



EMERALD STUDIES IN FINANCE,
INSURANCE, AND RISK MANAGEMENT

VOLUME 8

CONTEMPORARY STUDIES OF RISKS IN EMERGING TECHNOLOGY

PART A

EDITED BY

SIMON GRIMA • KIRAN SOOD • ERCAN ÖZEN

Contemporary Studies of Risks in Emerging Technology

EMERALD STUDIES IN FINANCE, INSURANCE, AND RISK MANAGEMENT

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Contemporary Studies of Risks in Emerging Technology, Part A

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She is a Senior Member of IEEE and has filed over 10 Indian patents, published copyrights, and is an editor of technical books with renowned publishers like IEEE Wiley, Elsevier, Taylor and Francis, De Gruyter and APress. As a keen researcher, she has published 25+ research papers in SCI and Scopus Indexed international journals and conferences. In a span of 14 years, she has contributed voluntarily as a Reviewer and Technical Program Committee (TPC) member for reputed International Journals and IEEE Conferences and has presented her work at IEEE Conferences across India and abroad. Her primary areas of interest include disruptive technologies like Artificial Intelligence, Machine Learning, Blockchain Technology and the Internet of Things meeting Sustainable Digital Goals in a global society.

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Serap Vurur has 18 years of teaching experience. At present, Vurur is working as an Associate Professor in Finance at the Faculty of Bolvadin Applied Sciences, University of Afyon Kocatepe, Turkey. Vurur presented more than 25 papers at various national and international conferences and published more than 20 research papers in various reputed journals. Five books with the titles financial system, economics, and cost stickness have been published.

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Foreword – 1



The role of Artificial Intelligence (AI), the Machine Learning (ML), usage of Chatbots and the emergence of Blockchain Technology has had a salutary effect on the technological innovations that have supported the Financial sector. A lot of misgivings and apprehensions have been laid to rest and it has been brilliantly brought about in the edited book.

The Banking, Mutual Funds market and Insurance sectors, part of the service sector, have always had to bear the brunt of numbers – number of bank accounts, number of policies issued, number of investors, and ultimately the number of account / policy holders. Basically, because of the numbers game (and let us remember that we have touched the 8th billion number in population today), the service sector Financial Organisations had to undertake the task of Learning, Unlearning, and Relearning for their employees and staff members so that the technological advancements are easily used by them. This transition from the physical paper and pen to digitisation and then to take it to the next level has been an arduous task which has been very effectively been reflected in some of the chapters of this book.

The Innovations and technology combined have brought disruptions to the fore and these disruptions have been aided by the AI, ML and the likes to ensure that the service sector Financial organisations touch a new height because of simplification of the physical processes and the ease of doing business from anywhere! Before we generalise the disruptions, let us also understand the fact that this is not an Indian phenomenon alone – it is global in nature as discussed in this book.

What appeals most about the entire efforts by the authors and the editor is the fact that the flow of the chapters has been reflective of the gradual development in this sector. A case in point is the development of the MSMEs and the role of digitisation and upgradation of technology that this ‘backbone’ of the Indian economy could harness. The coverage of the Sustainable Development Goal 9 (Goal 9 or SDG 9) is about ‘industry, innovation and infrastructure’ and is one of the 17 Sustainable Developmental Goals adopted by the United Nations General Assembly in 2015. SDG 9 aims to build resilient infrastructure, promote sustainable industrialisation and foster innovation, which has been dealt with here.

The specific case studies whether related to the Punjab, Ukraine, Role of Multimedia Innovative Technology in Green Banking or the e-waste management have been very subjectively dealt with.

And that is the crux of the edited book where new horizons are reached by way of ensuring that the common man’s challenges, difficulties, and problems have been provided with solutions by way of these innovations.

I wish the readers a very happy reading and hope that the areas/people covered herein would benefit out of these ruminations and bring to fore the success stories to be emulated.

Prof Pratik Priyadarshi
Associate Professor
Birla Institute of Management Technology,
Greater Noida.

Foreword – 2



Emerging technologies promise new solutions, increased innovation, and new avenues for connecting with our customers and markets. The Internet of Things, cloud computing, virtual and augmented reality, blockchain, artificial intelligence, and e-commerce are just a few of the emerging technologies reshaping the world. However, as with any opportunity for growth, they come with risks that businesses should start thinking about right away. As emerging technologies have already permeated our daily lives and are here to stay, it is critical that organisations understand the risks posed by these emerging technologies so that professionals in risk management, corporate security, and information security can begin to develop strategies and initiatives to prepare their organisations to embrace and capitalise on these technologies.

The book *Contemporary Studies of Risks in Emerging Technology* is aimed at both scientists and professionals who are interested in emerging technologies and the risks associated with their application. It covers a wide range of topics, including the emerging role artificial intelligence in financial services, chatbots and their applications, how to apply machine learning algorithms to improve user experience, green computing for sustainable future technologies, and many others. The book devotes special attention to blockchain technology, an emerging technology widely regarded as one of today's most promising opportunities for banks and other financial institutions. However, despite being one of the most popular emerging technologies in the banking industry, blockchain is not yet widely

available, as fully embracing the power of blockchain technologies may take 10 to 20 years.

I hope readers enjoy this fascinating journey of knowledge and do not get lost in the mazes of emerging technology!

Yours sincerely,
Dr Prof Ramona Rupeika-Apoga
University of Latvia

Preface

With the rapid development of technologies, it becomes increasingly important for us to remain updated on new and emerging technologies. This series, therefore, aims to deliver content on current and future technologies and how the young generation benefits from them. The global financial crisis has highlighted major weaknesses in financial records, information, and data. These weaknesses have led to inadequate access to financial records and information, higher operational risks, flawed bankruptcies, and foreclosure proceedings. The Lockdown due to the ongoing COVID-19 pandemic has increased the scope for criminals to exploit vulnerabilities and commit financial crimes. The increased online presence and homeworking have significantly expanded the attack surface for cybercriminals. Criminals use vulnerabilities, increasing the risks of cyberattacks, money laundering (ML) and terrorist financing (TF). Research is therefore needed to identify trends, tools, and applications that will provide the necessary records, information, and data to support more effective financial analysis and risk management.

The unique contribution of this volume is to bring together researchers from distinct domains that seldom interact to identify theoretical, technological, and practical issues related to managing financial records, information, data, and security.

Emerging technologies have redesigned the financial services industry through innovative means to cater to evolving customer expectations of personalisation and ease. FinTech has progressed as one of the most pioneering and cost-effective disruptive technologies. Initial adaptation of FinTech solutions has permitted several start-ups, financial service providers, and other assorted sectors to accomplish an augmented pace of growth. This book also highlights how emerging technologies alter the subtleties of doing business for benefactors, the possibility of emerging technologies, advantages and disadvantages, technology-linked issues/challenges in financial services, and the drivers of this revolution.

The book revolves around Ethical, legal, and political/policy issues in the use and regulation of Technology. The interdisciplinary nature of the series editorial team offers the best possible examination of works that address the ethical, legal, and social implications of emerging technologies. This text is essential for technologists, IT specialists, programmers, computer scientists, engineers, managers, administrators, academicians, students, policymakers, and researchers, covering topics such as computer-supported collaborative learning, machine learning algorithms, and blockchain.