

## Guest Editorial Preface

# Special Issue on Disruptive Technologies Changing Business and Communication

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Disruptive technologies affect all types of stakeholders, including business, industries, consumers, education, financial and health institutions etc. Such innovations change our business, everyday life and global economy, but also give concern to our future. Disruptive technologies change profoundly the processes, organization, education needs and consumer behaviour, and ask for adaptation, research and innovative solutions that bring competitive advantage. Ethical principles and data security gain more importance due to the possibilities of fraud and information abuse.

The proposed special issue aims to give an overview of disruptive technologies that are used in different environments, giving an insight into positive aspects, but also warning about possible threats and misuses. The aim is to present researches, case studies and overviews related to the use of various types of disruptive technologies appearing in all sectors of today's life.

This special issue contains seven papers, related to the innovative use of disruptive technologies including text mining techniques and knowledge discovery that affect aviation industry and university services, digital transformation by the implementation of chatbots in banking, e-commerce, tourism and call centres, then research on natural language processing, the study on understanding and identifying recent research trends in mobile web service discovery techniques in a dynamic mobile environment, followed by the research on the relationship between personality traits of young adolescents and fear of missing out concerning smartphone addiction and challenges in healthcare information technology from two perspectives: a physician's point of view aiming to improve quality of care and a cyber-security specialist aiming to data protection and security. Besides technological issues, other aspects aiming for successful and human-wellbeing solutions are covered, such as customer and user-focus, changes in processes and communication, knowledge discovery, mobile communication and challenges of cyber-crime.

The authors of the papers are researchers, scholars and specialists from various types of institutions providing from five different countries - by alphabetical order (Croatia, Japan, Malaysia, North Macedonia, Philippines) having different professional backgrounds, but all involved in research and implementation of disruptive technologies.

The first paper, titled "Measuring Customer Satisfaction With the University Front Line Services Using Association Rules," by Frederick Flores Patacsil and Kristen Bhing Villanueva Salvio, presents the research on customer satisfaction and quality services of Urdaneta City campus to measure customer satisfaction. This study is conducted by the text-based approach through the detection of patterns and comments from feedbacks extracted from Facebook pages. This study uses association rules using the frequent-pattern growth method which adopts a divide-and-conquer strategy for finding frequent itemsets. Meaningful patterns give insight into positive and negative comments

on the services provided by various offices. The result implies that sentiment analysis and word association can be utilized to measure customer satisfaction and serve as a tool to enrich and improve the frontline services provided by the university institution.

The second paper, titled “Web Service Discovery Approaches for Dynamic Mobile Environment a Systematic Literature Review,” by Salisu Garba, Radziah Mohamad and Nor Azizah Saadon, aims to discover, categorize, and correlate the recent research in mobile web services discovery approaches for a dynamic mobile environment. This leads to renewed adoption of lightweight solutions for the identification of the most suitable web services that correspond with the service requests. This review followed the systematic literature review guidelines. A total of 76 peer-reviewed articles published in the four most relevant academic databases on web service discovery approaches for a dynamic mobile environment are thoroughly reviewed. Categories are formulated to answer the various questions of the review, therefore, the selected studies are classified in terms discovery scheme, matchmaking techniques, context-awareness, QoWS-awareness, ontology support, web service design, and the dynamic mobile environment applicability.

The third paper, titled “Application of Morphosyntactic Cues in Detection of GOAL Semantic Role,” by Nives Mikelic Preradovic, Tomislava Lauc, and Gaurish M. Thakkar, gives the analysis computational analysis through the morpho-syntactic description of the semantics of motion verbs. The research is given on motion prefixed verbs in Croatian with the prefix “do-”, analyzed on the annotated corpus and handcrafted verb valency frames. The main contribution of the paper is the framework of the semantic role of GOAL encoded cross-linguistically for seven languages: Croatian, English, German, Italian, Russian, Czech, French and Spanish. The authors confirm that using the valency frame transition rules for language pairs, it is possible to design matching verb valency frames in other languages and consequently describe each verb and its translation by semantic roles (Agent, Patient, Direction-To and Goal) and by selection restrictions. Finally, the authors present from the practical viewpoint of how the semantic role labelling could be used in a range of natural processing tasks.

The fourth paper, titled “Fear of Missing Out Among Adolescents: Formulating Big Five Personality Traits to Smartphone Addiction,” by Muhammad Ashraf Fauzi, Nur Muneerah Kasim, and Norazha Paiman, presents the research on how smartphone use has changed the landscape of technology. People are more concerned about their smartphone use, rather than being physically attached to surrounding that has led to scholars on studies in smartphone addiction. This study aims to understand the link between personality traits of young adolescents and the fear of missing out concerning smartphone addiction. A partial least square structural equation modelling (PLS-SEM) is applied in testing the proposed hypotheses relationship. A total of 210 respondents consisting of young adolescents, primarily higher education students participated in the study. The study discovers that among the five personality traits, extraversion and neuroticism are found to be significant on fear of missing out. The fear of missing out has the most significant influence on adolescent’s smartphone addiction. Implications towards theoretical and managerial aspects are discussed and elaborated.

The fifth paper, titled “Healthcare Information Technology: Fast and Accurate Information Access vs. Cyber-Security,” by Maja Baretić and Nikola Protrka, confronts two different standpoints related to the healthcare IT arguing issues from two perspectives. The first perspective is the physician’s a point of view of aiming to improve the quality of care using fast and accurate health IT, while the second is the standpoint of cyber-security specialist aiming to protect data from cyber-criminals, continually developing new strategies and best practices. The term “health information technology” (health IT) refers to the electronic systems that store, share, analyze and protect electronic health records. It includes also electronic prescribing, knowledge shearing, patient support tools, mobile health technology together with decision-making algorithms. The privacy, security and ethics of health information are a priority for both patients and healthcare providers. The health IT is the target for cyber-criminals; stolen health information, or blackmailing via different kind of crypto lockers, is precious good on the black market. The article analyzes mostly used cyber-attacks and gives practical

recommendations to health IT. Finally, the article aims to identify possible risk and propose practical recommendations to enhance cyber-security.

The sixth paper, titled “The Impact of Chatbots in Driving Digital Transformation,” by Hyrmet Mydyti and Arbana Kadriu, presents changes in digital transformation through consuming digital technologies that drive business improvements and customers’ experience. In this transformation, artificial intelligence (AI) plays a crucial role, here presented through the implementation of chatbots, used to modernize traditional business processes. In the research, chatbots are presented in domains of banking, e-commerce, tourism and call centres with the main aim to improve customers’ experience and reduce costs. The paper presents the evaluation criteria for chatbots and discusses the benefits and challenges of their implementation in driving the digital transformation.

The seventh paper, titled “Evaluating and Exploring Successful Disruptive Innovation in the Aviation Industry From the Perspective of Consumers: A Comprehensive Content Analysis of Low-Cost Carrier Passengers’ Word of Mouth,” by Gang-Hoon Seo, discusses disruptive innovation in the aviation industry by low-cost carriers (LCCs) in Southwest Airlines. Although considerable attention was given to the LCC model, it is still not clear whether it is a successful disruptive innovation and which factors and differentiation points are crucial for successful LCC service from the passengers’ perspective. As this study’s methodology, quantitative and qualitative content analyses are conducted using the word-of-mouth data of 1,854 passengers of 20 airlines. This study found that the LCC model is perceived as a successful disruptive innovation from the passengers’ point of view. For successful LCC service, low-cost airlines should offer higher quality services than passengers’ expectations using basic service elements. Also, good staff characteristics, leaving a professional impression, and providing good optional services could play a role as differentiation tools.

As highlighted by the papers presented in this special issue, there is an intense interest in research papers presenting case studies, qualitative and quantitative research analysis and future projections driven by the use of disruptive technologies, and consequently, by changes in processes, products and services, communication, habits and human potential. The focus of further research would be machine learning techniques and predictive models, implemented in various business and industrial settings.

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