Regional Science in **Turbulent Times**
In search of a resilient, sustainable and inclusive future
26-29 AUGUST 2025
Panteion University
Regional Development Institute
ATHENS GREECE

ersa
64TH CONGRESS 2025

Special Session Proposal

Special Session Title
The use of innovative digital technology, such as 3D printing, in education.

(Please list here the special session organiser(s) of this proposal including
first name, last name, email and affiliation   - and specify who is the corresponding
convener for ERSA Congress Secretariat)

Special Session Organiser:
Professor Maria Mavri
Member of Board of Directors of UoAegean
Director of Postgraduate Program "Executive MBA"
Director of Quantitative Methods Laboratory
Department of Business Administration
University of the Aegean
Email: m.mavri@ba.aegean.gr

Corresponding Convener for ERSA Congress:

Patricia Ikouta Mazza
Researcher of Quantitative Methods
Laboratory
Department of Business Administration
University of the Aegean
Email: p.ikoutamazza@aegean.gr

Dimitris Papandreou
PhD Candidate of Quantitative Methods
Laboratory
Department of Business Administration
University of the Aegean
Email: dpapandreou@aegean.gr

Abstract

(Please insert here a brief explanation of your special session topic)

This conference special session will highlight the significant role that 3D printing plays
in sustainable urban development, particularly in the context of Indicator 09, which

focuses on sustainable cities and communities. 3D printing reduces waste and energy consumption in manufacturing processes, directly contributing to more sustainable construction practices. By enabling the production of customized building components on-site, 3D printing not only enhances efficiency but also minimizes the carbon footprint associated with transporting materials. Furthermore, this technology promotes community engagement by allowing citizens to participate in the design and creation of their environments, leading to a sense of ownership and pride. In educational settings, integrating 3D printing into learning initiatives empowers students to explore urban design and sustainability concepts, nurturing a generation equipped to implement innovative solutions for their communities.

Moreover, through these contributions, 3D printing serves as a catalyst for both citizen well-being and transformative education in sustainable urban development.

The integration of such technologies offers unique opportunities for both teachers and students, fostering a more engaging, personalized, and interactive learning environment. For educators, digital tools like 3D printing enable new methods of teaching complex concepts, providing tangible, hands-on resources that enrich traditional instructional approaches. For students, these technologies facilitate deeper understanding, creativity, and practical application of knowledge across various subjects.

One key benefit of 3D printing in education is its contribution to the preservation of cultural heritage. By creating accurate, detailed replicas of historical artifacts, 3D printing allows students to engage directly with cultural objects that they might otherwise only encounter through images or descriptions. This tactile experience enhances learning by making history more accessible, vivid, and relatable, fostering a deeper appreciation of cultural diversity and history.

In the realm of mathematics, 3D printing offers significant advantages for students, especially in visualizing complex geometric concepts. Abstract ideas, such as shapes, volume, and symmetry, become more comprehensible when students can hold and manipulate 3D models. This tactile engagement helps bridge the gap between theory and practice, supporting students in developing a more intuitive understanding of mathematical principles.

More specifically, 3D printing proves invaluable in special education settings. For students with physical disabilities or learning difficulties, the ability to customize educational materials—whether for tactile learning, sensory exploration, or adapting materials to specific needs—can greatly improve accessibility and inclusion. Teachers can create tailored learning tools that address the unique challenges faced by special education students, promoting a more inclusive and equitable classroom environment.

By incorporating digital technologies such as 3D printing, educators can foster an innovative, inclusive, and dynamic educational experience, benefiting students of all backgrounds and abilities.