

Edited by:

Ewa Latoszek, Magdalena Proczek, Agnieszka Kłos,  
Marta Pachocka, Ewa Osuch-Rak

# FACING THE CHALLENGES IN THE EUROPEAN UNION

Re-thinking EU Education and Research  
for Smart and Inclusive Growth (EuInteg)

POLISH EUROPEAN COMMUNITY STUDIES ASSOCIATION  
WARSAW 2015

The publication of this book is co-funded by the Erasmus+ Programme of the European Union and the Ministry of Foreign Affairs of the Republic of Poland under the competition “Cooperation in the Area of Public Diplomacy 2015”.

The book reflects only the views of the Authors and cannot be understood as the official position of the Ministry of Foreign Affairs of the Republic of Poland.

### **Reviewers**

Professor Andrzej Harasimowicz, University of Warsaw

Professor Martin Holland, University of Canterbury

Professor Tadeusz Sporek, University of Economics in Katowice

### **Editorial cooperation and proofreading**

Magdalena Daniel

Kinga Jambroszczak

### **Cover design**

Agnieszka Miłaszewicz

### **Editorial Supervisor**

Czesława Kliszko, Warsaw School of Economics

© Copyright by Polish European Community Studies Association,  
PECSA, Warsaw 2015

## ACKNOWLEDGEMENTS

Preparation and publication of this book was possible thanks to support from the institutions promoting research and scientific cooperation.

We have received financial support and assistance from:

- the European Union, within the framework of the Erasmus+ Programme,
- the Ministry of Foreign Affairs of the Republic of Poland, under the competition “Cooperation in the Area of Public Diplomacy 2015”,
- Warsaw School of Economics,
- the University of Warsaw,
- the University of Gdańsk,
- the European Community Studies Association ECSA World.

In addition, we have received high and honorary patronage from:

- the European Parliament,
- the European Commission Representation in Poland,
- the Ministry of Science and Higher Education,
- the Ministry of Economy,
- the Ministry of Infrastructure and Development,
- the National Centre for Research and Development,

as well as patronage from:

- the Polish Bank Association,
- the Association of TOP 500 Innovators.



# Contents

|                                                                                                                                                                        |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Preface</b>                                                                                                                                                         | 11  |
| <b>Part I. Understanding the European Union – the Main Challenges for the Coming Years</b>                                                                             |     |
| <i>Education, Innovation and Growth. The Operation of PECSA in the Face of Contemporary Challenges in the European Union, Lena Kolarska-Bobińska</i>                   | 19  |
| <i>Can Teaching of European Integration Help Europe?, Jan Truszczyński</i>                                                                                             | 21  |
| <i>Understanding Europe – the Biggest Challenges of These Days, Danuta Hübner</i>                                                                                      | 25  |
| <i>The Turning Points in the European Union's Integration Process in the Coming Years. What are the Incentives for Creative and Sustainable Economy?, Ewa Latoszek</i> | 37  |
| <b>Part II. European Union as a Global Actor in a Changing World</b>                                                                                                   |     |
| <i>Promoting Smart and Inclusive Growth. The European Union Interacting with International Organisations, Willem Molle</i>                                             | 53  |
| <i>The European Union and Multi-level Governance in the World: Conceptual Reflections, Léonce Bekemans</i>                                                             | 71  |
| <i>The External Dimension of the European Union's Area of Freedom, Security and Justice, Grair Magakian</i>                                                            | 95  |
| <i>Has the European Union Succeeded in its Primary Mission of Securing Peace?, Jacek Saryusz-Wolski</i>                                                                | 107 |
| <i>The European Union's Development Cooperation Policy after 2004, Ewa Latoszek</i>                                                                                    | 115 |
| <i>The New Generation of the European Union Association Agreements with Ukraine, Moldova and Georgia, Roman Petrov</i>                                                 | 133 |
| <i>The Eastern Policy of the European Union – a Challenge for Poland's Foreign Policy, Dariusz Milczarek, Olga Barburska</i>                                           | 145 |
| <i>Turkey – A Rising Power Between Europe and Asia, Artur Adamczyk</i>                                                                                                 | 167 |
| <i>The European Union and Emerging Markets. China's New Silk Road Strategy – Challenges and Opportunities for the EU, Monika Krukowska</i>                             | 181 |
| <i>European Union Dialogue on Regional Policy with Mercosur. The Case of Cross-border Cooperation, Ida Musiałkowska</i>                                                | 193 |

|                                                                                                                                                                                                                                                           |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <i>Economic Relations between the European Union and Sub-Saharan Africa,</i><br><b>Kamil Zajączkowski</b>                                                                                                                                                 | 209 |
| <i>India and the European Union: Strategic yet Distant Partners?</i><br><b>Shantanu Chakrabarti</b>                                                                                                                                                       | 229 |
| <b>Part III. Regional Development for Economic and Social Cohesion<br/>in the European Union</b>                                                                                                                                                          |     |
| <i>Cohesion and Growth: Is the European Union System Fit to Face the<br/>Challenges beyond 2020?,</i> <b>Willem Molle</b>                                                                                                                                 | 239 |
| <i>The State as the Most Important Partner of the European Union in the Field<br/>of Regional Policy in Central and Eastern Europe,</i> <b>Ioan Horga</b>                                                                                                 | 257 |
| <i>Europeanisation of the Polish Public Policy in the Context of State Officials’<br/>Compliance with Ethical Standards,</i> <b>Joachim Osiński</b>                                                                                                       | 283 |
| <i>Regional State Aid and Convergence of Regions in the Visegrad Group<br/>Countries after Accession to the European Union,</i> <b>Adam A. Ambroziak</b>                                                                                                  | 293 |
| <i>The Role of Repayable Financial Instruments in the Implementation Process<br/>of the Cohesion Policy,</i> <b>Agnieszka Kłós</b>                                                                                                                        | 315 |
| <i>Smart Regions and Cities Supporting Cluster Development and Industrial<br/>Competitiveness in the European Union. Africa’s Smart Region Development<br/>Influencing Global Competitiveness,</i> <b>Anna Masłoń-Oracz,</b><br><b>Michael Mazurewicz</b> | 335 |
| <i>The Role of Regions in Smart Specialisation Strategies in Poland,</i><br><b>Marta Dobrzycka</b>                                                                                                                                                        | 347 |
| <i>The European Union Competition Policy in the Context of Globalisation<br/>of the World Economy,</i> <b>Ewa Latoszek, Agnieszka Kłós</b>                                                                                                                | 363 |
| <i>Solidarity and Security as Elements of the European Union’s Common<br/>Energy Policy. Challenges and Prospects for Development on the Gas Market,</i><br><b>Bartłomiej Nowak</b>                                                                       | 377 |
| <i>Marine Maze: Meanders of the EU’s Common Fisheries Policy in the View of<br/>Cohesion Policy,</i> <b>Katarzyna Negacz</b>                                                                                                                              | 393 |
| <b>Part IV. Towards Better Finance Governance in the European Union</b>                                                                                                                                                                                   |     |
| <i>Governing EMU after the Crisis – Sense and Nonsense of the New Practices</i><br><b>László Csaba</b>                                                                                                                                                    | 405 |
| <i>Convergence Capability as an Imperative for the Endurance of the Euro<br/>Zone,</i> <b>Alojzy Z. Nowak, Kazimierz Ryc</b>                                                                                                                              | 417 |
| <i>Economic Crises and the International Position of the Euro,</i><br><b>Izabela Zawiślińska</b>                                                                                                                                                          | 441 |

|                                                                                                                                                                    |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <i>The Importance of the European Stability Mechanism for Deeper Integration within the Economic and Monetary Union, <b>Patrycja Bytner</b></i>                    | 453 |
| <i>The European Union Budget: the Reform of Own Resources, <b>Magdalena Proczek</b></i>                                                                            | 461 |
| <b>Part V. Shaping and Unfolding Innovation in the European Union</b>                                                                                              |     |
| <i>High Road or Thorny Trail? Re-designing European Union Innovation Policy for a Turbulent World, <b>Klaus Gretschmann</b></i>                                    | 483 |
| <i>Innovation and Knowledge Diplomacy – the New Dimension of External Relations, <b>Vasile Cucerescu</b></i>                                                       | 493 |
| <i>Foreign Direct Investments in Poland and Their Influence on the Technological Advancement of Companies, <b>Aleksandra Borowicz</b></i>                          | 505 |
| <i>Innovations in Aerospace Industry in the European Union – the Case of Poland, <b>Ewa Osuch-Rak, Jan Holnicki</b></i>                                            | 517 |
| <b>Part VI. Demographic Changes in the European Union</b>                                                                                                          |     |
| – Questions for the Future                                                                                                                                         |     |
| <i>The European Union and International Migration in the Early 21<sup>st</sup> Century: Facing the Migrant and Refugee Crisis in Europe, <b>Marta Pachocka</b></i> | 531 |
| <i>The Impact of Immigration on the Demographic Situation in the European Union – the Case of Spain, <b>Anna Romiszewska</b></i>                                   | 559 |
| <i>Pro-natalist Aspects of Polish Population Policy – Selected Problems in the Years 2004–2014, <b>Michał Budziński</b></i>                                        | 571 |
| <b>Part VII. Education and Research as Main Drivers of the EU's Sustainable Growth</b>                                                                             |     |
| <i>New Challenges of Global Education: a Precondition for Social Welfare or a Threat to Labor Market?, <b>Lika Mkrtchyan</b></i>                                   | 585 |
| <i>Priorities for the University Education, and Delivery Methods, <b>Olga Bombardelli</b></i>                                                                      | 593 |
| <i>Access to Education and Inequality – Rethinking European Union Policies in Terms of the Accessibility of Education, <b>Marcelo Parreira do Amaral</b></i>       | 605 |
| <i>Gender Equality in Higher Education as Precondition of Innovative and Inclusive Society in the European Union, <b>Aleksandra Szczerba-Zawada</b></i>            | 613 |
| <i>Education as a Tool to Enhance Economic Security, <b>Corneliu Munteanu, Angelica Munteanu</b></i>                                                               | 625 |
| <i>Building an Open, Engaging and Innovative Society through Academic Education as a Public Good, <b>Krzysztof Kozłowski</b></i>                                   | 635 |

|                                                                                                                                                        |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <i>New Challenges, Current Priorities in the Education and Research:<br/>How to Finance Them?</i> , <b>Katarzyna Żukrowska</b>                         | 643 |
| <i>Education, (Production of) Knowledge and Progress in the Context of the<br/>Global Public Goods Debate</i> , <b>Anna Visvizi</b>                    | 661 |
| <i>The Major Role of Education, Educational Level and Life Satisfaction.<br/>A Comparison between Greece and Turkey</i> , <b>Mehmet Ali Ozcobanlar</b> | 675 |
| <i>Culture, Growth and Teaching European Studies in Poland</i> , <b>Jan Misiuna</b>                                                                    | 685 |
| <i>Do We Need European Studies?</i> , <b>Enrique Banús</b>                                                                                             | 693 |
| <i>European Union Responses to Crisis in the Area of Education</i> , <b>Vito Borelli</b>                                                               | 707 |
| <i>The Success of Polish Transformation – Lessons for the Eastern Partnership<br/>Countries</i> , <b>Michał Budziński, Patrycja Bytner</b>             | 715 |



## PREFACE

The European Union is currently facing a number of challenges in the economic, political and social sphere. Their accumulation and strategic nature make the current situation unprecedented in the history of the EU. In addition, the dynamically changing balance of power in the world and the global economic and social challenges – including the processes recently taking place outside of the EU – require the Member States to employ several new measures. Echoes of the economic crisis and the prolonged wait for economic recovery cause new phenomena to emerge – such as growing anti-European sentiments or the crisis of internal solidarity. What is more, the changing situation highlights the growing structural problems in the economic and social dimension.

In the face of the challenges before the EU, European studies have become particularly significant in the shaping of a new civilisation image of Europe. It should be emphasised that scientific knowledge of the processes currently taking place in the Union itself as well as in its vicinity is crucial not only to the understanding of their importance in the theoretical perspective, but also to the practical apprehension of the wide spectrum of activities of this organisation. The knowledge of these processes will, on the one hand, allow to formulate long-term strategies and implement sectoral policies that will strengthen the position of the EU and its Member States in the world. On the other hand, it will make it easier for the EU citizens to accept the changes being introduced and to better understand the processes taking place around them.

The questions about the future of European studies and the ability to cope with the major challenges that the EU is facing are answered on following pages by representatives of the world of science, business practice and politics who attended the international scientific conference organised by the Polish European Community Studies Association (PECSA), entitled “Facing the Challenges in the European Union. Re-thinking EU Education and Research for Smart and Inclusive Growth (EuInteg)” (which took place on 14–15<sup>th</sup> May 2015 at Warsaw School of Economics), as well as many other recognised experts in the fields of European studies, economics, sociology and political science. The aim of the conference was to discuss the conditions for smart and inclusive economic and social development of the EU, with special emphasis on the role of science, research and education in its achievement through the prism of the Polish experience with multidimensional transformation of the economic, social and political systems.

The EU participates in international relations of global reach. Over the years, its role in the world has been systematically increasing alongside the deepening integration processes in Europe. With the changes introduced by the Lisbon Treaty regarding external affairs, the EU has indicated that it wishes to play an increasing role in the international environment, both in the political and economic spheres. The EU has strengthened its position as one of the main architects of global economic governance while promoting the values on which it was founded. However, it should be noted that, in the face of numerous global challenges, sustainable and inclusive development will require the continuation of economic, political and social cooperation of the EU with major actors in international relations, that is, among others, the USA, China and Latin American countries. To this end, the EU should intensify the efforts to maintain and deepen the political and economic relations with its partners, so that they can become a stable and solid pillar of economic growth. The EU has been strengthening ties with new neighbouring countries, thus not only contributing to the raising of its own prestige in the international arena, but also creating an opportunity for developing brand new political, social and economic relations with its immediate environment. These relations evidence the effectiveness of the external policy of the Union.

The EU's actions focus heavily on ensuring economic and social cohesion across all its regions. In order to do away with regional disparities within the Union, the cohesion policy is being implemented. The main objective of this policy is to ensure sustainable and balanced growth, as well as to increase the competitiveness of all EU regions and the EU as a whole. Successive enlargements of the Union have changed the nature of the challenges the cohesion policy is facing and made them more difficult to cope with. The enlargements led not only to an increase in the number of regions at a low level of development, but they also brought on more territorial diversity of the EU. Therefore, the current situation requires a new approach and a new set of instruments. The cohesion policy should also support the development of a knowledge- and innovation-based economy. The new approach to cohesion policy emphasises the role of cities as major centres of creativity and innovation which could take a leading role in the strive for smart growth. It is also to be supported by the introduction of smart specialisation in the EU regions, which is to contribute to the transformation of the economies of individual Member States through their modernisation, structural transformations, diversification of products and services, and creating innovative socio-economic solutions.

For many years now, the EU has been trying to mitigate the effects of the financial crisis of 2007–2009 and to prevent similar crises in the future. Thus, an important group of problems consists of challenges concerning the European financial safety

net and the stability of the European banking system and the euro zone. The financial crisis also brought on many challenges for the EU economy, including in the field of trade policy and competition policy. The competition policy plays a crucial role in the EU in achieving the objectives of economic integration of its Member States. It is a natural consequence of the principles of free trade within the European single market. Competition is an effective measure guaranteeing a certain level of excellence in terms of quality and price of products and services to all consumers in EU Member States. It strengthens the industrial and commercial structure of the European Union, which in effect allows to confront the competitiveness of our main partners.

For several years now, EU innovation indicators have shown lower growth dynamics than, for example, innovation indicators of Asian countries. It is a sign that the broader innovation system of the EU and its Member States (which includes, among others, research institutions, businesses and government institutions that affect the development of new technologies and R&D) is becoming less efficient and requires reforms that could guarantee a real conversion of EU economy to one of innovation-based competitiveness.

Significant EU challenges also arise from the dynamic demographic changes occurring across the Union and its Member States. On the one hand, it should deal with the aging population and hence the need to modify the social security systems. On the other hand, within its activities, the EU must take greater account of the unprecedented influx of people from regions affected by armed conflicts, mainly from Africa and Asia. One of the future tasks of the European Union is to increase the engagement outside its territory and to strengthen the cooperation with its global partners. Therefore, the EU should address the issues of root causes of migration and promote legal ways of migration that foster the spreading of economic growth and development both in the countries of origin and in the destination countries. This is not only important for the security of the EU, but also for its citizens who in the newly introduced “European Agenda on Migration” may see a chance for a balanced migration policy in the long term.

It is worth noting that the fundamental role in the development of society and improvement of prosperity and competitiveness of states and regions is attributed to education. In the light of the new challenges of the modern world, new goals – such as mobility, ability to change one’s qualifications at all stages of life and stimulating creativity – are being set for education. This is apparent in the new priorities for education specified in the Europe 2020 Strategy, which are, among others: implementing the concept of lifelong learning and mobility, promoting equality, social cohesion and active citizenship, as well as enhancing creativity and innovation, including entrepreneurship, at all levels of education and training. Therefore, education

is supposed to better correspond to current economic and social challenges of the EU and its Member States.

This publication contains studies on issues that nowadays are the biggest challenges for the EU and its Member States. They reflect the lines of research conducted within the framework of European studies and studies in economics and social sciences regarding issues related to the activities of the EU. This publication consists of seven parts.

The first part, entitled “Understanding the European Union – the Main Challenges for the Coming Years”, provides reflections on the major challenges that the EU will have to face in the nearest future. Eminent representatives of the Polish world of science and politics have shared their views on the matter. Those representatives being: prof. Lena Kolarska-Bobińska, Ph.D. – the current Minister of Science and Higher Education, Jan Truszczyński – the former Director General for Education and Culture of the European Commission, prof. Danuta Hübner, Ph.D. – the former Minister for European Affairs, Poland’s first-ever European Commissioner, and prof. Ewa Latoszek, Ph.D. – head of the Jean Monnet Chair of the European Union at Warsaw School of Economics.

The second part, entitled “European Union as a Global Actor in a Changing World”, discusses the place of the European Union in the rapidly changing global economy. Articles in this section concern both the assessment of the hitherto pursued foreign policy of the EU and the possible perspectives for further cooperation with countries such as the states of the former Eastern bloc, Turkey, China, India and countries of Sub-Saharan Africa.

The highly important issue of integrated development of individual regions is the focus of part three of the publication – “Regional Development for Economic and Social Cohesion in the European Union”. This part provides reflections on, among others, the role of the state in creating regional policies, the hitherto achievements of the EU’s cohesion policy and the role of other policies (for example the policy on energy or fisheries policy) for the cohesion policy and the economic growth resulting from it.

Part four, “Towards Better Finance Governance in the European Union”, focuses on a particularly important matter given the EU’s experiences in recent years – that is the supervision of financial systems. The importance of this issue was clearly highlighted by the 2008+ crisis, which significantly changed the way the financial and real spheres of the economy are perceived. The focal points of the texts in this section are topics such as financial stability, supervision of financial institutions, common currency – the euro, and the reform of the EU budget.

Part five, entitled “Shaping and Unfolding Innovation in the European Union”, is dedicated to innovation – an essential element for continued growth of developed economies of the West. The articles raise important issues of the EU innovation policy, the role of innovation in international relations and the impact of foreign direct

investment on the development of innovation. Additionally, Polish achievements in innovation – illustrated by the example of the airline industry – have been presented.

Demographic changes are the focus of part six: “Demographic Changes in the European Union – Questions for the Future”. The matter in question is important both in the context of the consequences of long-term population projections for Europe, as well as in the context of a serious migration crisis that is already being called a “refugee crisis”. What is more, much attention was devoted to the current issues of population policy, with particular emphasis on its family-oriented dimension.

The final part, entitled “Education and Research as Main Drivers of the EU’s Sustainable Growth”, focuses on the role of education and scientific research in the economic development of EU countries. Particularly noteworthy is the issue of access to education as a determinant of innovativeness of the economy and the quality of life of the society, addressed in this section. Additionally, the authors reflected on the current challenges facing the educational systems of European countries.

Poland’s accession to the European Union crowned the important historical stage that was the multidimensional systemic transformation. This is why the publication closes with a text entitled “The Success of Polish Transformation – Lessons for the Eastern Partnership Countries”. This text is a historical analysis of the Polish political and economic transformation and the opportunities offered by the Polish experience to countries aspiring to EU membership. In addition, it also presents the main results of a survey conducted among the participants of the EuInteg conference in which they were asked to assess various aspects of the Polish transformation.

The structure of the publication and the approach to the discussed topics were presented in such a way as to give the reader a broad overview of issues regarding the most important areas of EU activities. Bearing full responsibility for the way the problems were presented, we would like to express our gratitude to all those institutions and individuals who contributed to the publishing of this work – both in the form of financial support as in the form of expertise and knowledge. In particular, we wish to thank the European Commission and the Ministry of Foreign Affairs for the great trust they bestowed in us and the financial support that allowed to organize the conference „Facing the Challenges in the European Union. Re-thinking EU Education and Research for Smart and Inclusive Growth (EuInteg)”. However, the realization of that objective would not have been possible without the invaluable cooperation of the Organizing Committee with the co-organizers and partners of the event, among which with great gratitude we mention: the University of Warsaw (in particular the Centre for Europe and the Institute of International Relations), the Research Centre on European Integration of the University of Gdańsk, the worldwide network of the European Community Study Association (ECSA-World), the Konrad Adenauer Foundation

(KAS) and the European Academy of Diplomacy (EAD). Among the co-organizers a special role was played by the Warsaw School of Economics (SGH), which was the scene of fruitful discussions during the conference held on 14–15 May 2015. Without the support of prof. Tomasz Szapiro, Ph.D., Rector of the Warsaw School of Economics and prof. Joachim Osiński, Ph.D., Dean of the Collegium of Socio-Economics of the SGH, the organization of this event would not have been possible. As the School authorities provided the needed organizational capabilities, it became possible to invite distinguished and eminent guests inside the walls of the Warsaw School of Economics

Neither the conference nor this publication – even with the great contribution of the co-organizers, partners and the support of the Warsaw School of Economics – would have been possible without the participation of wonderful guests and their invaluable contribution of expertise and knowledge. It is impossible to name here all the people who graced the event with their presence and shared their vast knowledge and experience with other participants. However, among the many participants, we would like to especially mention the following contributors: prof. Ewa Latoszek, Ph.D., prof. Lena Kolarska-Bobińska, Ph.D., prof. Enrique Banús, Ph.D., prof. Danuta Hübner, Ph.D., Janusz Lewandowski, Ph.D., prof. Willem Molle, Ph.D., prof. Jacques Pelkmans, Ph.D. and Jacek Saryusz-Wolski, Ph.D. Special thanks are also due to Angelika Chomicka, representing EU institutions and Krzysztof Pietraszkiewicz, president of the Polish Bank Association, for their invaluable support in preparing the conference. Closing this long – but still unexhausted – list of acknowledgements we express great gratitude for supporting the conference through taking patronage over it to the European Parliament (high patronage), the European Commission Representation in Poland (honorary patronage), the Ministry of Science and Higher Education (honorary patronage), the National Centre for Research and Development (honorary patronage), the Ministry of Economy (honorary patronage) and the Ministry of Infrastructure and Development (honorary patronage), as well as the Polish Bank Association and the Association of Top 500 Innovators.

Thanks to the great commitment of mentioned individuals and the institutions they represent, we can now place in the hands of the Readers a publication that is the result of research and discussions that occurred at the conference. We hope that the articles within it will – on the one hand – inspire the Authors to further pursue their research in the field of European Studies and to seek solutions to the growing challenges facing the European Union, while – on the other hand – encouraging the Readers to explore the issues related to those challenges.

*Ewa Latoszek, Magdalena Proczek, Agnieszka Kłos, Marta Pachocka, Ewa Osuch-Rak*

Anna Masłoń-Oracz\*

Michael Mazurewicz\*\*

# SMART REGIONS AND CITIES SUPPORTING CLUSTER DEVELOPMENT AND INDUSTRIAL COMPETITIVENESS IN THE EUROPEAN UNION. AFRICA'S SMART REGION DEVELOPMENT INFLUENCING GLOBAL COMPETITIVENESS

## Abstract

*Smart city solutions are proving to be effective in socio-economic development worldwide. Europe's smart city initiatives have a positive effect on cluster development, which in turn benefits Europe's economy by integrating private, public and educational institutions. Most clusters today are focusing on growth in key strategic industries, e.g. initiatives developing the so-called Key Enabling Technologies in order to bring innovative market solutions. Nevertheless, the European Union isn't an isolated case and many European enterprises and innovators need to adapt to a fast-changing world. In order to stay competitive, European enterprises need to acknowledge rapidly growing Asian-based organisations. In the changing world, Africa is quickly rising as the next economic frontier, where most global leaders are looking to invest due to favourable future predictions. Africa, seeing its opportunity, is opening up to new industrial solutions that could further attract many more investors to a continent historically ravaged by poor performance.*

**Keywords:** smart city, smart region, clusters, global competitiveness, Sub-Saharan Africa

## Introduction

In its Europe 2020 Strategy, the European Commission has outlined a vision for becoming a smart, sustainable and inclusive economy (European Commission 2015). As explained in its official documents, the EC stresses the importance of these three mutually reinforcing priorities helping the EU with its Member States to deliver high levels of employment, productivity and social cohesion in the changing world.

---

\* Collegium of Socio-Economics, Warsaw School of Economics; Maroney Group; a.maslon@maroney.pl  
\*\* Maroney Group.

In succeeding with this vision strategy, the EC initiative titled “An industrial policy for the globalisation era” further maintains a view on the importance of developing Europe’s industry to enable economic recovery and sustained growth. Regions and cities that focus on creating a favourable environment and supporting a diversified, competitive and sustainable industrial base are the cornerstone of realising this strategy.

At a time when the world is experiencing dramatic changes, the need of intercontinental economic cooperation and integration is becoming ever more crucial. The European Centre for Development Policy Management (ECDPM) has highlighted in its analyses how a joint cooperation between the EU and Africa is essential for both continents. By engaging in Africa’s development, the EU has a chance to prove that it is still a global player (Mackie, Williams 2015). The EU–African relationship is leaning further to one based more on trade rather than aid. The USA, China and the UK are leading the way in economic trade and development in Africa (Financial Times 2015). Africa’s capital investment surges by 65% in 2014 to a sum total estimated at 87 billion USD.

On top of that, the Sub-Saharan Africa is undergoing a major urbanisation trend (AfDB 2013). Smart cities in Africa, more than anywhere else in the world, can offer major improvements in living conditions to their citizens.

## 1. Smart Cities (or Regions)

According to a Deloitte report (2014), a city or region can be defined as “smart” when investments in human and social capital, as well as traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources.

In the debate on creating smart cities, it is easy to get lost in various discussions and proposals of city models and available technologies. In an effort to simplify such a complex topic, let’s focus on the “smart city”/“smart regions” main priorities:

- cost reduction (of all resources: energy, natural resources, time!);
- advancing the wellbeing of citizens;
- supporting SMEs through cluster development.

The additional challenge is that the three priorities above are to be achieved in a difficult global environment, where the human population is rapidly rising and life resources are often limited or have to be better managed, depending on the region in the world. Achieving the desired results is ever more important due to social



constraints that may endanger the security of all people if the resources and wellbeing of people aren't being looked after. Many UN studies on global economic inequality published within the last decade explain in depth the dangers of ignoring this simple fact any further.

Smart cities have the ability to properly merge the social and economic needs in order to achieve socio-economic progress. Smart city solutions may single-handedly decide about the future of the global state of economic affairs, as "smart city" concepts directly touch the largest economy sectors: energy, transport and healthcare. Crucially, this directly affects the majority of global water and waste management. By 2050, the urban economy alone will account for 6 billion people (United Nations 2011). In the energy sector alone, urban areas account for 80% of global energy consumption.

Cities around the world have become hubs for the global economy. By 2025, the 600 biggest cities in the world are projected to account for 60% of global GDP growth (McKinsey Global Institute 2011). Cities play a crucial role in the transition towards a knowledge-based economy, which is occurring in many places, not least in Europe. This is because of the fact that cities contain an increasingly larger share of the world's highly skilled, entrepreneurial and creative population. This means that they are home to concentrated and diverse pools of knowledge, which spur new economic development.

Smart city solutions are widely and positively accepted as in their essence they strive for enhancing social wellbeing that enables cities to be more sustainable, liveable, intelligent and green. This is achieved by integrating three crucial factors:

- access to data;
- intelligent tools to connect knowledge;
- people to drive the change.

The development of ICT and cross-sectoral clusters enables the active commitment in developing the three factors mentioned above. There is, however, also a growing concern about overreliance on technological solutions.

A gap remains between the opportunity to achieve changes in the system across the city and the current state of deployment, and it requires much more than new technologies. A study shows clearly that the cities in China which are growing the fastest are also the ones with the best environmental performance (Bouton et al. 2010), i.e: the better performing cities provide mass transit for citizens and access to clean water, as well as reducing pollution levels from factories. Those cities have achieved this through policy – not technology; through better planning of mass transit and urban services, clear targets for industry, clear monitoring standards, and coordination of policy and investments into resource efficiency.

## 2. Benefits and Challenges of Clusters within Smart Cities

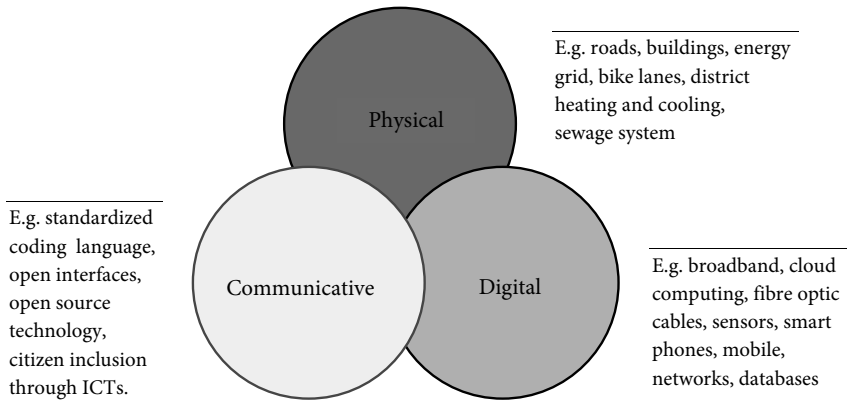
A cluster with integral goals of working under the scope of a smart city may effectively release the enormous potential of digitalisation. Starting with the technological challenges, most of the solutions, which are needed in a Smart City have already been developed (DTU Risø energy Report 2011).

Solar panels, electric vehicles, wind turbines, smart grids, building management systems and associated technologies all have the potential to become part of the Smart City. Being a smart technology, however, is not just about using less energy or being made of smart and reusable materials. It is about being able to function as an integral part of a larger system. More importantly, societal needs have to be addressed. The problem therefore lies not so much in the individual technology, but in the fact that the Smart Cities demand that this technology should be integrated into a system – an internet of things.

According to Copenhagen Cleantech Cluster's report, there are at least three main technological challenges to overcome before technology could be integrated into the system (Copenhagen Cleantech Cluster 2012):

- enabling the technology to gather data. Technologies should continuously gather and analyse data to allow sustainable and smart behaviour. e.g. Smart Building Systems collect data for better performance to optimise energy use;
- enabling the technology to communicate. Gathering data is not sufficient, but an effective data sharing scheme between all smart city players is needed to promote interoperability. This identifies the need for a simple, common language across the smart grid;
- making the technology multifunctional. Truly smart technologies are multifunctional, meaning that they provide solutions to multiple problems, e.g. electric vehicles, not only leads to less congestion, but in connection with a smart grid it can also serve as an energy buffer, which would help level out the energy supply and demand curve.

It is of course impossible to link all the devices of a city together overnight, and the process must be regarded as step-by-step development. To further achieve desired results it is highly advisable to closely link companies, research and development units, the region's administration and contracted implementers of the system together, in order to collaborate and respond immediately to ongoing issues related to successful implementation of smart city solutions. Structured cluster organisations, with clear goals established within a city's development programme, are best suited to keeping up the dialogue regarding the implementation of solutions that need to be regularly consulted to achieve best performance of a Smart City.

**Figure 1. The Integrated Infrastructure of the Smart City**

Source: Copenhagen Cleantech Cluster (2012): 10.

### 3. Clusters Creating New Industrial Value Chains

SMEs created through cluster programmes are more innovative than non-cluster firms. Other than having a higher ability to cooperate, on average cluster firms have more registered trademarks and apply for more patents (European Commission 2006). Cluster firms are exposed to a higher degree of cross-sectoral collaboration, often with direct, regular access to collaborating partners from other sectors of the market or industry. This offers a higher number of opportunities for new knowledge combinations and innovation, and shapes new products, value chains and industries. This, more crucially, diversifies specialisation patterns that are more likely to boost economic and scientific prosperity (European Commission 2013).

A city's "smartness" should not be viewed in terms of its infrastructural systems, but above all in terms of how its community works within the city's operations. To achieve this, a cross-sectoral dialogue is needed to determine the needs of various communities and industries. Deepening the collaboration may allow new and integrated business models to align to the interest of the city's many stakeholders. This is especially true within the areas of transport, energy management and smart buildings.

Besides the integration of the physical and digital infrastructure, the communicative infrastructure needs to be integrated as well. For Smart City system to work well, communication should flow seamlessly between people and devices. For many

different devices to work with one another, a standardised system of coding a digital language for all devices should be introduced. This allows all players to cooperate and share data. A standardised codification would also allow stakeholders from both public and private sectors collaborate more effectively (Copenhagen Cleantech Cluster 2012).

When the physical infrastructure is integrated into the digital and the communications infrastructures, the mobility of the city will be far greater. This will not only lead to huge efficiency gains, it will also spur creativity and innovation among the city's many stakeholders. Studies by the Copenhagen Cleantech Cluster further demonstrate that the development of smart cities presents a number of technological, infrastructural, and governance-related, as well as social challenges. The greatest challenge is to redesign the existing technologies and to integrate new inventions, technologies or solutions into the existing system (Copenhagen Cleantech Cluster 2012).

All this leads to the increase in the mobility and effectiveness of the city and the administrative systems, which connect its many stakeholders (the public sector, the private sector, knowledge institutions, citizens). In turn, looking at all the challenges and solutions to be made of a smart city progress spur a large amount of people working together creating solutions and in effect setting up companies for commercial reasons. Industrial clusters within smart city programmes rapidly increase the number of established enterprises (Brenner 2004) – generating employment and knowledge-sharing schemes that further spin the industrial wheel.

Generating competitiveness is deeply dependent on good regional and local governance. Smart regions and cities are key when it comes to the adaptation of the industry to structural change, to developing clusters, creating a business-friendly environment, and to linking research and innovation policies to regional economies, namely in view of supporting SMEs (European Commission 2010).

#### **4. Africa – the Potential for European Cluster Development (Rwanda and Kenya Case)**

Rwanda has embarked on a programme to modernise its legislative and regulatory framework for trade and investment, with the aim of fostering a modern and competitive private sector. Rwanda Vision 2020 focuses on job creation and poverty reduction. The leading goal is strong private and public sector integration, with the government playing its part in maintaining and strengthening the SME sector through facilitating cluster development (MINICOM 2010). The establishment census

confirmed that SMEs have a critical role to play in creating jobs for Rwandans, whereby SMEs comprise approximately 98% of the total businesses and account for 41% of all private sector employment.

The SME sector, with formal and informal businesses, plays a crucial role in the country's development; it has a potential to lower Rwanda's trade imbalance and generate off-farm employment. Strengthening this sector has been highlighted as a successful tool in achieving economic goals; that is why the Rwandan government has taken the lead in the SME sector's development.

Cluster-based intervention engenders collective action, dialogue, trust, experience transfer and capacity building within clusters and with other linked organisations and sectors. A cluster organisation can also offer a useful entry point for stakeholders seeking to support business and private sector development. The fact is that firms working together in a cluster should be able to respond to the challenges of global market better to isolated ones; that is the Ministry of Trade and Industry's motive in this run of linking SMEs together in cluster.

Rwanda's capital city, Kigali, with its "Smart Kigali" initiative has become the first city in East Africa to provide free WiFi for its citizens in specific areas (The East African 2013). Kigali, like many larger African cities, is in a race to remodel the image of to "modern, smart city", similar to initiatives happening in Asia and the Middle-East. Draped in the rhetoric of "smart cities" and "eco-cities", these plans promise to modernise African cities and turn them into gateways for international investors and showpieces for ambitious politicians (Watson 2014).

Much anticipated projects are those from around Nairobi (the capital city of Kenya). Nairobi, with a metropolitan population of 6.5 million inhabitants and strong economic credentials, has become the "magnet" hub for designing "smart" satellite cities such as Tatu City, Machakos New City or Konza Technology City. Konza Tech City has garnered the most media attention, but is yet in its infant stage of development. Labelled as the future "Savannah Silicon Valley", Konza will be built on 5 thousand acres of land, 64 km south of Nairobi and will facilitate BPO ventures, a science park, a convention centre, shopping malls, hotels, international schools and a health facility project, and is planned for 30 thousand residents.

Africa is gaining momentum in the global economy. European companies should have in mind that Africa's favourable geographical presence, natural and mineral resource wealth and a demographic boost (expected population of 2 billion by 2050; 2.7 billion by 2060 according to African Development Bank) are Africa's greatest selling points. Africa has recorded continuous average GDP growth of 5–8% since 2002 and is further expected to grow annually by 6–7% for the next two decades. Africa's agricultural potential is immense and is the target for future operation by

food industry giants. Africa is also focusing on providing more resources in building much-needed logistical infrastructure with new cargo port and rail/road networks. African Development Bank analyses and predicts Africa's economy (GDP) to be valued at around 11 trillion USD by 2050. In addition, 10<sup>th</sup> June 2015 saw the signing of the programme by three economic partnership regions of COMESA (Common Market for Eastern and Southern Africa), SADC (South African Development Community) and EAC (East African Community) to establish a free-trade zone spanning across 26 countries in Africa by 2017.

## **5. Gauteng – Africa's Economic Powerhouse and its Growth of Smart Specialisation**

A smart region to truly activate "smart" growth needs to have established research and development institutions (technical colleges, science parks, collaboration clusters) that can enable technology in practice. To further commercialise possible solutions, the technology enablers need a large local market that can feasibly test solutions in an existing urban environment. Gauteng Province in South Africa is certainly regarded as the major prospective "smart" region in the context of Africa's rising development.

Gauteng Province is a densely populated metropolitan region numbering 12 million inhabitants, covering cities of Johannesburg, Pretoria and a number of smaller satellite towns in their vicinities. With only 1.4% of South Africa's land area, the tiny province punches way above its weight, contributing more than 33% to the national economy and a phenomenal 10% to the GDP of the entire African continent.

The region's economy is moving away from traditional heavy industry markets and low value-added production towards sophisticated high value-added production, particularly in information technology, telecoms and other high-tech industries. Gauteng thrives on its financial and business services sector, well developed logistical infrastructure and still existing, strong metallurgy, chemical and mining sectors (i.a. 40% of the world's gold reserves). Despite being a metropolitan region, Gauteng is surrounded by rich neighbouring agricultural provinces and therefore home to more than half of South Africa's agro-processing companies.

To further its ambitions, the provincial government set up the Gauteng Growth and Development Agency (GGDA), evolving from early provincial initiatives like Blue IQ, which was a spatial development programme focusing on innovation-related industries, committed to enhancing the country's first regional "Smart Centre". Today, GGDA has significantly improved economic integration in the region, promoting

strategic private sector investment in key growth sectors of the regional economy (GGDA 2015) – most notably in automotive manufacturing, ICT, construction, creative industries, pharmaceuticals, mineral beneficiation and agro-processing.

Gauteng's modern cluster activities, which enable key technology developments, are mainly grouped in several well-funded and strategically designed areas, such as:

- Gauteng Industrial Development Zone – adjacent to South Africa's largest airport OR Tambo Airport, the Gauteng IDZ focuses mainly on the precious metals and advanced materials industries. Commercialised through its prosperous jewellery manufacturing precinct, the IDZ stimulates economic activity in the precious metals sector linked with various smart specialised industries;
- Automotive Industry Development Centre – spearheading Gauteng's strong automotive cluster initiatives, such as Automotive Learning Centre, three automotive incubation centres and an enterprise hub that all address skill-shortages and socio-economic challenges in the industry. It also opened a 130 ha big Automotive Supplier Park in the natural automotive cluster in Rosslyn (Pretoria) - home to OEM plants such as BMW, Nissan, Renault, TATA and Ford/Mazda;
- The Innovation Hub – Africa's first Science and Technology Park by international standards located in Centurion, with a provincial ecosystem focusing on smart specialisation strategies in the areas of ICT, biotechnology, renewable energies and low carbon economy technologies (green technology). With its state-of-the-art lab facilities, it hosts the province's leading industry SMEs and institutions.

The abovementioned development programmes focus only on smart specialisation strategies for developing strategic markets, however due to their favourable educational and economic environment gauging, they are attracting major investors looking to set foot in the promising African market. Gauteng Province has invested in many infrastructural projects that strongly integrate cities within the province, e.g. "Gautrain" – an 80 km long high-speed rail link between Pretoria and Johannesburg.

Gauteng Province also attracts large-scale independent "smart city" initiative investments, such as the Chinese-financed 7.5 billion USD construction of a brand new 1600 ha city in eastern Johannesburg (SAPA 2015). Chinese firm Shanghai Zendai has approved plans for a new financial hub with a high-class educational centre and medical park in the new city near OR Tambo Airport. Many more "smart" satellite city projects are to be announced in the coming years, making Gauteng an increasingly strategic investment region.

## Conclusions

The relationship between innovation-focused industrial and technological clusters and regional governance is growing in Europe. The result of this is the idea of developing Europe's urban regions into "smart" networked cities that intelligently lower the cost of resources, improve the wellbeing of their citizens and, importantly, create wealth through SME activities being more effective through cluster collaboration. The link between the development of both smart cities and industrial/technological clusters is a circular one, where one spins the other and vice versa.

The continuous improvement on systems thinking enhanced by smart city solutions is additionally well received worldwide as it addresses societal issues that can't be ignored. Global population is growing faster than ever and with it, the need to better manage resources. Lack of resource management may lead to social unrest and a growing struggle for decent living conditions. Cluster initiatives have the chance to come up with viable solutions to the growing problems that could lead to many more economic, political and humanitarian disasters.

Africa is an area ravaged by poor resource-management performance, and as a resource- and human-rich continent has the potential to integrate global players in regions based on "smart" design. If European enterprises want to continue growing, they ought to take Africa's potential more seriously and take full advantage of the continent's promising potential. Through cluster collaborations, joint African and European enterprises can generate resourceful solutions by linking many industrial sectors in a unified vision of smart, sustainable solutions.

## References

- Afdb.org (2013), *Urbanization in Africa*, <http://www.afdb.org/en/blogs/afdb-championing-inclusive-growth-across-africa/post/urbanization-in-africa-10143/> [accessed on 20.06.2015]
- Bbc.co.uk (2015), *Africa creates TFTA – Cape to Cairo free-trade zone*, <http://www.bbc.co.uk/news/world-africa-33076917> [accessed on 21.06.2015]
- Brenner, T. (2004), *Local Industrial Clusters: Existence, emergence and evolution*, London–New York: Routledge
- Copenhagen Cleantech Cluster (2012), *Danish Smart Cities: Sustainable Living in an Urban World, An Overview of Danish Smart City competencies*, Copenhagen



- Deloitte report (2014), *Africa is ready to leapfrog the competition: Through Smart Cities Technology*, Johannesburg
- DTU Risø Energy Report 10 (2011), *Energy for Smart Cities in an Urbanized World*
- European Commission (2006), *2006 Innobarometer on cluster's role in facilitating innovation in Europe: Summary*, June, Analytical Report
- European Commission (2010), *Europe 2020: A European strategy for smart, sustainable and inclusive growth*, Brussels
- European Commission (2013), *The role of clusters in smart specialisation strategies*, Brussels, *Foreign direct investment in Africa surges*, <http://www.ft.com/intl/cms/s/0/79ee41b6-fd84-11e4-b824-00144feabdc0.html#axzz3edzB69jk> [accessed on 21.06.2015]
- Mackie, J., Williams, R. (2015), *The dawn of the post-MDG era? Challenges for Africa-EU relations in 2015* (Challenges Paper 6), Maastricht: ECDPM
- McKinsey Global Institute (2011), *Urban World: Mapping the Economic Power of Cities*, March 2011
- Oilprice.com, *A detailed look at urban energy consumption*, <http://oilprice.com/Energy/Energy-General/A-Detailed-Look-At-Urban-Energy-Consumption.html> [accessed on 20.06.2015]
- Rwanda Ministry of Trade and Industry (2010), *Small and Medium Enterprises (SMEs) Development Policy*, June
- Theeastafrican.co.ke (2013), *Smart Kigali: free WiFi for everyone*, <http://www.theeastafrican.co.ke/news/Smart-Kigali-Free-wifi-for-everyone/-/2558/2019762/-/hj1ggbz/-/index.html> [accessed on 22.06.2015]
- United Nations (2011) *World Urbanisation Prospects: The 2011 Revision*, New York
- Urban China Initiative (2010), *The urban sustainability index: A new tool for measuring China's cities*, Urban China Initiative, a joint initiative of Tsinghua University, Columbia University, and McKinsey & Company, November