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THE ROLE OF UNIVERSITIES IN FOSTERING INNOVATION IN POST-INDUSTRIAL CITIES

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Abstract

Both the Council of Europe and the European Union play an active role in post-industrial urban transition and renaissance. Post-industrial urban changes have dramatically accentuated a need for sharp and fast adaptations of scientific research, knowledge transfer, and university teaching. The post-industrial context has already been recognized as part of the relevant research and studying context by many European universities, at least to some extent. An excellent example comes from the European University of Cities in Post-Industrial Transition (UNIC), a European Universities alliance. The European academia has commenced a new, innovation-friendly phase of its development. Further research is needed if we wish to answer the question about the real capacity of the European academia for achieving the changes in study programs, teaching methods, scientific research, and knowledge transfer that fit the fast and deep transformation of societal demands.

Keywords: post-industrialism, post-industrial cities, university innovation, the new European urbanity, the European University of Cities in Post-Industrial Transition (UNIC).

1. Economy, urbanity, and university

The Industrial Revolution was the first one of three important revolutions of the modern era, along with demographic and happiness revolutions (Easterlin, 2019). It began in the late 18th century, based on huge innovations and profound changes in the way of production, the type of energy used, and the modes of transport. Factories and plants were concentrated in urban settlements that grew along with the increasingly urgent need for working power. Education followed, developing in urban centers, and attracting, in turn, all sorts of workers and professionals.

It is a common understanding that after its first phase of *traditional* industrialization, based on mechanization and steam engines in factories and transport, at the end of the 19th century followed the second one, based on electrification and assembly line production. The third and fourth waves of changes in the economy are based on innovations connected with computers, automation, digitalization, virtual reality, and application of artificial intelligence, or, shortly, on automation and autonomization (comp. Groumpos, 2021; Uygun, 2021)[1].

Expansive industrial production, a huge increase in urbanization, and unprecedented development of education, including university education, were among the major components of developed, wealthy industrial societies. Although having their own developmental pathways, the three components—production, urbanization, and high education—were deeply interconnected, interlinked, and contingent.

Two centuries after the commencement of the long-lasting industrial era, in the second half of the 20th century, the industrial type economy faced a deep crisis. Factories began to collapse, energy prices entered the phase of furious rise, and transport infrastructure started to move outside the cities. In addition, the urban landscape commenced to change significantly. Finally, the spring of the post-industrial era provoked the scientific and high education responses.

In *The Notes on Post-Industrial Society* I and II published in The Public Interest in 1967 and in his well-known book *The Coming of Post-Industrial Society: A Venture in Social Forecasting* first published in New York in 1973, an American sociologist Daniel Bell (1919–2011) established the theoretical base for analyzing societal changes and thinking about the (then) future[2]. Bell theorized about the changes in three dimensions of society—those in the social structure, related to the economy, technology, and occupational system, in the polity, related to the distribution of power and conflict resolution mechanisms, and

1 I would rather see them as the phases of *digital* industrialisation, which is hardly comparable in their elements and impacts with the phases of *traditional* industrialisation.

2 Bell mentioned in the preface of the 1976 edition of *The Coming of Post-Industrial Society* (p. XXV) that he first used the term post-industrial society in an unpublished paper presented at a conference held in 1962. The term was also used by French sociologist Alan Touraine (1925–2023) and American sociologist David Riesman (1909–2002) (comp. Brick, 1992).

in culture that is 'the realm of expressive symbolism and meanings'[3].

The main changes by which societies transform into post-industrial are:

- Transition from the manufacturing of goods to the provision of services,
- Continuous replacement of blue-collar workers with white-collar employees,
- Greater ethical concern about environment protection, sustainability, and the quality of urban life,
- Transformation of societal values from modern to postmodern values, which include post-materialism, participation, diversity, gender, etc.,
- New role of universities whose graduates are of critical importance for the post-industrial society.

When considering the empirical side of development during the past several decades, the reality of post-industrial cities allows us to perceive them as cities in transition from the industrial type of production, work, social structure, culture, urban organization, city management, educational needs, and university engagement to post-industrial. Urban change has happened simultaneously with the wider societal restructuring, transition, and transformation in the last several decades.

Be that as it may, post-industrialism and post-industrial urban changes have dramatically accentuated a need for sharp and fast adaptations of scientific research, knowledge transfer, and university teaching. New and ever more precisely defined urban, technological, and societal demands urge the development and refinement of study programs and scientific research strategies. The question is: 'are today's universities capable of such a response?'.

2. Post-industrial university innovation

Contemporary efforts to translate complex post-industrial concepts and principles into the reality of university activities are the best breeding ground for innovation in academia. As a result, the rise of new research interests and subjects at universities is observable. That includes:

- artificial intelligence;
- postmodern and community culture and arts;
- diversity, youth, and gender studies;
- information and data science;
- environmental studies and ecology;
- design of modern public governance institutions;
- algorithmic governance;
- sustainable, cohesive, smart, green, and knowledge-based cities;

3 Bell's theoretically founded predictions have been thoroughly inspected and critically analyzed in the relevant literature, but its detailed review is not the focus of this essay.

– power-sharing and participatory urban governance;
– quality of urban life; and
– good urban management, and the like.

The basic orientation and content of study programs and research plans have been affected by the post-industrial context. Therefore, they have become more and more interdisciplinary and multidisciplinary, to be able to grasp the new societal, economic, urban, and psychological complexities.

Post-industrial transition has enabled new scientific revolutions and technological innovations in natural and technical sciences, medicine, law, public governance, social sciences, and humanities. The culture of change and excellence, success measurement, ranking of universities, new advancement criteria based mainly on quantitative performance indicators, and many other changes have been introduced to academia.

Teaching and learning methods have developed, from face-to-face to online (synchronous or asynchronous), distance, and blended teaching and learning. Today, universities often use methods such as learning by doing, real case solving, clinical approach, exchange with experts not formally tied to universities, mentoring by external experts in a real context outside university premises, various forms of challenge-based research, etc.

Post-industrialism has also moved academia from basic to engaged and applied research and spurred the diversity of applied sciences. In engaged research, the key change is the identification and definition of research problems in communication with societal partners and 'embedding stakeholder perspectives across the research lifecycle—from agenda setting, funding, and research design through to implementation, monitoring, and evaluation'[4]. In applied research, the accent is on finding real-world solutions for individual, group, or societal problems (cf. for example, Neumann, Perrone and Mossa, 2022).

In a new, *innovation-friendly academic world*, some of the themes and buzz words in an endeavor of translating complex post-industrial concepts and principles to the reality of university activities are: urban renewal, urban heritage, city agriculture, vertical gardens, parks and green spaces, sports and recreation, pets, integrated city and city-region transports, nature-friendly house construction, reducing air pollution, noise reduction, energy efficiency, environmental protection, healthy food production, visual sustainability, art and built environment, co-creating culture, community art, urban safety, digital equity, privacy, organization of city data, virtual and augmented reality and their usage for various purposes in urban governance, resilience, rapid adaptation during crises, urban quality of life, social housing, etc.

4 https://wellcome.org/grant-funding/guidance/prepare-to-apply/using-engaged-research-approach, accessed on November 18, 2024.

3. The new European urbanity

Three Council of Europe's urban charters portray the scene of new urbanity that includes numerous changes in economic and societal circumstances as well as the role of universities in Europe and beyond.

The European Urban Charter was adopted in 1992. Apart from definitions of urban settlements and a list of urban challenges, the Charter offered a detailed account of situations, challenges, guiding principles, and possible solutions in areas such as transport, environment and nature, physical form of cities, architectural heritage, housing, urban security and crime prevention, disadvantaged and disabled persons, sport and leisure, culture, multicultural integration, health, citizen participation, urban management and urban planning, and economic development.

The European Urban Charter II: Manifesto for a new urbanity adopted in 2008 gave a refreshed view of the modern European cities, responding to the developments in the period after the adoption of the first European Urban Charter in 1992. In the 2008 Manifesto, the Congress mentioned de-industrialization as one of the main bases of social, economic, and urban changes that need to be addressed in the new European urban policy. The Congress sees the cities as 'the ideal setting for the knowledge-based economy which is the future of economic growth in Europe' and 'home to forces for change and innovation'. Priority is to be given 'to knowledge and innovation, to access to education, to research [...]'. The claim that universities have the utmost importance in the knowledge-based economy should not be, seems, further elaborated.

The European Urban Charter III: Urban living in the era of transformations adopted in 2023 'aims to tie the idea of urbanity/urban society, as it is today, with the Congress priorities of promoting resilient, democratic, cohesive, sustainable, and digital societies'. It enumerated six groups of principles for modern urban living, which relate to democracy and citizen participation, social rights, cultural and economic development, sustainable development, protection of the environment and climate change, integrity and prevention of corruption, security, and crime prevention, and finally, digitalization and artificial intelligence. Beneath the surface, it embraces and tries to address dangerous circumstances of polycrisis[5], which in the last two decades have encompassed migration, climate, health, food, security, supply, and environmental crises, as well as stagflation (a combination of economic stagnation and high inflation).

The European Union plays an active role in post-industrial urban transition and renaissance by establishing a number of initiatives, offering the elements of urban policy, and putting a strong emphasis and funding European cities' priority themes including digital and energy transitions, circular economy, air quality and climate adaptation, urban mobility and accessibility, sustainable use of land and nature-based solutions, urban poverty,

5 The term polycrisis was coined in late 1990s by system and complexity theorists E. Morin and A.-B. Kern (Morin and Kern, 1999).

housing, inclusion of migrants and refugees, and others. In tackling these themes all types of knowledge produced by universities are essential.

It seems that the EU Single Market program significantly influenced traditional industry displacement to non-EU countries and contributed to the enhancement of post-industrialism as an ideology. More recently, however, the EU has combined economic competitiveness with digital sovereignty, new industrial policy, and public interventionism (cf. Heidebrecht, 2024; Di Carlo and Schmitz, 2023), in an attempt to mitigate the negative consequences of deindustrialization and deurbanization[6], which have consequently affected scientific research and university teaching.

After *The Leipzig Charter*, adopted in 2007, *The New Leipzig Charter: The Transformative Power of Cities for the Common Good*, adopted in November 2020, provides a new policy framework for sustainable urban development in Europe and paints the future of cities as just, green, and productive. Some of the important themes are digital and energy transitions, circular economy, air quality, climate adaptation, urban mobility and accessibility, sustainable use of land and nature-based solutions, urban poverty, housing, inclusion of migrants and refugees, etc. It accentuated the need for 'adequately skilled employees who are continuously trained and qualified in order to keep up with future challenges as well as wider technological and societal trends.'

4. Real time university innovation–UNIC

The renaissance of European post-industrial cities and, more generally, the post-industrial context, have already been recognized as part of the relevant research and studying context by many European universities, at least to some extent. An excellent example comes from the European University of Cities in Post-Industrial Transition (UNIC), a European Universities alliance[7].

The UNIC is an alliance of eight (2020–2023), i.e., ten (2023–2027), universities representing ten post-industrial cities from all over Europe. Constituent universities are the Erasmus University Rotterdam (the Netherlands, coordinator), Ruhr University in Bochum (Germany), the University College Cork (Ireland), the University of Deusto in Bilbao (Spain), Koç University in Istanbul (Turkey–Türkye), the University of Liège (Belgium), the University of Łódź (Poland), Malmö University (Sweden), the University of Oulu (Finland), and the University of Zagreb (Croatia).

Topics covered by UNIC's thematic lines include superdiversity, sustainability and green cities, urban resilience and smart cities, justice, security and institutions, entrepre-

6 Counterurbanization or deurbanization attracts significant research interest recently (cf., for example, Memiş, Düzgün and Köseoglu, 2023; Hurtado *et al*., 2022; Karsten, 2020; Sadri and Zeybekoglu, 2018; etc.)

7 https://unic.eu/en, accessed on November 18, 2024. More about the European Universities Initiative on: https://education.ec.europa.eu/education-levels/higher-education/european-universities-initiative, accessed on November 18, 2024.

neurial learning for innovation, health, and wellbeing, as well as arts, culture, and creativity. The main focus of UNIC in the first phase (2020–2023) was managing superdiversity as a new phenomenon in post-industrial cities, based on the concept introduced by a well-known migrations' researcher Steven Vertovec.

Apart from migrants' ethnicities, languages, and countries of origin, superdiversity reflects 'differential legal statuses and their concomitant conditions, divergent labour market experiences, discrete configurations of gender and age, patterns of spatial distribution, and mixed local area responses by service providers and residents' (Vertovec, 2007). Superdiversity characterizes particularly post-industrial cities in which superdiversity can be easily observed. Academic innovation in post-industrial, superdiverse urban context is a must if the university wants to stay successful, competitive, and accepted by its urban societal environment.

For the UNIC, taking part in designing knowledge-based economy, searching for innovative solutions connected with the new European urbanity, and fueling urban development on the principles of sustainable, smart, just, digital, and green cities is not just an ordinary task.

It is a historical opportunity to establish a model of cooperation in teaching, research, and common preparation of study programs in all scientific fields, including natural, technical, social, and applied sciences, as well as humanities, arts, and culture. The academic cooperation of ten universities goes hand in hand with solving real urban problems and offering innovative solutions for the urban developmental needs of their cities. Such a complex collaborative university-to-university and university-to-city endeavor creates a synergy necessary for going beyond individual city and country borders and enabling a truly European knowledge transfer.

The overall result will eventually be a new model based on the comprehensive university response to the challenges of European post-industrial cities in correspondence with the contemporary expectations of European citizens. By participating in the creation of that new model, all their university departments, faculties, and academies, from electrical and civil engineering through architecture and agriculture to medicine and humanities will be able to make substantial steps forward in achieving a better future.

The UNIC alliance has developed numerous innovative solutions in higher education and research, with two joint master studies, RePIC, two-year Erasmus Mundus joint master in Redesigning Post-Industrial Cities (commenced in 2023), and SEOS, two-year join masters Superdiversity in Education, Organizations, and Society (commenced in 2024). In 2024, a three-year UNIC research component, UNIC4ER, focused on the establishment of a sound framework for the UNIC alliance's joint collaborative engaged research, was completed. Many more results are to come.

5. Further research

The main question that stems from the brief analysis in this essay is: Is European academia really capable of achieving the changes in study programs, teaching methods, scientific research, and knowledge transfer that fit the fast and deep transformation of societal demands?

More precisely, we can ask ourselves: How to speed up the adaptive, refreshed, and comprehensive response of universities to the challenges of European post-industrial cities? How to solve the problem of inertia in academia and transform sclerotic universities or their faculties? How to augment university innovation regarding teaching-learning, knowledge transfer, and research in times of polycrisis? Last, but not least important question is: How to preserve academic freedoms and the status of university professors in new circumstances, in which more has to be done with less money, under stronger external pressure? How can we protect ourselves and make our universities more resilient? Do we need to preserve or reinterpret the academic freedom? To answer all these questions, further research is needed.

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