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GUEST EDITORIAL

Economic Intelligence in Biomedical Engineering: Innovation, Value, and Sustainable Healthcare Systems

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1 INTRODUCTION

This special issue aims to explore how economic principles influence the design, development, deployment, and accessibility of biomedical technologies. It seeks to examine cost-effectiveness and value-based design in biomedical innovation, analyze economic barriers, and enablers in translating medical technologies to market, investigate healthcare system efficiency through engineering-driven solutions, promote interdisciplinary research integrating engineering design with economic evaluation, and highlight policy frameworks and investment strategies shaping biomedical innovation ecosystems.

Biomedical engineering is increasingly shaping the future of healthcare by integrating technological innovation, economic value, and sustainability [1]. Advances in biotechnology, digital health, intelligent diagnostic systems, and sustainable biological resources are creating new opportunities to improve healthcare efficiency, accessibility, and quality [2]. At the same time, the growing complexity and cost of biomedical technologies require greater attention to resource optimization, value creation, and sustainable implementation [3]. An economic intelligence perspective can therefore support better evaluation of biomedical innovations by connecting technological capabilities with healthcare needs, investment decisions, system efficiency, and long-term sustainability. This interdisciplinary approach is central to advancing innovative biomedical solutions and building resilient, efficient, and sustainable healthcare systems.

2 SCOPE

This special issue covers various domains within the economic evaluation of medical devices, diagnostics, and digital health technologies. We have announced the call for the special issue on many social media networks, such as LinkedIn, WhatsApp groups, and Facebook, and through personalized email messages.

All papers were received via email and were sent to reviewers to evaluate academic quality, research integrity, and alignment with the journal's scope and guidelines. We received more than 18 high-quality papers, and only 10 were selected for the

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publication in this special issue. The selection criteria were based on originality, quality, scope, and applications of technology in the biomedical discipline.

The authors represent diverse geographical regions, including the Middle East, European countries, the MENA region, the subcontinent, and Southeast Asia."

3 PAPERS IN SPECIAL ISSUE

This special issue is organized into five sections based on thematic similarities and common areas of focus. All 10 papers are grouped in their respective sections accordingly.

3.1 Section 1: Economic governance, sustainability, and value creation in digital healthcare

Paper 1: The Economic Value of Crisis Communication in Digital Healthcare Emergencies: Spokesperson Structures, Trust, and Information Governance.
Focus: Economic value of communication strategies, trust management, crisis governance, and information control during healthcare emergencies.

Paper 2: Regulating AI-Based Digital Healthcare Systems: Economic Sustainability, Data Protection, and Legal Accountability in Bahrain and the European Union.
Focus: Regulatory frameworks, AI governance, sustainability, privacy protection, and legal responsibility.

Paper 3: Capabilities of Internal Audit to Assess Cost-Effectiveness of Wearable Health Monitoring Systems.
Focus: Financial evaluation, auditing practices, cost-effectiveness, and accountability of digital health technologies.

3.2 Section 2: Artificial intelligence and predictive healthcare intelligence

Paper 4: Artificial Intelligence for Risk Stratification in Uterine Scar Pregnancy: A Review of Predictive Models and Clinical Decision Support Systems.
Focus: AI prediction models, clinical decision support, and patient risk assessment.

Paper 5: Volatility Risk Prediction in Jordan's Healthcare Sector Using Hybrid Neural Networks with Gradient Descent Learning (FIR.DM) Model.
Focus: Machine learning, neural networks, healthcare forecasting, and operational risk prediction.

Paper 6: Global Agentic Healthcare Intelligence (GAHI): A Sociotechnical Framework for Digital Innovation, Governance, and Early Detection in Ageing Health Systems.
Focus: Intelligent healthcare systems, AI-driven early detection, digital transformation, and ageing healthcare.

3.3 Section 3: Digital health adoption, trust, and user-centered transformation

Paper 7: A Qualitative Analysis on Consumer Trust and Adoption of Digital Healthcare Platforms: Interviews and Focus Group-Based Study.
Focus: Consumer acceptance, trust factors, behavioral adoption, and barriers to digital health use.

Paper 8: Mobile Health for Biomedical and Economic Intelligence: An Integrated Adoption Model for Young Adults.
Focus: Mobile health adoption, young adults' engagement, technology acceptance, and economic value of mHealth.

3.4 Section 4: Digital healthcare infrastructure, emergency response, and clinical efficiency

Paper 9: Cost, Coordination, and Clinical Readiness: The Economic Case for Digital Triage, Telemedicine, and Interoperable Emergency Response Systems.
Focus: Emergency healthcare systems, digital triage, interoperability, coordination, and resource efficiency.

3.5 Section 5: Bioeconomy, health innovation, and wellbeing ecosystems

Paper 10: The Bioeconomy of Health Focusing on Technology, Nutrition and Wellbeing.
Focus: Health innovation ecosystems, biotechnology, nutrition, wellbeing, and economic development.

4 ACKNOWLEDGEMENT

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5 REFERENCES

[1] A. Aguilar, T. Twardowski, and R. Wohlgemuth, "Bioeconomy for sustainable development," *Biotechnology Journal*, vol. 14, no. 8, Art. no. 1800638, 2019. https://doi.org/10.1002/biot.201800638

[2] L. A. Trujillo-Cayado, R. M. Sánchez-García, I. García-Domínguez, A. Rodríguez-Luna, E. Hurtado-Fernández, and J. Santos, "Emerging trends in sustainable biological resources and bioeconomy for food production," *Applied Sciences*, vol. 15, no. 12, Art. no. 6555, 2025. https://doi.org/10.3390/app15126555

[3] A. Naim, M. F. Khan, M. R. Hussain, and N. Khan, "'Virtual Doctor' Management Technique in the Diagnosis of ENT Diseases," *International Journal of Online & Biomedical Engineering*, vol. 15, no. 9, pp. 134–140, 2019. https://doi.org/10.3991/ijoe.v15i09.10665

6 GUEST EDITORS

Prof. Dr. Arshi Naim is a Top 2% Scientist (Stanford and Elsevier, 2024 and 2025), is a distinguished academic with over 24 years' experience in business management, digital marketing and higher education. She has published more than 145 Scopus-indexed articles and has authored books with leading international publishers. She holds a PhD in Business Management and has extensive global teaching and leadership experience. For 14 years, she led accreditation and quality assurance initiatives at King Khalid University, Saudi Arabia. She currently serves as Professor of Business Management in Ibn Rushd College for Management Sciences, Ibn Rushd University, KSA, Academic Director at the London Institute of Sustainable Development, UK and Professor of Business and Economics, Faculty of Business and Economics, Al-Quds University, Jerusalem, Palestine. A certified QM Master Reviewer (US), Dr Arshi also holds professional and executive education credentials from Oxford, Harvard and Accenture. She actively collaborates with institutions worldwide to promote academic excellence, research impact and innovation (E-mail: naimarshi123@gmail.com).

Prof. Tareq N. Hashem has been working as a Full Professor at Marketing Department, Faculty of Business, Applied Science Private University, Jordan, since October 2023. He also serves as a member of the Dissertation Committee at Westcliff University, USA. His research interests include management across various industries, digital marketing, marketing information systems, and marketing. He contributes to academic research through reviewing, authoring, and editing books, as well as serving on editorial boards of international scientific journals.