scale. The public transport service providers often enjoy a monopoly position, which may curtail the choice of service for consumers. For the above reasons, the appropriate price policy is necessary, in which the prices are not set by supply and demand but in the way described above, as fee tariffs, i.e. local government prices. Consequently, the tariffs often have the form of fees which are social in nature, whose level is adjusted to the purchasing power of the part of the society with the lowest income.

This approach has certain economic consequences for the companies providing the services, and often leads to a negative gross profitability from their entire business, i.e. the total costs exceeding the revenue received. The

company deficit is covered by a subsidy from the City of Vienna budget. The deficit of public transport has been apparent for many years and forms a constant element of the City budget. The deficit is also planned for future years.

Maintaining and improving the attractiveness of municipal transport in the city has great significance. One of the elements here, apart from the broadly treated quality of services, is the correct tariff policy. Too high a level of fees without significant changes in the quality of service may lead to a change in the customers' preferences and thus may worsen the transport problems in the city. Public transport solutions have a strategic character.

It is becoming necessary to give new weight to public transport. This can be done by introducing new technologies to public transport, eliminating cars from key parts of the city by administrative means and consistently separating road traffic. Such activities should increase the significance of public transport as the means of transport most effective for the provision of transport services. The action package exceeds the power or capacity of public utility companies, but can only be implemented by local authorities.

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Chapter 7

Management of public sector entities. Example of the Allgemeines Krankenhaus der Stadt Wien in Austria (description of case study)

Agnieszka Barańska

Introduction

Priority health behaviour stems from the recognition of health as one of the basic needs of the population and the ability to influence the city government in the areas that have the greatest impact on the health of the inhabitants understood as a resource. For the preservation of health by the inhabitants, in addition to the health care system, affects the conditions of the environment, lifestyle and genetic factors. The City Municipality can dispose of many possibilities – from the building stock, by competence, to grants which can affect health by a pro-investment tax policy and, finally, a policy towards their own medical entities. The city government is legally obligated to act in the field of health protection– it is responsible for the widely understood "public health". The particular importance of health for the city's development also stems from the necessity to maintain the activities of regional and supra-therapeutic entities included in the sectors of medicine providing high quality benefits not only medical, but also educational and research. For the development of the city it is very important, far beyond the elementary social solidarity, to provide equal opportunities for its inhabitants in the enjoyment of civilisation development and the democratisation of life and safety. The innovative management of the medical entity and the good organization of the health care system and the adequacy of support to the needs resulting in the improved

health situation in the region, which operates the medical facility by increasing the efficiency and quality of services.

The catalyst for the development of health systems has become the progress that has been made in certain areas of medicine. Doctors, public health experts and the public have to be measured with new realities. The changing health situation of society with reflection on the drastically changing epidemiological indicators have led to the development of new solutions that differ from the strategies that have previously been used. The researchers recognised that health is a function of many variables of different origins, often not biological. The health care system is obligated to ensure the highest possible level of health status for the population and prevent the deterioration of the people. This system must ensure the fulfilment of the legitimate expectations of the public in terms of the provision of benefits and in this respect there may be health policy action, which enables the public to increase their control over it and improve their health.

7.1. The role of the city government in the health care system organization

The role of the local and regional authorities play a part in creating and conducting the regional health policy and it has long been raised in the documents of the World Health Organization. Its importance is evident also in the activities of the European Union in this regard. Health policy is a component of health promotion, and its activity is in the area of social policy. Health is a common desire of society and the most important among the declared and used[125], it is important to develop new methods of management and the implementation of an innovative health policy at the level of the city and region.

The policy making of health is the process of setting goals for the public good and implementing the strategies to attain them. Every public policy is the outcome of an institutional decision. Public institutions, such as regulatory agencies or state courts, are themselves creatures of the political process[126]. The starting point for the health policy is health and its purpose is to increase its reserves and potential. Health policy, with regards to the health expected results must include the most relevant facts from the point of view of health promotion and health determinants, which are contained in most economic and social

[125] P.L. Young, L.A. Olsen, J.M. McGinnis, *Value in Health Care Accounting for Cost, Quality, Safety, Outcomes and Innovation*, National Academies Press, Washington, D.C. 2010, pp. 209-210.

[126] J. Ladurner, M. Gerger, W. Holland, W. Walter, E. Mossialos, S. Merkur, S. Stewart, J. Soffired, *Public health in Austria*, World Health Organization, Copenhagen 2011, p. 9.

sectors. By attaching the remaining components of health promotion, health education and prevention, the government can create a chance towards the full implementation of the goals and objectives in this field of activity for health, which, in turn, increases the control and improves the health status of the population, the evolution of the needs in addressing health problems and increases the potential of health in society[127]. Common action is needed for health by entities operating in various spheres of public life, including units of local government to create the appropriate conditions conducive to improving the health of the inhabitants of the region. There is an urgent need for coordinated action to increase the awareness of the inhabitant's health.

Public health is exercised at all levels (central, regional and local) and some tasks are better accomplished by certain levels of government. In general, many of the tasks carried out by a locality or town may be coordinated by regional structures, which are then overseen at the national – and sometimes international – levels. There must also be processes in place to ensure accountability. If a public health physician at the local level identifies a public health issue, there should be a clear mechanism through which they can report this at the regional or national level, with adequate feedback on the appropriate action taken[128].

Public health implemented at the central, regional and local level must be independent of politics and political influence in its design. Many public health recommendations go against other policies. In an historical example, factory owners were opposed to reforms to improve their workers safety due to the fear of lost revenue. Public health must be able to work in the interests of health and not be ignored for monetary or political reasons. This may mean appointing regional or national public officers who remain in their post regardless of the current government and who can only be removed in cases of gross misconduct and not because of unwelcome recommendations[129].

Health is multidimensional. Health can be defined according to criteria such as life expectancy, capacity for work, need for medical care, or the ability to perform a variety of personal and social functions[130]. Health economics is an applied field in which the empirical research shows that it, principally, comes from four traditional areas of economics: finance and insurance, industrial organisation, labour and public finance. The healthcare sector of the developed world's economies has become one of the most significant in terms of both the cost and human benefits it has created. Large segments of the health supply

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127 T. Bryant, *An Introduction to health policy*, Canadian Scholars' Press, Toronto 2009, pp. 47-49.

128 J. Ladurner, M. Gerger..., *op. cit.*, p. 10.

129 *Ibidem*, pp. 9-10.

130 V.R. Fuchs, *The future of health policy*, Harvard University Press, London 1994, pp. 27-28.

markets already rely on market disciplines, including part of the publicly owned hospitals. The more governments are involved in the provision of financing medical care in decentralised health care systems, the higher are the health expenditures[131].

Medical care accounts for more than 13 percent of gross national product in the Unites States and close to 10 percent in several other developed countries. Governments in all countries play a large role as regulations, subsidisers, direct buyers, or producers of medical care. Governments tell consumers what goods and services they can and cannot buy[132]. At the beginning of the twentieth century, there was a lack of health care available for the consumer to buy. Since the 90's in Europe, as a result of health reform, hospitals were confronted with changing circumstances. The main role of the health sector reforms played a technological and organisational innovation, decentralisation, need for new skills and the increasing awareness of the rights of the patient. The most important force for change was the aim of reducing costs[133].

7.2. System of health care and the organisation of medical entities in Vienna in comparison to the situation in Austria

The health system may be defined as a combination of health care institutions, supporting human resources, financing mechanisms, information systems, organisational structures that link institutions and resource, and management structures that collectively culminate in the delivery of health services to patients[134]. The health system distinguishes the reality of health protection of the chosen country compared to other countries. The health systems of the EU countries differ from each other. This difference relates primarily to the method of financing health care in the country. Generally, one can distinguish three systems (models) of the domestic financing of the health system:

1. insurance (based on public health insurance),
2. tax (based on general taxes),
3. private (co-payments, full payments, private services provision)[135].

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131 A.J. Culyer, J. Bengt, *Public and private health services*, Basil Blackwell Ltd, Oxford 1986, p. 60.

132 V.R. Fuchs, *The future...,* op. cit., p. 47.

133 U. Papouschek, N. Bohike, *Structural change and labor relations in health care in Poland, the Czech Republic, Germany and Austria*, Forba, Vienna 2008, p.7.

134 M.L. Lassey, W.R. Lassey, M.J. Jinks, *Health care systems around the world: characteristics, issues, reforms*, Upper Saddle River, New York 1997, p. 3.

135 Ch. Aspalter, Y. Uchida, R. Gauld, *Health Care Systems in Europe and Asia*, Routledge, New York 2012, pp. 7-8.

The Austrian health care system is primarily financed through a combination of income-based social insurance contributions, public income generated through taxes and private payments in the form of direct and indirect co-payments. The system of financing health establishments LKF is used to account for the services provided in hospital therapeutics. Whereas out-patient care is almost entirely financed by social health insurance funds, expenditure for in-patient care is shared between the public sector and social insurance. Long-term care services are mostly funded through taxes[136].

The Austrian healthcare system is characterised by the federal structure of the country, the delegation of competences to self-governing bodies in the social security system and cross-stakeholder structures at a federal and provincial level, which possess the competences in the cooperative planning, coordination and financing. Whereas almost all areas of the healthcare system are primarily the regulatory responsibility of the federal authorities, in the hospital sector, the federal legislature is responsible for enacting only basic law. Legislation on the implementation and enforcement is the responsibility of the nine federal provinces[137]. The Austrian healthcare system is highly decentralised with a division of responsibilities between the federal government and the regions.

In Austria, 24 sickness funds operate and they are autonomous institutions, which exercise the supervision and monitoring of the Federal Ministry of Labour and Social Affairs. Up to 90% of their income is premium. Public health services and administrations are jointly provided by the federal, provincial and local authorities. In addition, the provinces are in charge of ensuring hospital care for their inhabitants as well as offering health promotion and prevention services. The local governments are in charge of social welfare benefits and services. Most of the hospital beds in the public sector are mainly carried out by the provinces (54.5%) and municipalities (16%) and cash patients (8%)[138].

Austrian healthcare expenditure appears above average in comparison with that of other EU member states. Public spending on healthcare is approximately €20 billion; this corresponds to approximately 7% of gross domestic product (GDP). Hospitals that are listed in the hospitals plan of a federal province (i.e., fund hospitals) are subject to public law and have a statutory requirement to provide care and admit patients. They are entitled to legally prescribed subsidies from the public source for investment, maintenance and operating costs. The ratio of six beds for each 1,000 persons is clearly above the EU average.

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136 *The Austrian Health Care System*, Austrian Federal Ministry of Health, Vienna 2010, p. 17.

137 R. Gauss, *Austrian Health reform*, Bereichsleiter fur Finanzmanagement Geschaftsgruppe Gesundheit und Soziales, Wien 2014, material not published, p. 2-4.

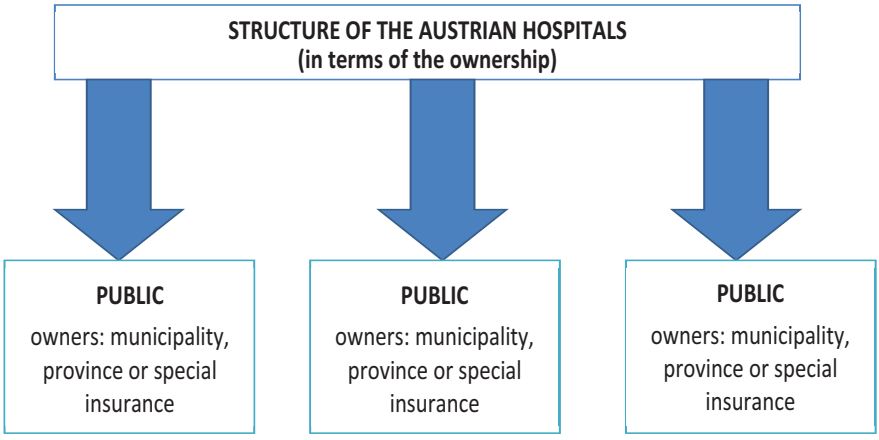
138 *The Austrian Health Care System*, Austrian Federal Ministry of Health, Vienna 2010, p. 20.

Furthermore, the admission rate of 27.9 for each 100 inhabitants is one of the highest in the European Union[139].

In Austria, special attention is attributed to health care financed by public funds. Public intervention in health care is also motivated by other facets of non-profit competitive markets. Governments may influence both health expenditures and the health status of the population in a number of ways. The following analysis concentrates on the possible effects of public management and public supply of medical care on the expenditures of health. In all countries outside Vienna the union activities of public hospitals is run by a company organised under private law. Even though they are organised under private law, their owners (local government units) are still accountable covering losses. This means that these are more of formal privatisations and not substantive, i.e., privatisation organisational[140].

In terms of ownership structure in Austria there are three types of hospitals: public hospitals (the owners: the municipality, province, or special insurance), public and private hospitals, i.e., for-profit hospitals (owners: mainly religious orders, associations, utilities) and private hospitals, meritocratic (the owners as individuals, SA, Sp., etc.) wich show the graph number 7.1.[141]

Graph 7.1. Structure of the Austrian hospitals in terms of the ownership



Source: Own, on the basis of non published materials of Ministry of Health, Wien 2012.

139 R. Gauss, Austrian Health ..., *op. cit.*, p. 3.

140 M.M. Hofmarcher, M. Rack, H.M., *Austria Health System ...*, op. cit., p. 61.

141 U. Papouschek, N. Bohike, *Structural...*, p. 17.

In addition to its societal and social relevance, the Austrian health care sector also represents a significant economic factor. According to a recent publication by the Institute for Advanced

Studies (IHS) health care expenditure in 2006 resulted in a net product of EUR 22.5 billion, which corresponds to a share of about 9.7% of Austria's entire value added, or in other words 445 000 fulltime equivalents[142].

Characteristics of the medical centre of the Vienna – Allgemeines Krankenhaus der Stadt Wien Allgemeines Krankenhaus der Stadt Wien looks back on a history of more than 300 years. It was built by Emperor Leopold I in 1693 on the area delimited by Alserstraße, Spitalgasse and Garnisongasse streets. In 1695, parts of the Großarmen– und Invalidenhaus were opened and in 1696, it already housed more than 1,000 poor people. By order of Emperor Joseph II, it was converted into the General Hospital that was inaugurated on August 16, 1784. In the 19th century, a new era of the Vienna school of medicine began: the era of the "Anatomical Clinic". Carl von Rokitansky (1804-1878), Ferdinand von Hebra (1816-1880), Franz Schuh (1804-1865), Ludwig Türck (1810-1868) and Ignaz Semmelweis (1818-1865) were the pioneers of that time. The development of new diagnostic and therapeutic techniques continually required the construction of numerous new buildings. The full implementation of the plans for the "new clinics" was prevented by economic recessions and two world wars. It was only in 1957 that the decision was taken to construct a new, big central building. The first phase started in the summer of 1964 with the construction of the training centre and accommodation for students and staff[143].

With its 640-year history and tradition, the Medical University has developed into a highly modern research facility. Allgemeines Krankenhaus der Stadt Wien is also the most traditional medical research institution in Austria. The Medical University of Vienna is not only the largest medical facility in Austria, it is one of the most important top research institutions in Europe and also provides the entire medical staff for Europe's largest hospital. Allgemeines Krankenhaus der Stadt Wien includes 27 university clinics, 10 clinical institutes, 42 clinical departments, 62 general outpatient clinics, 335 specialised clinics, 80 ordinary branches, 21 intensive care units. Overall, it employs 5,000 employees. Of these, 1,600 worked as doctors at the AKH Vienna and 1,800 researchers in 40,000 m²f research space. In 31 university hospitals around 100,000 patients are annually hospitalised, 48,000 surgeries performed and 605,000 people are provided with first aid by the ambulances[144]. The Allgemeines Krankenhaus der

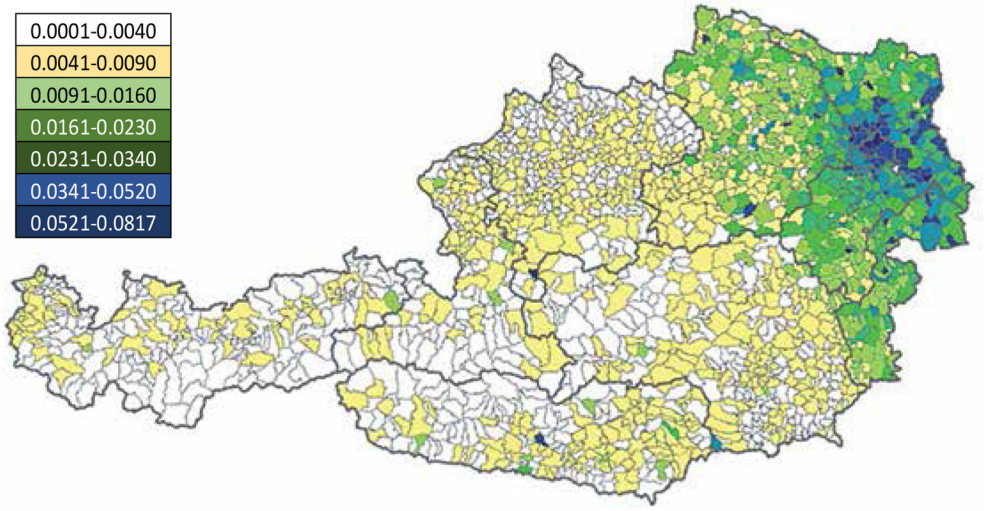
[142] *Ibidem*, p. 19.

[143] *Allgemeines Krankenhaus der Stadt Wien – Annual Report 2012*, Vienna 2012, pp. 6-7.

[144] *Ibidem*.

Stadt Wien is one of the largest hospitals in the world supplying the medical benefits for the entire region of Austria, which is illustrated in the graph 7.2 below.

Graph 7.2. Inpatients per inhabitans 2012



Source: *Allgemeines Krankenhaus der Stadt Wien – Annual Report 2012*, Vienna 2012, p. 16.

The technical conducting of the AKH is in private hands. A private enterprise built the AKH and is responsible for the technical operations of the institution today. The technical operation of the Allgemeines Krankenhaus der Stadt Wien is in private hands. The private enterprise built the AKH and is responsible for the technical lead institutions today. In Austria, we find a specific form of evolution, namely the Public Private Partnerships (PPP).

Table 7.1. The financial reserves changed in 2012

	Balance as of 01/01/2012	Reclassification Central Reserve	Allocation	Release	Balance as of 31/12/2012
	EUR	EUR	EUR	EUR	EUR
Other Reserve					
Free Reserve	0.00	4,700,000.00	3,244,013.73	4,700,000.00	3,244,013.73
Clinic Reserve	6,598,750.26	0.00	0.00	0,00	6,598,750.26
Investment Reserve	12,788,694.55	272,700.00	0,00	7,400,394.55	5,661,000.00
Investment Reserve special class	4,243,497.50	0.00	2,016,385.86	0.00	6,259,883.36
	23,630,942.31	**4,972,700.00**	**5,260,399.59**	**12,100,394.55**	**21,763,647.35**

Source: *Allgemeines Krankenhaus der Stadt Wien – Annual Report 2012*, Vienna 2012, p. 30.

As of December 31 2012 the book value of the TU AKH fixed asset amounted to EUR 1,892.2 Mio. According to the table of fixed assets the advance payments and the work in progress made up the largest part of the additions in 2012 with approx. EUR 19.7 Mio. Within the current assets the trade accounts receivable decreased to the amount of EUR 103.3 Mio (2011: EUR 105.7 Mio)[145].

Table 7.2. The development of investment subsidies for the year 2012

	EUR	EUR
Balance sheet as of 1 January 2012		1,910,526,794.93
Release		
Depreciation (except of low-value assets)	-93,988,474.87	
Book value of disposed assets	-146,277.46	-94,134,752.33
Extraordinary release of unused subsidies for investment		-7,658,831.64
Allocations from contributions		
City of Vienna	42,393,393.85	
WGF	3,559,596.00	45,952,989.85
Others (Federal Government, Medical University, Third parties and revaluations) and Balance Transfer ARGE-AKH		10,269,346.81
Repayment of the contribution from City of Vienna/WGF		-61,021.61
Change in calculation of investment subsidies from the City of Vienna		101,694.56
Balance sheet as of 31 December 2012		1,864,996,220.57

Source: *Allgemeines Krankenhaus der Stadt Wien – Annual Report 2012*, Vienna 2012, p. 30.

As of December 31, 2012 the accounts due from affiliated companies decreased significantly to EUR 15.3 Mio. (2011: EUR 38.5 Mio), whereof essentially subsidies not balanced by December 31, 2012 were concerned. The other receivables decreased to EUR 87.9 Mio (2011: EUR 90.0 Mio) and include receivables from the Medical University in the amount of EUR 9.6 Mio, the tax offset receivables in the amount of EUR 45.1 Mio, with not cleared investment subsidies in the amount of EUR 18.6 Mio, and receivables from the Federal Government in the amount of EUR 7.0 Mio[146].

The City of Vienna and the Federal Government share responsibilities for the Allgemeines Krankenhaus der Stadt Wien that has established an equally high reputation in three areas – outstanding patient care, excellent research and innovative teaching. Within the Allgemeines Krankenhaus der Stadt Wien these three aspects are inextricably interlinked with one another and this integrated

[145] *Allgemeines Krankenhaus der Stadt Wien – Annual Report 2012*, Vienna 2012, p. 31.

[146] *Ibidem*., p. 29.

approach must be strengthened in the future in order to ensure that the AKH continues to maintain this medical excellence[147].

Reforms to the health system in Austria have been addressed over the last 15 years, the reduction of expenditures by using the reserves profitability, increasing revenues through subsidies and with the help of hospital capacity planning, co-operation and co-ordination bodies functioning streams[148]. Reforms and the implementation of its case-mix system has resulted in the fact that the Austrian health care system is considered to be one of the best and most innovative in the world. Austria has moved towards planning health services in a more integrated fashion following the 2005 health reform. With modern case-mix tools, governing the operation of medical entities at a central level in the Allgemeines Krankenhaus der Stadt Wien it is possible to implement innovative management methods and produce good financial results of the medical facility. Austria at the national level of health care uses a range of planning tools, supported by a set of indicators and data although as noted above, at present these pertain to the hospital sector only. Techniques have moved from bed numbers to service volumes. Here, one of the main perceived challenges is to develop a sound methodology to link the assessment of healthcare needs with the appropriate level of supply[149].

Excellent care of the sick, health promotion and protection aimed at the specific needs and the consequent prevention of disease is among the priorities, the excellent level of medical care has resulted in the fact that the Austrian health system can be deemed as one of the best in the world. Through high investment in medical advances national health care facilities are equipped with the latest equipment. Equal access to health care services for all Austrian inhabitants, independent of their income, age, sex or origin, is guaranteed by the solidarity-based funding principle of the Austrian health care system. The 21st century is, for the system of social benefits and health insurance, a period of reforms under naturally changing conditions including technological progress, innovation in organisation and management of medical entities. Each of the countries in Europe have faced changes, where the purpose was the reduction of operating costs in health systems and improvement of quality. In Austria, the observed expansion of the package of services within the insurance and the expansion of use of health services for the poorest people, the elderly, low-income or no insurance.

147 *Ibidem*, p. 2.

148 M.M. Hofmarcher, H.M. Rack, *Austria Health System Review*, [in:] A. Riesberg (ed.), *Health System in Transition*, WHO Regional Office for Europe, Copenhagen 2006, Vol. 8, No. 3, p. 55.

149 M. Fazekas , S. Ettelt, J. Newbould, E. Nolte, *Framework for assessing, improving and enhancing healthcare planning Final report*, Rand Europe, Cambridge 2010, pp. 19-22.

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Summary

Making the 21st century is a part of new innovative project "Eco-innovations in cities". This course meets the problems and proposes of a new approach to urban development through wider recognition, the application of new management techniques, methods and promoting creative thinking at a different competence level.

At the beginning of the 21st century we can deeply observe the changes of development in many cities all over the world. The main reason is to pose the question that are the existing big cities more attractive for the population now living in them or for those who will live in cities in the future?

The most important question according to the development of the cities in the 21st century is: is it possible to create innovative cities and make them attractive from the social and economic point of view? We have good examples in many places of the world, where new ideas, creative thinking, innovative techniques, technologies, new methods of managing in the public arena exist.

Creative thinking is a new paradigm of development at a local and regional level. Changes in innovative processes as a main factor of city development. Innovations and new technologies in the development of 21st century cities. New tasks and new methods of managing in a public sector. Cities and agglomerations in quality development on a local and regional level. The economy of public services and public enterprises according to the new challenges of 21st century cities.

One of the good examples is Vienna City in Austria, Europe. This is why the team working on main topics in the Project selected this City to provide the research in order to create a new intelligent city, one which is more attractive for the inhabitants.

Vienna compared to other cities in the world is not a large settlement unit. Observing the processes of demographic, social, as well as the transformation of an economic nature, it is clear that Vienna is not by chance among the fastest-growing units, offering a high standard of living for its residents. The issue is to provide a relatively high standard of living for all residents of the city, and therefore does not take into account the situation in which there are huge disparities between the relatively small group of urban residents who can maintain a high standard of living and a significant number of urban residents living in conditions sub – economic. The huge advantage Vienna, when it comes to ensuring the standard of living of its inhabitants is the attention of the public authorities to provide decent housing, a suitable level of social services, quality of services of a technical nature as well as suitable conditions for the development of entrepreneurship. It is therefore concluded that the main advantage of Vienna, in spite of multiculturalism and the numerous links of a national and international level is its locality, which consists precisely in the care of residents comprising of the population of the city. It should be emphasized that despite the numerous links to external – a number of conditions resulting from the projects of supra – in the first place when it comes to the city authorities are the objectives of the local community.

A consistently pursued stable policy by the public authorities of the city creates a good atmosphere for both the real sector of the economy, and leads to the launch of numerous mechanisms supporting socio-economic development. For these reasons, Vienna manages to undertake many complex projects with a relatively long implementation period and huge capital commitment. Continuity of the municipal policy and the citizens' trust in the public authorities leads to the consistent achievement of the objectives set out in the strategic planning documents of the city. The effectiveness of this policy has already been confirmed by the high degree of implementation of the tasks planned in previous years, and at which point a new target planning and development of these scenarios will be reflected in the future.

Prof. Krzysztof Jarosiński Ph.D.
Ph.D. Grzegorz Maśloch

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