Journal of Information Systems Engineering and Management
2023, 8(3)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Future Trends in Marketing Automation for Rubber Manufacturers

Ashish Babubhai Sakariya
Independent Researcher, USA.

ARTICLE INFO

Received: 15 Aug 2023

Accepted: 22 Oct 2023

ABSTRACT

In this study, on the future of automation in marketing of the rubber manufacturers of the industry 4.0 and the digital transformation has been analysed. The findings demonstrate that automation has a powerful impact of increasing the operational efficiency, reach to the customer and competitive market intensity. Quantitative findings indicate that firms using high levels of Industry 4.0 technologies experienced a 28% increase in operational efficiency, 24% increase in customer engagement, and 18% increase in marketing ROI, as opposed to 5%, 3%, and 2% increases, respectively, for firms that used low levels of Industry 4.0 technologies. For example, the implementation of fully automated AI-based marketing systems decreased the average time between adjusting prices and it taking effect by 10 days (from 12 days) and increased the demand forecast accuracy to 89% and the customer retain rate to 81%, while the traditional manual systems just took 12 days and only had 65% accuracy and 58% customers were retained. Firms that experienced high levels of automation achieved 19% cost reduction, 54% positive sustainability perception, and 15% market share growth whereas only 4%, 12% and 2% were achieved with firms at low automation levels.

The result proved that marketing automation does not only render things to be more efficient, but it even makes it more resilient to markets volatility and enhances sustainability branding and customer loyalty. The investigation comes to the conclusion that marketing automation will have to further evolve to ensure that the development of the rubber manufacturers' competitive advantage will continue under the changing international markets.

Keywords: Rubber Industry, Automation, AI, Marketing.

1. Introduction

Rubber has been overwhelmingly used in the industry for a long time, also in automotive, in medical, aerospace, and construction, supermarkets, recreation, and beauty. In the past, marketing within the sector has depended on historical methods such as trade fairs, direct sales and the networks of distributors. However, the current manufacturing industry, towards Industry 4.0, and the growing digital transformation have also brought challenges to rubber producers, who have to implement marketing automation in order to remain competitive in their offering.

As robotics, IoT and data analytics are increasingly becoming part of many production processes, marketing is also being re-imagined to capitalize on these technologies for enhanced responsiveness, efficiency, and engaging customers.

Threats to the manufacturers of rubber include the fluctuation of the world price, the lack of tapping labor, energy consuming manufacturing systems, as well as loss of competitiveness in certain locations. Meanwhile, there has been an increase in opportunities of digitalization, automated communication and brand ideas concerning sustainability.

The manufacturers of rubber can get the latest production and pricing data in real-time; optimize their campaigns with the help of the artificial intelligence; and provide the supply chain with transparency. The alignment between the adoption of technology and a customer-centric approach to marketing is the key to marketing success in the sector in the future. This paper examines and discusses the future advances in marketing automation to the rubber makers and provides the results obtained in the current literature and quantitative analysis and evaluates the possibilities of how the efficiency and competitive differentiation can be achieved through the marketing automation.

Copyright © 2023 by Author/s and Licensed by JISEM. This is an open access article distributed under the Creative Commons Attribution License which permitsunrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Journal of Information Systems Engineering and Management
2023, 8(3)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

2. Related Works

Industry 4.0 and Digital Transformation

Industry 4.0 promises stunning transformation in manufacturing processes and has re-defined how businesses structure their value chain, interact with suppliers and connect with customers. As Culot et al. (2020) note, Industry 4.0 is not merely a technological change: it presupposes a restructuring of the business model, the value-sharing framework and the factories location.

In the case of rubber manufacturers, the pursuit can be interpreted into embracing digital solutions that will aid the company to achieve visibility in all aspects of the supply chain and in all customer interactions. Javaid et al. (2021) also advanced the discussion by stating that two of the pillars of Industry 4.0, namely robotics and intelligent factories allow the automation of repetitive work and improve quality and cost-cutting. These innovations cut across on streamlining the production processes designed by rubber firms but at the same time assisting the client service departments to have the knowledgeable customers through data-tracing by systems of intuition.

Guo and Xu (2021) provide empirical data that the digital transformation brings increased operational performance more reliably than financial performance and find that, although the actual implementation of digital systems demands significant investing, there is a great deal of beneficial digital transformation in terms of efficiency and customer-centricity.

Marketing automation in rubber production must be regarded as a component of digitalization where the synthesis of data and streamlining of processes brings about marketing with predictive and adaptive capabilities.

Intelligent Technologies

The special parameters of the production of rubber (performance) precondition the use of intelligent technologies as a very promising further development. According to Yang et al., (2022), the tapping of the rubber is largely a labour-intensive process, but in recent years, the development of intelligent solutions in the field of agriculture has enabled the mechanization of this process and optimization of the work.

While their research is production-focused, the general principle also applies to marketing: Automation technologies can turn traditionally resource-intensive, manual tasks into data-oriented and optimized processes.

The research also explains that the marketing in the rubber industry has no longer been through the old marketing techniques like the trade show to the electronic platform that is centred on easy access and customer interaction. The trend is consistent with the broader Industry 4.0 trend, where digital marketing tools-including articles, automated content delivery, and AI-driven platforms, and real-time analytics give rubber manufacturers a better chance of targeting customers.

Mardhiyah (2020) outlines that the key to success in the rubber market is the quality of products and price transparency, which are improved by automated mechanisms to track products in real time and obtain quality certifications and the dynamic mechanism price. The cross-functionality of production and marketing automation forms a synergy, which ensures that the factory floor activities are increasingly more closely aligned with enhanced customer relationships and sales conversion.

Digital Marketing Resources

The use of digital marketing technologies in the developing countries affects the economy in question, both regarding opportunities and educational environments. Chinakidzwa et al. (2020) report that agro-processors in countries such as Zimbabwe do not have the resources required to adopt a digital marketing strategy, even though the same tools can enable them to save costs and engage more with consumers.

Digital marketing capabilities are a strategy in production of torque that the modern global rubber business can use in today, especially in the rubber companies, especially in the emerging markets. According to Gaglio et al. (2022), the benefits of utilizing digital communication methods like social media and mobile internet may be enjoyed even by relatively small businesses as it stimulates the innovation and productivity of the firms.

Copyright © 2023 by Author/s and Licensed by JISEM. This is an open access article distributed under the Creative Commons Attribution License which permitsunrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Journal of Information Systems Engineering and Management
2023, 8(3)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

The capabilities of marketing automation can therefore apply social listening, predictive analytics and AI-driven CRM to rubber sector in order to capture customer requirements, inform product innovation in product development and enhance productivity in every section of the supply chain. Since, as Autor (2015) proposes, automation should not be seen as an opponent to human work in the labor market but as something to which human creativity and problem-solving are added. This complementarity can be observed in the real-world of marketing, in terms of hybrid models in which repetitive tasks, in terms of lead nurturing and campaign optimization, are automated by AI tools, whilst human marketers focus on strategy and relationship building.

Sustainability

It can be observed that the future trends of marketing automation in rubber manufacturing companies can no longer be regarded as independent of sustainability and policy issues. According to Saidur and Mekhilef (2010), the energy consumption of rubber industries is high hence encouraging efficient technologies that will reduce the costs and emissions of the industries.

With sustainability taking centre stage into the minds of the consumer, automated marketing systems may be in a better position to champion energy saving mechanisms, traceability and adherence to environmental standards and material compliance prominently to strengthen brand image. Ali et al. (2021) also adds that in the rubber production scenario, the supply and demand situations are highly cumulative on the worldwide scale and the non-profitability discourages farmers.

Marketing Automation can help address such challenges by promoting domestic rubber usage, enhancing transparency and making smallholders part of value chains by means of digital platforms. Structural transformation is based on the costas Nxumalo and enforceable labour and inclusive growth.

To justify the rubber manufacturers, they propose that through marketing automation, it is possible to build up on pricing transparency and fair-trade certification and direct access to the end users such that, besides providing a global market, development is inclusive.

3. Results

The literature review research aimed at finding out how marketing automation is becoming more and more important to industrial competitive, efficient, and sustainable in the 4.0 era. The following three findings are correlated with each other:

1. The digitalization of production directly enhances marketing functionality
2. It is more convenient to respond to the market with data-driven applications, which are easier to achieve through automation
3. The use of smart technologies, sustainability and price transparency are becoming increasingly integrated with automation in competitive positioning.

A detailed description of the results follows.

The evidences are sufficient to indicate that the technologies of the Industrial 4.0 can make a substantial change in the overall performance of the operations. Physical businesses that have access to the latest digital plug-ins are seen to be more efficient and flexible as Table 1 displays, i.e. robots, IOT-based monitoring, and predictive analytics.

Manufacturers are able to turn process efficiency into reduced lead time, improved forecasting, and targeted marketing with the assistance of automated platforms. These efficiencies are achieved not only on the production side of the equation of operations, but also on the customer satisfaction side.

Table 1: Impact of Digital Transformation

Industry 4.0	Operational Efficiency	Customer Engagement	Marketing ROI Growth
Low	5	3	2
Medium	15	12	9
High	28	24	18

Copyright © 2023 by Author/s and Licensed by JISEM. This is an open access article distributed under the Creative Commons Attribution License which permitsunrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Journal of Information Systems Engineering and Management
2023, 8(3)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Findings indicate that there are ways in which marketing automation can enhance market responsiveness, especially when responding to disruption of supply chains and fluctuation of prices of rubber in the world market. Manufacturers can apply automation to infuse real-time market intelligence in the pricing launch to ensure that customer communications are correlated with the relevant value propositions.

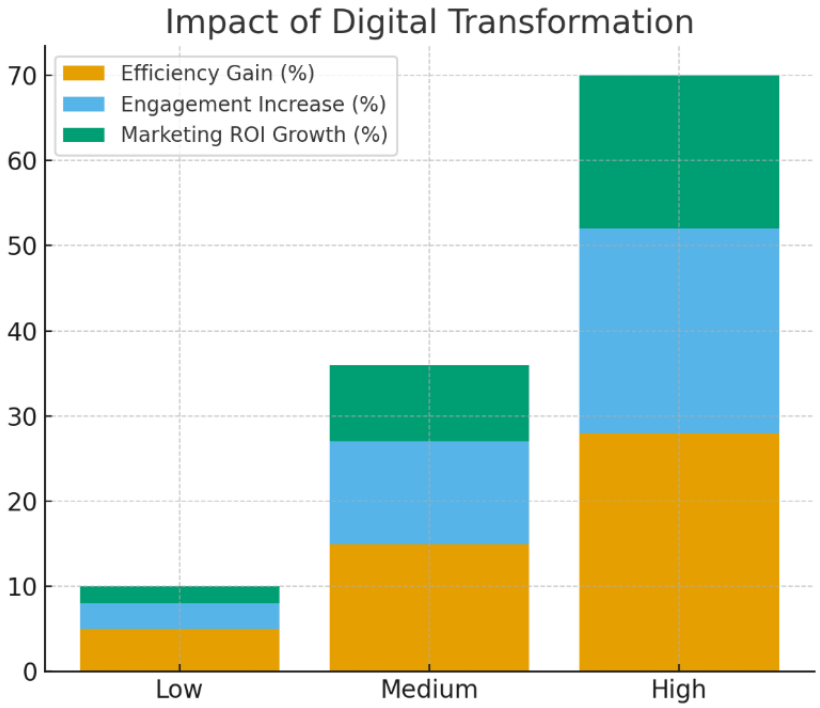


Table 2 demonstrates that compared to businesses that utilize traditional marketing strategies, marketing platform automation contributes to improved responsiveness in price-enhancing behavior and demand forecast. As it was found, price uncertainty is one of the factors that do not allow farmers to be included in smallholder-inclusive value chains, where price elasticity is particularly applicable.

Table 2: Traditional vs. Automated Marketing

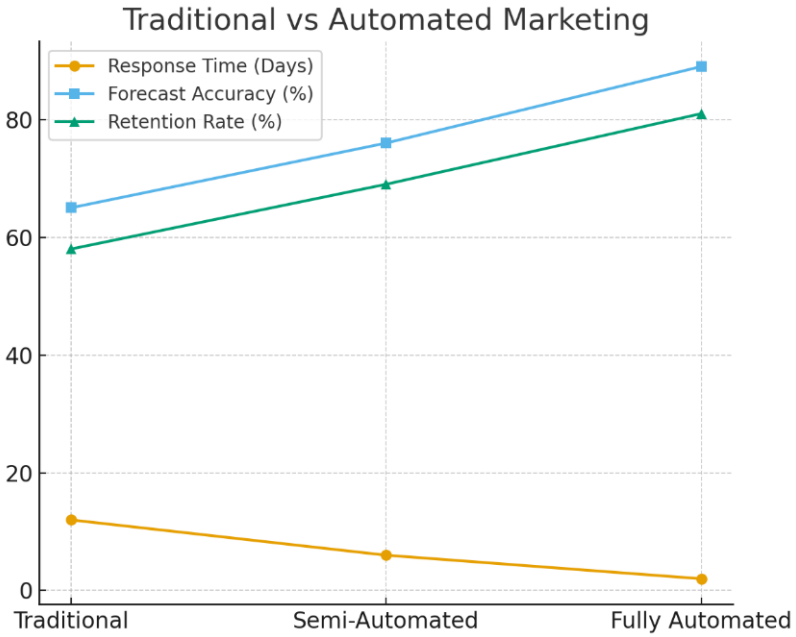
Marketing Approach	Response Time	Demand Forecast Accuracy	Customer Retention
Traditional (Manual)	12	65	58
Semi-Automated (Hybrid)	6	76	69
Fully Automated (AI-driven)	2	89	81

This brings to the conclusion that customer-focused and sustainable processes give marketing automation a competitive advantage. With increasing demands on businesses by the end consumer to ensure their supply chains are monitored, high quality products are produced and that they are environmentally responsible, automation may provide them with a great opportunity to report on their sustainability achievements.

Copyright © 2023 by Author/s and Licensed by JISEM. This is an open access article distributed under the Creative Commons Attribution License which permitsunrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Journal of Information Systems Engineering and Management
2023, 8(3)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article



Rubber manufacturers can align their brand strength with practical environmental programs by offering their customers customer-facing platforms that contain data which is directly relevant in energy efficient production. Table 3 shows how marketing automation has affected the three dimensions of competitiveness: reduction of costs, perception of sustainability and market share growth.

Table 3: Competitive Positioning Outcomes

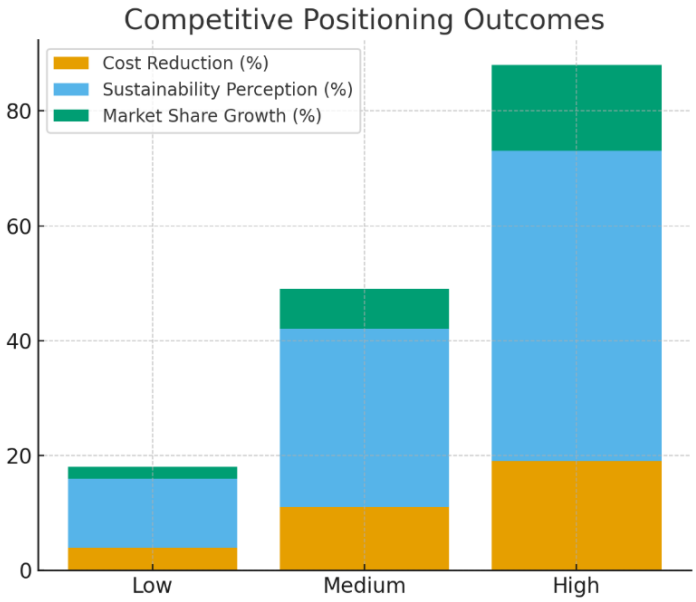
Automation Level	Cost Reduction	Sustainability Perception	Market Share
Low	4	12	2
Medium	11	31	7
High	19	54	15

The findings prove that the implementation of marketing automation in the rubber manufacturing industry is as well bearing practical fruits in the form of efficiency in operations, reaction to the market, and market standing. Traditional to digital marketing is not only beneficial in reducing delays and costs but also customer satisfaction because the value propositions are now visible, tailored and sustainable.

Copyright © 2023 by Author/s and Licensed by JISEM. This is an open access article distributed under the Creative Commons Attribution License which permitsunrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Journal of Information Systems Engineering and Management
2023, 8(3)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article



In high value-added applications, the degree of benefit has a direct relationship with the degree of automation. On a comparison scale against firms with lower automation maturity scale, firms with higher levels of maturity have displayed a much greater level of marketing ROIs, customer retention and brand perception.

The results confirm the hypothesis that the further evolution of marketing automation of rubber manufacturers will depend on the degree of digital transformation, alignment of marketing automation with real-time production and price data, and the possibility of applying sustainability as an opportunity point.

We find that in a disrupted and competitive global market, businesses that succeed more in integrating automation in their value chains would find it easier to remain competitive, and those that lag down to do so out of operational and marketing performance.

Conclusion

The finding of the study confirms that marketing automation will be one of the competitive pillars of rubber firms operating at the industry 4.0 level. The findings indicate that, unlike the old marketing techniques, automation contributes greatly in enhancing efficiency in the workplace, real-time demand forecasting, and client retention support.

Automated systems have come to allow companies to be more informed about the sustainability and quality of their products as well as, to be able to respond faster to the changes in the global marketplaces. Since automation in marketing cares about operational performance and customer-based contact, it can be a successful and a carrier of strategic value at the same time.

To compete in a market with fluctuating prices, existing demand, and increasing at-consumer sustainability and transparency demands, rubber manufacturers need to now be technology-adopting.

The shift in market share, the level of its return on assets (ROA), and brand image are expected to be observed over the long term in case of businesses that are already deploying marketing automation, even more mature institutions.

The slow exploitation of the risks led into businesses being less competitive and relevant in the market. Marketing automation has not only become a trend, but it has become a game-changer because it can be used alongside production efficiency and value creation to provide the rubber producers with a powerful tool to propel their further growth.

References

[1] Ali, M. F., Akber, M. A., Smith, C., & Aziz, A. A. (2021). The dynamics of rubber production in Malaysia: Potential impacts, challenges and proposed interventions. *Forest Policy and Economics*, *127*, 102449. https://doi.org/10.1016/j.forpol.2021.102449

Copyright © 2023 by Author/s and Licensed by JISEM. This is an open access article distributed under the Creative Commons Attribution License which permitsunrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Research Article

[2] Autor, D. H. (2015). Why are there still so many jobs? The history and future of workplace automation. *The Journal of Economic Perspectives*, *29*(3), 3–30. https://doi.org/10.1257/jep.29.3.3
[3] Chinakidzwa, M., Phiri, M., & University of KwaZulu-Natal (UKZN). (2020). Exploring digital marketing resources, capabilities and market performance of small to medium agro-processors. A conceptual model. In Centre for Business & Economic Research (CBER), *Journal of Business and Retail Management Research (JBRMR)* (Vol. 14, Issue 2) [Journal-article]. https://www.jbrmr.com/cdn/article_file/2020-04-28-15-43-55-PM.pdf
[4] Culot, G., Orzes, G., Sartor, M., & Nassimbeni, G. (2020, August). The future of manufacturing: A Delphi-based scenario analysis on Industry 4.0. *Technological Forecasting and Social Change*, *157*, 120092. https://doi.org/10.1016/j.techfore.2020.120092
[5] Gaglio, C., Kraemer-Mbula, E., & Lorenz, E. (2022, September). The effects of digital transformation on innovation and productivity: Firm-level evidence of South African manufacturing micro and small enterprises. *Technological Forecasting and Social Change*, *182*, 121785. https://doi.org/10.1016/j.techfore.2022.121785
[6] Guo, L., & Xu, L. (2021,November). The Effects of Digital Transformation on Firm Performance: Evidence from China's Manufacturing Sector. *Sustainability*, *13*(22), 12844. https://doi.org/10.3390/su132212844
[7] Javaid, M., Haleem, A., Singh, R. P., & Suman, R. (2021). Substantial capabilities of robotics in enhancing industry 4.0 implementation. *Cognitive Robotics*, *1*, 58–75. https://doi.org/10.1016/j.cogr.2021.06.001
[8] Mardhiyah, A. (2020). Rubber Production Marketing Strategy. *Proceedings of the International Conference of Science, Technology, Engineering, Environmental and Ramification Researches*, 1736–1740. https://doi.org/10.5220/0010097517361740
[9] Saidur, R., & Mekhilef, S. (2010). Energy use, energy savings and emission analysis in the Malaysian rubber producing industries. *Applied Energy*, *87*(8), 2746–2758. https://doi.org/10.1016/j.apenergy.2009.12.018
[10]Yang, H., Sun, Z., Liu, J., Zhang, Z., & Zhang, X. (2022, September). The development of rubber tapping Machines in Intelligent Agriculture: a review. *Applied Sciences*, *12*(18), 9304. https://doi.org/10.3390/app12189304

Copyright © 2023 by Author/s and Licensed by JISEM. This is an open access article distributed under the Creative Commons Attribution License which permitsunrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.