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Simulation of Sales Scenarios in Chain Store Marketing with a Futuristic Approach

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ABSTRACT

This paper examines the simulation method as one of the future prediction techniques. In this article, while examining the concepts related to futuristic studies, one of the powerful tools in this field is introduced. Examining the concepts, how to form analytical approaches with simulation, and using it in futures studies are some of the most important topics in this article. What emerges from the study and application of this method in its use in marketing and sales is that in many approaches, simulation can be a useful tool especially that by determining specific scenarios, the decision proper capture is done. The simulation approach uses a precise analysis of the current situation to reflect the present view of the future, and in addition, by considering future probabilities and components, a proper analysis of present decisions and policies for the future can be made create. In this paper, while introducing simulation as one of the futures research approaches, its application in different fields is investigated and a case study of this technique in the field of retail queue systems is analyzed. The results show that the future of the market for chain stores is based on creativity, innovation and effective management relationship with customers.

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1. Introduction

Future forecasting methods are various and based on different assumptions and serve various purposes. The COVID-19 crisis is taking an unprecedented scale. The COVID-19 has influenced issues such as tourism, manufacturing, marketing and services (Parviznejad, & Bahrami, 2021). Assuming the similarity of past and future events, some offer the simplest futurisms by analyzing the past. A group with a detailed description of the future in order to have all the relevant variables and to pay attention to all the interactions and possible effects of the components on each other (Grover & Vriens, 2006). Futurists have experienced that the best predictions can be made when multiple methods are used, and the best advice is for the researcher to have a comprehensive performance to fulfill his methodological commitments and to study similar domains in the future. Alternatives use several different methods and base their final set of alternative predictions or scenarios on a combination of the results (Miller, 2018).

In simulation, by combining several areas of science, we use future studies in subjects and contexts in which there is a complex system with multiple inputs, and in fact the equation in question is nonlinear and the use of other methods alone will not work (Valdman & Marcinkowski, 2020). Since the planner needs a tool to be able to express the future in the form of predictable elements and uncertainties, this tool can be a simulation of the future (Mittal, et al., 2017).

Sales is one of the most important topics in marketing. For services firms in the market, regardless of the ownership issue of prices is very important. Prices are in close relationship with all the variables of marketing determine amount of sales, the profitability of the company, its viability and financial stability. Achievement of commercial results in many respects depends on the prices, the right or wrong price policy makes long-term impact on all activity of production-complex supply company. The correct technique of the price establishment, reasonable price policy, and consecutive realization of deeply reasonable price strategy makes necessary components of successful activity of any commercial enterprise in tough market conditions (Kireev, et al., 2016). Therefore, this article, considering the decisive role of sales in marketing management by simulating sales-related variables, seeks a suitable approach to examine the future sales of service companies.

2. Literature Review

As a worldwide disaster, the COVID-19 crisis is profoundly affecting the development of the global economy and threatening the survival of firms worldwide. It seems unavoidable that this natural disruption has hit the global economy and produced a huge crisis for firms. In a study, authors explore how firms in China are innovating their marketing strategies by critically identifying the typology of firms' marketing innovations using two dimensions, namely, motivation for innovations and the level of collaborative innovations. This research also explores the influence of the external environment, internal advantages (e.g., dynamic capabilities and resource dependence), and characteristics of firms on Chinese firms' choice and implementation of marketing innovation strategies. It provides valuable insights for firms to respond successfully to similar crisis events in the future (Wang, et al., 2020). Augmented Reality (AR) marketing is a novel and creative way to market products and services. However, there are concerns about its marketing effectiveness as it is still immature to take over the place of traditional marketing method. Hence, in a study was aimed to identify the issues and drivers of employing AR, in marketing, and to study the future trend of AR marketing in Malaysia. Foresight methodology tool, the Social, Technological, Environmental, Economic, Political, and Values (STEEPV) method was used in identifying the issues and drivers of employing AR in marketing. Furthermore, an impact-uncertainty analysis was used to identify the top two drivers of the subject. The

top two drivers identified were the “need for interrelation between the virtual and the real world” and “technological knowledge generation” with the highest statistical mean vote for impact and uncertainty, respectively. The development of scenario analysis was constructed in correspondence with the top two drivers which gave insights into the four alternative possibilities in the time horizon of 5 to 10 years. The drivers must coexist in order to generate potential scenarios for the development and sustainability of AR marketing in Malaysia (Ng & Ramasamy, 2018). Another research note offers expert comments on the boundaries and frontiers of neuro-marketing application for business-to-business (B-to-B) marketing. This is done using a practice-led approach to discuss the boundaries and frontiers of neuro-marketing application for B-to-B marketing. Insights are provided into what neuro-marketing is, is not, can do, cannot do, should do, and should not do in B-to-B settings. This note can assist B-to-B marketing academics, practitioners, and neuroscientists in understanding the boundaries and frontiers of B-to-B neuro-marketing application. This note outlines how neuroscience can be appropriately applied in theoretical and practical B-to-B marketing endeavors. This note offers a useful response to a series of common but often inadequately answered or unanswered questions on B-to-B neuro-marketing application (Lim, 2018). The collaborative economy (CE), and within it, collaborative consumption (CC) has become a central element of the global economy and has substantially disrupted service markets (e.g. accommodation and individual transportation). The purpose of a paper is to explore the trends and develop future scenarios for market structures in the CE. This allows service providers and public policy makers to better prepare for potential future disruption (Fehrer, et al., 2018).

Nowadays, the growing global economy and demand for customized products are bringing the manufacturing industry from a sellers' market toward a buyers' market. In a context, the smart manufacturing enabled by Industry 4.0 is changing the whole production cycle of companies specialized on different kinds of products. On one hand, the advent of cloud computing and social media makes the customers' experience more and more inclusive, whereas on the other hand cyber-physical system technologies help industries to change in real time the cycle of production according to customers' needs. In this context, “retention” marketing strategies aimed not only at the acquisition of new customers but also at the profitability of existing ones allow industries to apply specific production strategies so as to maximize their revenues. This is possible by means of the analysis of various kinds of information coming from customers, products, purchases, and so on. In this paper, authors focus on customer loyalty programs. In particular, they propose cloud-based software as a service architecture that store and analyses big data related to purchases and products' ranks in order to provide customers a list of recommended products. Experiments focus on a prototype of human to machine workflow for the pre-selection of customers deployed on both private and hybrid cloud scenarios (Galletta, et al., 2018). Research shows that effective marketing and R&D interface is pivotal in a company's new product development performance and future competitiveness. The increased popularity of social media promised to enhance interaction, collaboration, and networking between the two functions. However, there is limited knowledge regarding the key activities, infrastructure requirements, and potential benefits of social media in the marketing and R&D interface. A study aims to advance the current understanding of social media engagement strategies, which facilitates improved marketing and R&D interfaces and ultimately NPD performance for manufacturing companies. Based on a multiple-case study in two manufacturing companies, this study first presents the role of social media in facilitating improved marketing and R&D interface within a B2B context. Second, it presents the adoption process of the social media engagement strategy for an evolving marketing and R&D interface. The adoption process is divided into three phases, namely coordination, cooperation, and coproduction, to provide detailed insights regarding full-scale social media engagement. Taken together, the study provides novel insights into industrial marketing management literature by exemplifying the role of social media and

proposing a systematic social engagement strategy for improved marketing and R&D interface in the manufacturing industry (Chirumalla, et al., 2018). There are abundant renewable energy sources in Iran such as wind, solar, geothermal, biomass. However, Iran is fully dependent on fossil fuels for industrial, residential and transportation sectors. It results in the country to be in top 10 producers of greenhouse gases (GHGs) into the atmosphere. GHGs can be controlled by incorporating renewable sources to produce energy. Therefore, renewable energy resources are becoming more attractive to develop sustainable energy development in Iran. However, the transformation from traditional fossil fuel infrastructures to advanced renewable technologies needs many considerations, such as strategic and core planning. In this regard, a paper covers the current state of Iran's energy market focusing on both fossil fuels and renewable energy resources. A general review is offered over the renewable energy production status in Iran and the production potentials. Finally, in conclusion, a comparisons are made over the current state, plans and also potential opportunities of Iran over each sort of energy production (Mollahosseini, et al., 2017). Market simulation is an increasingly important method for evaluating and training trading strategies and testing "what if" scenarios. The extent to which results from these simulations can be trusted depends on how realistic the environment is for the strategies being tested. As a step towards providing benchmarks for realistic simulated markets, we enumerate measurable stylized facts of limit order book (LOB) markets across multiple asset classes from the literature. Authors apply these metrics to data from real markets and compare the results to data originating from simulated markets. They illustrate their use in five different simulated market configurations: The first (market replay) is frequently used in practice to evaluate trading strategies; the other four are interactive agent based simulation (IABS) configurations which combine zero intelligence agents, and agents with limited strategic behavior. These simulated agents rely on an internal "oracle" that provides a fundamental value for the asset. In traditional IABS methods the fundamental originates from a mean reverting random walk. They show that markets exhibit more realistic behavior when the fundamental arises from historical market data. They further experimentally illustrate the effectiveness of IABS techniques as opposed to market replay (Vyetenko, et al., 2020). Another article introduces a simulation, Marketplace Live, and compares students' simulation performance with their course performance. The sample is drawn from 13 sections of the author's Marketing Concepts (Principles of Marketing) course. The results support the idea that marketing simulations do contribute to learning marketing concepts. Evidence for this included (1) the partial mediation of academic ability on overall course performance by effort (indicated by time) and simulation performance, (2) a correlation between improvement in simulation performance with course grade improvement, and (3) correlations between simulation performance measures and performance on the final (comprehensive) course exam (Woodham, 2018). A study intends to determine the variables influencing the learning of students when they use business simulators in class. To this end, an exploratory stage is conducted to create a model, which proposes that students' knowledge and skills related to information and communication technology, their motivation for using a simulator during the subject, productive feedback from teachers, simulation realism, perceived ease-of-use and perceived usefulness determine their degree of learning. Then, a conclusive stage is carried out, in which 120 Industrial Engineering students and former students were surveyed. These students had taken the Marketing subject between 2011 and 2016, where Markops business simulator was used. The results show that students' motivation and the usefulness perceived from using the simulator as a learning tool are the variables that influence learning degree the most. In addition, feedback from the teacher, simulation realism and ease-of-use of the simulator also positively influence learning. On the contrary, the impact of knowledge and skills related to ICT's is non-significant. Finally, the consequences of these structural relationships are discussed (Robin, et al., 2018). Another research paper analyzes the strategic use of marketing in search engines, aiming at the business

success of high technology companies. Search Engine Marketing (SEM) is a form of online marketing. Businesses in this way promote their website in order to increase their visibility in search engine results and hence in user searches. The SEM is comprised of three processes, Search Engine Optimization (SEO), Pay Per Click (PPC), and Social Media Advertising (Sakas, et al., 2017). Today's businesses, especially in Iran, face many factors and challenges, one of which is uncertainty in inputs and laws and regulations. Especially in the current situation and with the development of e-commerce on the one hand and on the other hand despite critical conditions such as COVID-19, the purpose of a paper is a comparison between businesses with the study of hypermarkets and net markets. This research is a descriptive-analytical type that after explaining the goals and components of organizational business using library resources and Internet search, interviews and questionnaires, from a multi-criteria decision approach and fuzzy logic for effective analysis. The implications of organizational business are exploited. Two areas of physical retail businesses such as hypermarkets and virtual ones such as net markets have been compared and analyzed. The result of the research has been that due to the capabilities of the development of net markets such as the effective use of information technology and experts, their comprehensive development and growth in the future is more realistic than the ability to extend this to other areas of virtual business. Especially in spite of critical conditions such as the spread of pandemics, the popularity of using net markets has increased (Nahaei, & Bahrami, 2021).

3. Data and Methodology

The data of this research are obtained from the process of marketing store services. By focusing on the customer as one of the pillars of the product in the marketing mix, simulation has been done on this data. In this study, data collection time is very important. Because store demand depends on people's financial situation, peak hours and days of the week, the data is collected in a normal way. The time data is related to the parameters of arrival time, when the customer is waiting and the moment when the customer is logged out of the system. As a case study, the simulation method is modeled and reviewed in relation to the sales forecast of a store. Examining and predicting the sales system of a store is always one of the most important issues in service organizations. Important factors for stores to predict are the provision of multiple and variable services and the multiplicity of services, dependence on other variables, service distribution functions, and the possible nature of the system. The purpose of the simulation in this paper is to predict customer behavior and find the optimal number of active funds based on the scenarios. To simulate this system, first the desired data is collected and a suitable model is created for the system. It is then checked whether this model is an accurate representation of the real system. With repeated executions of the model and then their analysis, in order to estimate the performance criteria, the designs of the system that have been simulated are used.

Store simulations are usually associated with random service periods. Therefore, they are random and dynamic systems (Gosavi, 2015). We must keep in mind that all designed systems, such as open systems, have outputs (Nahaei, & Novin, & Khaligh, 2021). The case study of the store has been done by computer simulation method and Enterprise Dynamics (ED) software. ED software is now one of the most widely used software in the field of modeling and simulation of various problems (Hullinger, 1999). ED is object-oriented software for modeling, simulating, visualizing and controlling dynamic processes. ED has an internal programming language called 4Dscript that is used to define and define specific and real conditions in the model. This programming language contains phrases and instructions for use in modeling (Nordgren, 2001). After running the model, different scenarios are examined. The consequence of using this technique has been to explain the appropriate pattern for better service,

eliminate waiting times and more customer satisfaction. The approaches used in this research can be applied not only to prioritization issues but also too many decision making issues (Nahaei, et al., 2021).

In the case study of this article, the store has 12 counters in a row in which data is collected during normal hours and days of the week. Before entering the collected data as software input, their accuracy and independence must be ensured. The trend pattern method is used to examine the data independence (Guan, et al., 2021). In this pattern, the observations have a downward trend or an upward trend. To test the independence of observations, the following hypothesis test has been used (Tendeiro, & Kiers, 2019):

$$H_0 : \text{observations are not Trend : V is moderate} \quad (1)$$

$$H_1 : \text{observations are Trend : V is small} \quad (2)$$

$$V = \text{Number of runs up or down} \quad (3)$$

$$\text{Expected run} = \frac{2(n+m)-1}{3} \quad (4)$$

Where m and n are the number of uptrends and downtrends, respectively.

Table 1 shows the results of the trend pattern, which according to the value of P_Value obtained, the independence of the data is proved.

Table 1. Activity time trend pattern table

Trend Pattern	
median	1.78
V	28
n	18
m	27
N	48
expected run	29.67
H0	V is moderate
H1	V is small
Z	-1.2795
P_Value	0.59
Result	They are independent

The next factor to enter the software is to determine the probability distribution of each of the input, exit and wait parameters. Frequent histogram method has been used to obtain the probability distribution of the data. The probability distribution of both the operating time and the waiting time parameters are determined. By drawing a frequency table in Excel software and according to the shape of the histogram, the distribution is determined. By observing Figure 1, the histogram is obtained, a negative exponential distribution can be considered for the data under study.

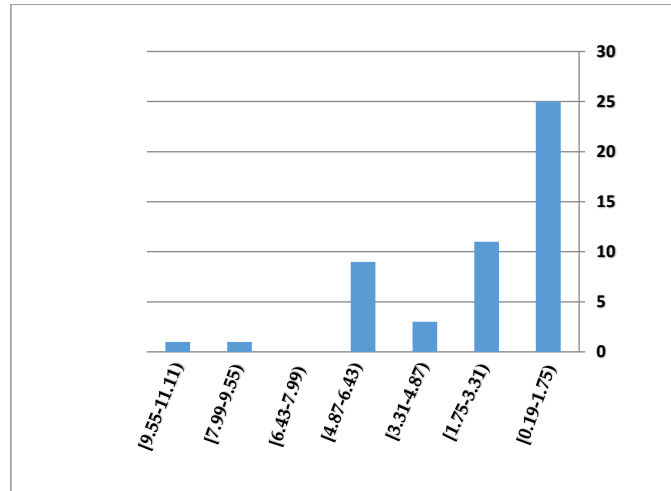


Fig. 1. Frequency chart of activity time

4. Results and discussion

After modeling the system, determining the input parameters (probability distribution, arrival time, exit time) of the model is implemented in ED software and the results of the basic system model are simulated by the software for 7 hours with six active box strategy and maximum queue capacity. Two results are obtained, shown in Figure 2.

summary report					
name	content		throughput		staytime average
	current	average	input	output	
Product1	0	0.000	0	0	0.000
Source3	0	0.067	95	95	17.879
Queue3	0	0.686	95	95	177.054
sandogh 3	1	0.707	95	94	187.837
Sink7	0	0.000	514	0	0.000
Source4	1	0.295	81	80	92.044
Product9	0	0.000	0	0	0.000
Queue4	2	1.500	80	78	476.566
sandogh4	1	0.926	78	77	299.722
Source6	0	0.029	95	95	7.752
Product21	0	0.000	0	0	0.000
Queue6	0	0.519	95	95	138.158
sandogh6	1	0.686	95	94	182.960
Product26	0	0.000	0	0	0.000
Source7	1	0.384	70	69	140.574
Queue7	2	1.664	69	67	616.771
sandogh7	1	0.985	67	66	374.406
Product32	0	0.000	0	0	0.000
Source9	0	0.074	95	95	19.638
Queue9	1	0.671	95	94	178.981
sandogh9	1	0.709	94	93	190.681
Product22	0	0.000	0	0	0.000
Source5	1	0.313	94	93	83.933
Queue5	2	1.468	93	91	402.617
sandogh5	1	0.937	91	90	261.268
Excel26	0	0.000	0	0	0.000

Fig. 2. Queue system simulation analysis report

The information that can be obtained from this report is:

- Current content: The number of customers that are in the relevant system at the time of reporting.
- Average content: Reports the average number of customers in the relevant system.
- Input throughput: Number of customers logged in from the beginning of the simulation.
- Output throughput: Number of customers logged out of the simulation from the beginning.
- Average staytime: Average time spent by customers in the system.

The scenario is to expand thinking about the future and broaden the range of alternatives we could be considering. A scenario is a set of possibilities that are related to the future. Scenario planning helps us

to think about possible assumptions (Parviznejad, & Akhavan, 2021). Despite the differences in these results, there is one thing in common between them and that is that these results are related to the one-time implementation of the model. But what is important is that in order for the simulation results to be closer to reality, the model must be executed several times based on a scenario and the outcome of their results must be considered. Therefore, by performing multiple simulations, the created model can be brought closer to the real space. We run two scenarios to investigate different scenarios.

The first scenario is based on the fund that has the highest returns. In this way, in the initial model, the desired box is removed from the model and re-executed in the same time period. Deleting this box in the system indicates how much it can affect the system if this box is not available in the system. Figure 3 shows the new state of the system. According to Figure 4, it can be seen that the total amount of output accumulation has reached 463. This means that if the strategy of a maximum of two customers in the queue is considered, only 463 customers will be served. Therefore, in the best-selling days, deleting this fund will cause problems for the system.

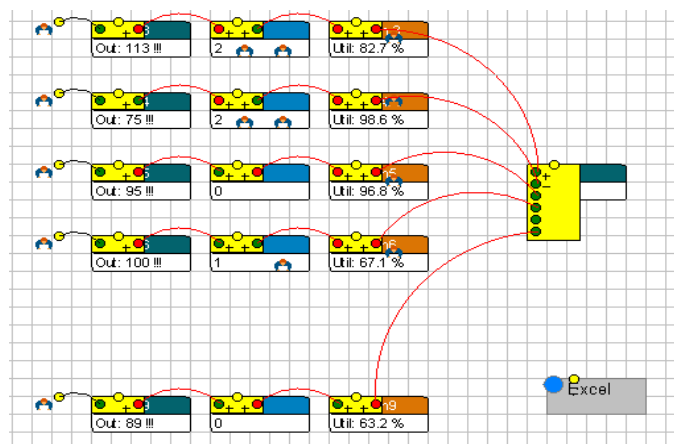


Fig. 3. System status of the simulated system based on the first scenario

summary report					
name	content		throughput		staytime average
	current	average	input	output	
Product1	0	0.000	0	0	0.000
Source3	1	0.098	114	113	21.801
Queue3	2	0.961	113	111	214.641
sandogh 3	1	0.827	111	110	186.277
Sink7	0	0.000	463	0	0.000
Source4	1	0.428	76	75	142.873
Product9	0	0.000	0	0	0.000
Queue4	2	1.621	75	73	552.386
sandogh 4	1	0.986	73	72	343.510
Source6	0	0.052	100	100	13.098
Product21	0	0.000	0	0	0.000
Queue6	1	0.550	100	99	139.446
sandogh 6	1	0.671	99	98	171.551
Product32	0	0.000	0	0	0.000
Source9	0	0.018	89	89	5.069
Queue9	0	0.419	89	89	118.793
sandogh 9	0	0.632	89	89	179.123
Product22	0	0.000	0	0	0.000
Source5	0	0.340	95	95	90.343
Queue5	0	1.585	95	95	420.481
sandogh 5	1	0.968	95	94	259.285
Excel26	0	0.000	0	0	0.000

Fig. 4. Report of queue system simulation analysis based on the first scenario

In the second scenario, the two funds with the least activity are removed, thus determining how important it is for such funds to be active and when they should be active. According to Figure 5, only 338 customers have been served in this model, and the activity of all funds has increased significantly.

summary report					
name	content		throughput		staytime
	current	average	input	output	average
Sink7	0	0.000	338	0	0.000
Source8	0	0.145	75	75	48.804
Product9	0	0.000	0	0	0.000
Queue10	1	2.295	75	74	780.302
sandog4	1	0.925	74	73	317.424
Source20	0	0.113	121	121	23.532
Product21	0	0.000	0	0	0.000
Queue22	2	1.941	121	119	406.335
sandogh6	1	0.853	119	118	181.757
Product26	0	0.000	0	0	0.000
Source27	1	0.393	73	72	137.765
Queue28	3	3.364	72	69	1203.528
sandogh7	1	0.974	69	68	360.560
Product22	0	0.000	0	0	0.000
Source23	0	0.287	80	80	90.516
Queue24	0	3.270	80	80	1030.640
Server25	1	0.999	80	79	315.977
Excel26	0	0.000	0	0	0.000

Fig. 5. Queue system simulation analysis report based on the second scenario

5. Concluding remarks

Predicting the future and considering future decisions using the simulation method is one of the most important approaches that researchers and futurists use to examine the influential factors. The knowledge gained in the simulation is of great value for proposing modifications to the system currently under consideration. Simulation can be used to test new plans or policies before they are implemented, to prepare for potential events, and to anticipate threats. We can create the future by considering solutions now; That is, where we are now and how we act. We then build the future by testing options for acceptable activities and considering new strategies to implement. Ultimately, we shape the future by considering the countless possibilities of what may exist. We take special steps to take advantage of opportunities we have seen in the future, and to avoid the problems we anticipate. We design today to achieve and create ideal futures.

Usually the two approaches we consider in futurism are forward-looking, present-future, and future-looking. One of the most important tools for predicting these cases is simulation. In the first approach, we test the present situation by defining simulation variables; by analyzing the present, important short-term issues are identified. Indicators for resolving these issues are identified and discussed. Thus, by defining the current situation, the focus on the broader, long-term issues and challenges that may be key to building a strong competitive position in the future is achieved through simulation. Now that the current situation is simulated, its prediction is realized in the future. But there may be possibilities and changes in the future that will inevitably happen. Now the simulation method as a powerful tool allows us to test possible future cases with different scenarios and options without any worries and additional costs and trial and error, and see if this is the current situation. Will it be able to reach or deal with those possible future conditions or not? This is the view of the future that simulation gives us this opportunity. In this paper, the simulation method is implemented on the queuing system by considering different scenarios in order to plan the simulation objectives, i.e. improving the system and achieving appropriate solutions to strengthen the system performance. Therefore, after modeling, the simulation results are reviewed to improve system performance by improving the characteristic and target variables.

References

- Chirumalla, K., Oghazi, P., & Parida, V. (2018). Social media engagement strategy: Investigation of marketing and R&D interfaces in manufacturing industry. *Industrial Marketing Management*, 74, 138-149, doi: <https://doi.org/10.1016/j.indmarman.2017.10.001>.
- Fehrer, J. A., Benoit, S., Aksoy, L., Baker, T. L., Bell, S. J., Brodie, R. J., & Marimuthu, M. (2018). Future scenarios of the collaborative economy: centrally orchestrated, social bubbles or decentralized autonomous?. *Journal of Service Management*, doi: <https://doi.org/10.1108/JOSM-04-2018-0118>.
- Galletta, A., Carnevale, L., Celesti, A., Fazio, M., & Villari, M. (2017). A cloud-based system for improving retention marketing loyalty programs in industry 4.0: a study on big data storage implications. *IEEE Access*, 6, 5485-5492, doi: 10.1109/ACCESS.2017.2776400.
- Gosavi, A. (2015). *Simulation-based optimization*. Berlin: Springer, doi: 10.1007/978-1-4899-7491-4.
- Grover, R., & Vriens, M. (Eds.). (2006). *The handbook of marketing research: uses, misuses, and future advances*. Sage.
- Guan, D., He, X., & Hu, X. (2021). Quantitative identification and evolution trend simulation of shrinking cities at the county scale, China. *Sustainable Cities and Society*, 65, 102611, doi: <https://doi.org/10.1016/j.scs.2020.102611>.
- Hullinger, D. R. (1999, December). Taylor enterprise dynamics. In *Proceedings of the 31st conference on Winter simulation: Simulation---a bridge to the future-Volume 1* (pp. 227-229), doi: <https://doi.org/10.1145/324138.324209>.
- Kireev, V. S., Nekrasova, M. L., Shevchenko, E. V., Alpatskaya, I. E., Makushkin, S. A., & Povorina, E. V. (2016). Marketing management as the realization process of research, production and sale activity of the enterprise. *International Review of Management and Marketing*, 6(6S).
- Lim, W. M. (2018). What will business-to-business marketers learn from neuro-marketing? Insights for business marketing practice. *Journal of Business-to-Business Marketing*, 25(3), 251-259, doi: <https://doi.org/10.1080/1051712X.2018.1488915>.
- Miller, R. (2018). *Transforming the future: Anticipation in the 21st century* (p. 300). Taylor & Francis, doi: 30271/20.500.12657.
- Mittal, S., Durak, U., & Ören, T. (Eds.). (2017). *Guide to simulation-based disciplines: Advancing our computational future*. Springer, doi: 10.1007/978-3-319-61264-5.
- Mollahosseini, A., Hosseini, S. A., Jabbari, M., Figoli, A., & Rahimpour, A. (2017). Renewable energy management and market in Iran: A holistic review on current state and future demands. *Renewable and Sustainable Energy Reviews*, 80, 774-788, doi: <https://doi.org/10.1016/j.rser.2017.05.236>.
- Nahaei, V. S., & Bahrami, M. (2021). Uncertainty analysis of business components in Iran with fuzzy systems: By comparing hypermarkets and Net markets. *International Journal of Innovation in Management, Economics and Social Sciences*, 1(1), 45-55, <https://doi.org/10.52547/ijimes.1.1.45>.
- Nahaei, V. S., Novin, M. H., & Khaligh, M. A. (2021). Fuzzy clustering of investment projects in Tabriz Municipality Waste Management Organization with ecological approach. *International Journal of Innovation in Management, Economics and Social Sciences*, 1(2), 28-42, doi: <https://doi.org/10.52547/ijimes.1.2.28>.
- Nahaei, V. S., Novin, M. H., & Khaligh, M. A. (2021). Review and prioritization of investment projects in the Waste Management organization of Tabriz Municipality with a Rough Sets Theory approach. *International Journal of Innovation in Management, Economics and Social Sciences*, 1(3), 46-57, doi: <https://doi.org/10.52547/ijimes.1.3.46>.

- Ng, C. C., & Ramasamy, C. (2018). Augmented reality marketing in Malaysia—future scenarios. *Social Sciences*, 7(11), 224, doi: <https://doi.org/10.3390/socsci7110224>.
- Nordgren, W. B. (2001, December). Taylor enterprise dynamics. In *Proceeding of the 2001 Winter Simulation Conference* (Cat. No. 01CH37304) (Vol. 1, pp. 269-271). IEEE, doi: 10.1109/WSC.2001.977283.
- Parviznejad, P. S., & Akhavan, A. N. (2021). Impact of the Tourism Industry Scenarios in Urban Economy:(Case Study Tabriz). *International Journal of Innovation in Management, Economics and Social Sciences*, 1(1), 1-15, doi: <https://doi.org/10.52547/ijimes.1.1.1>.
- Parviznejad, P. S., & Bahrami, M. (2021). Uncertainty analysis of tourism components in Tabriz. *International Journal of Innovation in Management, Economics and Social Sciences*, 1(3), 1-14, doi: <https://doi.org/10.52547/ijimes.1.3.1>.
- Robin, C. F., McCoy, S., & Yáñez, D. (2018, July). Learning in Marketing Simulation. In *International Conference on Learning and Collaboration Technologies* (pp. 141-149). Springer, Cham, doi: 10.1007/978-3-319-91152-6_11.
- Sakas, D. P., Nasiopoulos, D. K., & Reklitis, P. (2017, September). Modeling and simulation of the strategic use of marketing in search engines for the business success of high technology companies. In *International Conference on Strategic Innovative Marketing* (pp. 217-226). Springer, Cham, doi: 10.1007/978-3-030-16099-9_27.
- Tendeiro, J. N., & Kiers, H. A. (2019). A review of issues about null hypothesis Bayesian testing. *Psychological methods*, 24(6), 774, doi: <https://doi.org/10.1037/met0000221>.
- Valdman, J., & Marcinkowski, L. (Eds.). (2020). *Modeling and Simulation in Engineering: Selected Problems*. BoD—Books on Demand.
- Vyetrenko, S., Byrd, D., Petosa, N., Mahfouz, M., Dervovic, D., Veloso, M., & Balch, T. (2020, October). Get real: Realism metrics for robust limit order book market simulations. In *Proceedings of the First ACM International Conference on AI in Finance* (pp. 1-8), <https://doi.org/10.1145/3383455.3422561>.
- Wang, Y., Hong, A., Li, X., & Gao, J. (2020). Marketing innovations during a global crisis: A study of China firms' response to COVID-19. *Journal of Business Research*, 116, 214-220, doi: <https://doi.org/10.1016/j.jbusres.2020.05.029>.
- Woodham, O. P. (2018). Testing the effectiveness of a marketing simulation to improve course performance. *Marketing Education Review*, 28(3), 203-216, doi: <https://doi.org/10.1080/10528008.2017.1369356>.