European Proceedings of
Social and Behavioural Sciences
EpSBS

www.europeanproceedings.com

e-ISSN: 2357-1330

DOI: 10.15405/epsbs.2020.03.03.33

ICMR 2019
8th International Conference on Multidisciplinary Research

THE IMPACT OF RETAIL 4.0 TECHNOLOGIES ADOPTION ON RETAILERS' PERFORMANCE IN MALAYSIA

Poorni Sakrabani (a)*, Ai Ping Teoh (b)
*Corresponding author

(a) Graduate School of Business, Universiti Sains Malaysia, USM, 11800 Penang, Malaysia, psbani2804@gmail.com
(b) Graduate School of Business, Universiti Sains Malaysia, USM, 11800 Penang, Malaysia, apteoh@usm.my

Abstract

The Malaysian retail industry has been on a downward trend in recent times. This is mainly because customers seem to prefer doing online shopping when compared to shopping at `bricks and mortar' outlets. However, online shopping, too, has its limitations. The younger generation (Gen Y and Gen Z) is technologically savvy and as such, has different expectations from retailers, when compared with previous generations. They desire an omnichannel shopping journey which includes `brick and mortar' stores, online shopping, and `bricks and clicks' which can be further divided into webrooming and showrooming. In addition to this, they are also interested in retail outlets which have incorporated novel technologies as these outlets provide them with a unique and exciting shopping experience. Technology has been known to improve firm's performance. As such, the incorporation of Industry 4.0 technologies in the retail industry (known as Retail 4.0 technologies) is expected to improve the performance of retailers. In this study, retailers' performance will be measured in both financial and non-financial means. An online survey in the form of a structured questionnaire will be conducted to gather primary data for this study. Statistical analysis will be conducted using the Partial Least Squares – Structural Equation Modelling (PLS-SEM) method. Finally, the conceptual model proposed in this study can be used for the formation of strategies that will enable the retail industry to overcome the challenges that it is currently facing and help to improve the performance of Malaysian retailers.

Keywords: Retail industry, technologies adoption, performance, Malaysia.

https://doi.org/10.15405/epsbs.2020.03.03.33
Corresponding Author: Poorni Sakrabani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

1. Introduction

Firm performance has been an issue of concern among the retailers worldwide. There are two ways to measure firm performance, that is, the financial and also the non-financial way. Financial performance can be measured in the form of Sales (Gomez, McLaughlin, & Wittink, 2004; Carmeli, Schaubroeck, & Tishler, 2011), Return-On-Assets (Carmeli et al, 2011; Chae, Koh, & Park, 2018) and Return -On-Investment (Akter, Wamba, Gunasekaran, Dubey, & Childe, 2016). Non-financial performance can be measured through organizational effectiveness (Mithas, Ramasubbu, & Sambamurthy, 2011). Organizational effectiveness for retailers include Out-Of-Stock or OOS issues (Aastrup & Kotzab, 2010), price discrepancy problems (Riquelmi, Roman, Cuestas, & Iacobucci, 2019), good service from staff (Behera, Nayak, & Das, 2015) and waiting time at the checkout counters (Dahm, Wentzel, Herzog, & Wiecek, 2017).

In recent times, retailers, especially those who operate `brick and mortar' stores, have been facing many challenges. According to the US Commerce Department, departmental store sales dropped by almost 50% from 2000 to 2018 (Amadeo, 2019). This downward trend in the departmental store sales led to the closure of more than 8,000 stores in the United States in 2018 (Kahn, Inman, & Verhoef, 2018).

The situation is similar in Malaysia. In Penang, malls which were very popular during the 90s like Plaza Utama and City Parade have already been abandoned. In Kuala Lumpur, Plaza Rakyat and CN Gallery, are currently tenantless despite their strategic location. In Johore Bahru, Lot One and Pacific Mall, which were very popular malls once, have already closed down (Tan, 2018). In fact, the occupancy rate can be as low as 40 percent in in some of the malls around Klang Valley (Malaymail, 2018).

2. Problem Statement

Many of the `brick and mortar' retails stores closed because they were plagued by operational ineffectiveness. One very good example of poor store execution is OOS (Aastrup & Kotzab, 2010). Globally, sales lost due to OOS annually is USD 1 trillion (Howland, 2018). Besides losing sales, retailers also stand to lose customers due to OOS. In a study conducted by Azeem, Baker, Villano, Mounter, and Griffith (2019), senior citizens and `price conscious' customers were found to switch to other retailers in case of repeated OOS at their usual store. Other factors which irritate customers at `brick and mortar' stores are long waiting time at the checkout counters (Dahm et al., 2017) and incorrect pricing of merchandise (Riquelmi et al., 2019). These common problems, which frequently occur at `brick and mortar' outlets, have been attributed to the shift towards online sales (Kahn et al., 2018).

The emergence of online retailers like Amazon and e-Bay has had a major impact on the retail industry (Kahn et al., 2018; von Briel, 2018). In 2018, online sales grew by 18% globally (Young, 2019). In Malaysia, 50% of the population are involved in online shopping. Online shoppers are motivated by attractive prices, product assortment, free shipping and the convenience offered by online shopping (Export-gov, 2018). However, online shopping has its limitations as not all items are suitable to be sold online. This has led to the rise of a hybrid retailer comprising both `bricks and mortar' stores and online retailers known as the `bricks and clicks' channel (Bhatnagar & Syam, 2014). `Bricks and clicks' stores can further be divided into `webrooming' and `showrooming'. The process where customers examine a

https://doi.org/10.15405/epsbs.2020.03.03.33
Corresponding Author: Poorni Sakrabani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

product at a `brick and mortar' store and then purchase the item online is called `showrooming' (Rapp, Baker, Bachrach, Ogilvie, & Beitelspacher, 2015) whereas the process of searching for product information online and then purchasing at a `bricks and mortar' store is called `webrooming' (Santos & Goncalves, 2018). Webrooming and showrooming underline the importance of the brick and mortar stores (Fernandez, Perez, & Casielles, 2018).

The performance of the Malaysian Retail industry is on a downward trend. The Malaysia Retail Industry Report for the 4th quarter of 2018 states that the retail industry's performance lagged behind the Gross Domestic Product (GDP) for the sixth consecutive year. In addition to that, sales growth for March 2017, March 2018 and March 2019 was 10.09%, 9.225% and 8.646%, respectively. This shows that there has been a steady decline in sales growth for three years. In 2017, the retail industry contributed to almost 45% of the country's economy. Since the contribution of the retail industry towards the Malaysian economy is so high, action needs to be taken to improve the sales of retailers. One proven way to improve the performance of Malaysian retailers is through the adoption of technology (Bertacchini, Bilotta, & Pantano, 2017; Germann, Lilien, Feidler, & Kraus, 2014).

The young generation, that is, Gen Y and Gen Z, prefer the option of omnichannel shopping and also exciting and novel shopping experiences (Vermut, 2018; Priporas, Stylos, & Fotiadis, 2017). In Malaysia, Gen Y and Gen Z make up 67% of the population (Population Pyramid, 2019). As such, the availability of omni-channel retailing and `brick and mortar' outlets equipped with the latest exciting technologies would be the most appropriate way to get Malaysian customers to spend more and as a consequence, boost the performance of the sluggish Malaysian retail industry.

3. Research Questions

Past research has proven that the adoption of technology is able to improve retailers' performance (Ramanathan, Philpott, Duan, & Cao, 2017; Bradlow, Gangwar, Kopalle, & Voleti, 2017). However there seem to be very few studies done on the adoption of technology by Malaysian retailers and on the impact that technology adoption has on retailers' performance.

This gives rise to the research question:

Does Retail 4.0 technologies adoption have a positive impact on Malaysian retailers' performance?

4. Purpose of the Study

The purpose of this conceptual paper is to discuss the impact of Retail 4.0 technologies adoption on Malaysian retailers' performance. It is essential for the Malaysian Retail Industry to perform well as the industry's contribution to the economy is very high. However, the retail industry's performance seems to be on the decline in recent times (Malaysia Retail Industry Report, 4th Quarter 2018).

Bharadwaj (2002) states that the main difference between successful firms and less successful firms is the efficient use of information technology. Behera et al. (2015) agree with Bharadwaj's (2002) statement by saying that IT adoption by a firm is very profitable for its stakeholders and this enables the growth of the organization. To strengthen Bharadwaj's (2002) and Behera et al. (2015) findings, many studies have shown that IT adoption has helped to improve firm performance. Neirotti and Paolucci (2011) contend that

https://doi.org/10.15405/epsbs.2020.03.03.33
Corresponding Author: Poorni Sakrabani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

IT improved profitability when it was used to create leaner and more flexible organizations which could help to improve `customer-related knowledge, operations management and process development. Germann et al., (2014) argue that by using customer analytics, retailers are able to provide consumers with what they need at all times. This helped to improve the sales of retailers. Finally, the organizational efficiency of retailers has also increased due the adoption of technology. RFID tagging has helped to reduce OOS problems by improving inventory tracking (Li, Tian, & Ti, 2018). `Self' check-out counters have cut down customers' waiting time at the cashier counters (Orel & Kara, 2013) and price discrepancy problems have been reduced by the usage of electronic price tags which always show the updated prices of merchandise (Koesters, 2018).

Many retailers are aware that technology can help to improve firm's performance and as such, have incorporated Industry 4.0 technologies to enhance customers' experience and to stay competitive (Dey & Sandor, 2014; Mukherjee, Smith, & Turri, 2018; Flavian, Ibanez-Sanchez, & Orus, 2018). The incorporation of Industry 4.0 technologies into the retail industry and also the integration of the online and offline shopping experiences into the omnichannel shopping experience gives rise to the term Retail 4.0 (Jayaram, 2017). As such, Retail 4.0 technologies refers to the adaptation of Industry 4.0 technologies in the retail industry. Some examples of Retail 4.0 technologies are as follow: augmented reality has enabled customers in Germany and Italy to try on sun glasses via a web camera (Pantano, Rese, & Baier, 2017); robotic assistants are able to advise customers on shopping choices in Italy (Bertacchini et al., 2017) and there are Adidas shops in Berlin which use 3D printers to produce sweaters as per customers' request within a very short period (Trotter, 2017). As for omnichannel shopping, it enables customers to shop from the comfort of their own homes 24/7 (Lemon & Verhoef, 2016). As such, Retail 4.0 technologies help to improve customers' shopping experience, provide convenience for the customer and at the same time, improve the performance of retailers.

The incorporation of Retail 4.0 technologies in Malaysia is rather slow (Hasbullah, 2018) when compared to the United States (Mukherjee et al., 2018), China (Li et al., 2018) and many of the countries in Europe (Bertacchini et al., 2017; Trotter, 2017). This is mainly due to the high cost (Saremi & Taghizadeh, 2013; Padyar, Endut, Yahya, & Abdull Rahman, 2014) and complexity (Paydar, Endut, Yahya, & Abdull Rahman, 2014) associated with these technologies. However, there is sufficient evidence to show that these technologies have already reached Malaysian shores, albeit on a smaller scale. Radio Frequency Identification (RFID) tagging has been used in supply chain management (Saremi & Taghizadeh, 2013). Cloud based technology is being used by cyberpreneurs (internet entrepreneurs) in the textile industry. Textile cyberpreneurs in Malaysia use mobile applications that utilize cloud services for conducting online business (Wan Abdul Ghani, Khidzir, Tan, & Ismail, 2017). There are also Augmented /Virtual Reality theme parks like The Rift in Mid Valley Mega Mall in Kuala Lumpur (Chapree, 2017) and Air-On-Park in Aeon Shah Alam (Aeon Air-On-Park, 2019).

In October 2018, Malaysia's Prime Minister, Tun Dr Mahathir Mohamad, launched Industry4WRD, which is the National Policy on Industry 4.0 Under this policy, RM210 million has been allocated by the Malaysian government from 2019 to 2021 to support the transition and migration to Industry 4.0 (StarOnline, 2018). Besides, there is also an initiative to increase highly skilled workers from the current

https://doi.org/10.15405/epsbs.2020.03.03.33
Corresponding Author: Poorni Sakrabani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

18% to 35% (Gnanasagaran, 2018). As such, there is a great potential to expedite the incorporation of these technologies in all industries in Malaysia, especially the retail industry.

Since technology adoption has been proven to improve firm performance (Bharadwaj, 2002), it will be necessary for retailers to adopt technology so as to provide customers with omnichannel shopping options (von Briel, 2018; Chopra, 2018) and also exciting and novel shopping experiences (Bertacchini et al., 2017).

As such the following conceptual framework is presented:

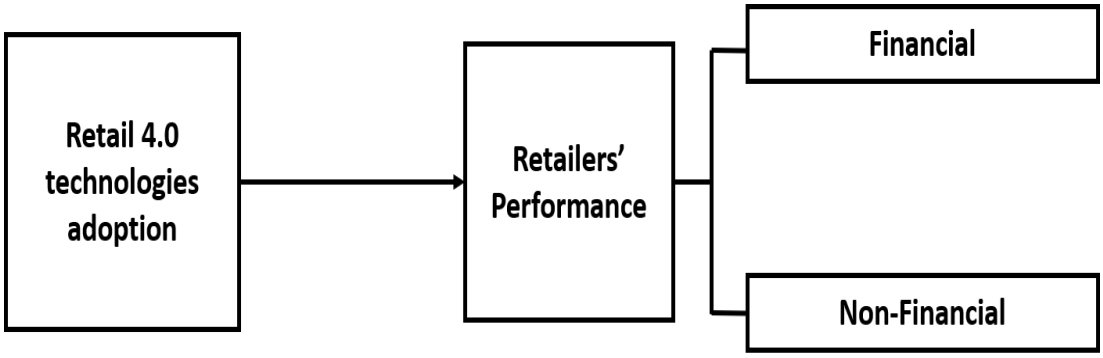

Figure 01. Conceptual Framework

5. Research Methods

Technology adoption has been proven to improve retailers' performance (Orel & Kara, 2013; Bertacchini et al., 2017; Li et al., 2018). The retail industry's contribution towards the Malaysian economy was 45% in 2017. However, the performance of the retail industry has been steadily declining since 2017. This is mainly due to the poor reception for boring `brick and mortar' outlets. Many of these outlets have closed in recent times (Tan, 2018).

Gen Y and Gen Z, who make up 67% of Malaysia's population (Population Pyramid, 2019), look for exciting shopping experiences (Dey & Sandor, 2014; Flavian et al., 2018). To get these young people to purchase from them, retailers must offer omnichannel shopping options and novel technologies. Omnichannel shopping options enable customers to purchase from the comfort of their own homes 24/7. This means that a retailer is still able to do sales even when the `brick and mortar' building is closed. Empty shelves (Aastrup & Kotzab, 2010), long queues (Dahm et al., 2017) and price issues (Riquelmi et al., 2019) have been known to cause dissatisfaction in customers. Novel technologies can help to ensure that shelves are always fully stocked, that there is no queue at the checkout counters and also that there are no price discrepancy issues when the customer wants to make payment. As such, novel technologies can improve customer satisfaction.

Previously, firm performance was only measured in financial ways, that is, through sales, operating profit or ROI (Carmeli et al., 2011; Akter et al., 2016). Now, customers will only shop at a retailer if they are satisfied with the products and also the services offered by the retailer. Therefore, customer satisfaction becomes an important determinant of firm performance. Customer satisfaction is a non-financial way to measure firm performance. Retailers have to ensure that their firm shows good financial and non-financial

https://doi.org/10.15405/epsbs.2020.03.03.33
Corresponding Author: Poorni Sakrabani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

performance to ensure survival in the erratic retail industry. Figure 01 illustrates the conceptual framework of Retail 4.0 technologies adoption by retailers and the impact on retailers' performance in Malaysia.

6. Findings

This is a conceptual paper. As such, there are no findings.

7. Conclusion

Previous studies have shown that technology adoption has been known to improve firm performance. This paper introduces a conceptual framework that should be able to serve as the basis for the adoption of Retail 4.0 technologies by Malaysian retailers. Adoption of these technologies will lead to the modernization of the Malaysian retail industry. As a result, customers can make use of the omnichannel shopping option and do their shopping whenever, wherever and however they want to do it. This is a win-win situation for both the retailer and the customer. The retailer is able to generate sales even if customers do not walk into the `brick and mortar' stores. As for the customers, they are able to purchase the items which they need without having to leave the comfort of their own homes. Further, the incorporation of Retail 4.0 technologies will help to create novel and exciting shopping experiences which will attract Gen Y and Gen Z who make up 67% of Malaysia's population. Considering the fact that the retail industry's contribution to the Malaysian economy is almost 45%, it is very important to ensure that retailers are able to entice the young generation as they have the spending power to improve the sales and consequently, the performance of the retail industry.

References

Aastrup, A., & Kotzab, H. (2010). Forty years of Out-of-Stock research– and shelves are still empty. *The International Review of Retail, Distribution and Consumer Research, 20*(1), 147-164. https://doi.org/10.1080/09593960903498284

Aeon Air-On-Park. (2019). Retrieved from aironpark.com

Akter, S., & Wamba, S. F., Gunasekaran, A., Dubey, R. & Childe, S.J. (2016). How to improve firm performance using big data analytics capability and business strategy alignment? *Int. J.Production Economics, 182*, 113–131.

Amadeo, K. (2019). US Retail sales report, current statistics and recent trends. Retrieved from https://www.thebalance.com/u-s-retail-sales-statistics-and-trends-3305717

Azeem, M. M., Baker, D., Villano, R. A, Mounter, S., & Griffith, G. (2019). Response to stockout in grocery stores: A small city case in a changing competitive environment. *Journal of Retailing and Consumer Services, 49,* 242–252.

Behera, A., Nayak, N., & Das, H. (2015). Performance measurement due to IT adoption. *Business Process Management Journal, 21*(4), 888-907.

Bertacchini, F., Bilotta, E., & Pantano, P. (2017). Shopping with a Robotic Companion. *Computers in Human Behaviour, 77*, 382-395.

Bharadwaj, A. S. (2002). A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation. *MIS Quarterly, 24*(1), 169-196.

Bhatnagar, A., & Syam, S. S. (2014). Allocating a hybrid retailer's assortment across retail stores: Bricks-and-mortar vs Online. *Journal of Business Research, 67,* 1293–1302.

Bradlow, B. T, Gangwar, M., Kopalle, P., & Voleti, S. (2017). The Role of Big Data and Predictive Analytics in Retailing. *Journal of Retailing, 93,* 79–95.

Carmeli, A., Schaubroeck, J., & Tishler, A. (2011). How CEO empowering leadership shapes top management team: Implications for firm Performance. *The Leadership Quarterly, 22*, 399-411.

Chae, H. C., Koh, C. E., & Park, K. O. (2018). Information technology capability and firm performance: Role of industry. *Information & Management, 55*, 525–546.

Chapree, C. (2017). The Rift Opens its Doors. A Hybrid Theme Park Featuring AR/VR/e-sports and More. Retrieved from https://lowyat.net./2017/151324/inside-the-rift-mid-valley

Chopra, S. (2018). The Evolution of Omni-Channel Retailing and its Impact on Supply Chains. *Transportation Research Procedia, 30*, 4-13.

Dahm, M., Wenzel, D., Herzog, W., & Wiecek, A. (2017). Breathing Down your Neck: The Impact Of Queues on Customers using a Retail Service. *Journal of Retailing, 94*(2), 217-230. https://doi.org/10.1016/j.jretai.2018.04.002

Dey, A., & Sandor, C. (2014). Lessons learned: evaluating visualizations for occluded objects in handheld augmented reality. *Int. J. Hum.-Comput. Stud, 72*(10–11), 704–716.

Export-gov (2018). Malaysia e-Commerce. Retrieved from https://www.export.gov /apex/article2?id=Malaysia-E-Commerce

Fernandez, N. V., Perez, M. J. S., & Casielles, R. V. (2018). Webroomers vs Showroomers: Are they the same? *Journal of Business Research, 92*, 300–320.

Flavian, C., Ibanez-Sanchez, S., & Orus, C. (2018). The impact of virtual,augmented and mixed reality technologies on the customer experience. *Journal of Business Research, 100*, 547-560. https://doi.org/10.1016/j.jbusres.2018.10.050

Germann, F., Lilien, G. L., Fieder, L., & Kraus, M. (2014). Do Retailers Benefit from Deploying Customer Analytics? *Journal of Retailing, 90*(4), 587-593. https://doi.org/10.1016/j.jretai.2014.08.002

Gnanasagaran, A. (2018). Malaysia Launches Industry 4.0 Policy. Retrieved from https://theaseanpost.com/article/malaysia-launches-industry-40-policy

Gomez., M., McLaughlin, E. W, & Wittink, D. R. (2004). "Customer Satisfaction and Retail Sales Performance: An Empirical Investigation." *Journal of Retailing, 80*(4), 265–78.

Hasbullah, A. (2018). FAQs on Industry 4.0. From the official portal of the Ministry Of International Trade and Industry. Retrieved from https://en.wikipedia.org/wiki/Industry_4.0

Howland, D. (2018). Out-Of-Stocks could be Costing Retailers USD 1 trillion. Retrived from https://www.retaildive.com/news/out-of-stocks-could-be-costing-retailers-1t/526327/

Jayaram, A. (2017). Smart Retail 4.0 IoT Consumer retailer model for Retail Intelligence and Strategic Marketing of In-Store Products**.** https://www.researchgate.net/publication/314114955

Kahn, B. E, Inman, J. J., & Verhoef, P. C. (2018). Introduction to Special Issue: Consumer Response to the Evolving Retailing Landscape. *JACR, 3*(3). https://doi.org/10.1086/699389

Koesters, J. (2018). Smart Shelves will help to Stock Supermarkets of the Future. Retrieved from https://www.digitalistmag.com/iot/2018/02/28/smart-shelves-will-help-stock-supermarkets-of-future-05922036

Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience throughout the Customer Journey. *Journal of Marketing, 80*(6), 69–96.

Li, H. Z., Tian, L., & Ti, J. F. (2018). Radio-frequency Identification (RFID) Adoption with Inventory Misplacement under Retail Competition. *European Journal of Operational Research, 270*(3), 1028-1043. https://doi.org/10.1016/j.ejor.2018.04.038

Malaymail. (2018). Malls facing meltdown as Glut continues. Retrieved from https://www.malaymail.com/news/malaysia/2018/03/14/malls-facing-meltdown-as-glut-continues /1597735

Mithas, S., Ramasubbu, N., & Sambamurthy, V. (2011). How information management capability influences firm performance. *MIS Quarterly, 35*(1), 237-256.

Mukherjee, A., Smith, R. J., & Turri, M. A. (2018). The smartness paradox: the moderating effect of brand quality reputation on consumers' reactions to RFID-based smart fitting rooms. *Journal of Business Research, 92*, 290- 299.

Neirotti, P., & Paolucci, E. (2011). Assessing the Importance of Industry in the Adoption and Assimilation of IT: Evidence from Italian Enterprises. *Information & Management, 48*, 249–259.

Orel, F. D., & Kara, A. (2013). Supermarket Self-Checkout Service Quality, Customer Satisfaction and Loyalty: Empirical Evidence from an Emerging Market. *Journal of Retailing and Consumer Services, 21*(2), 118-129. https://doi.org/10.1016/j.jretconser.2013.07.002

Pantano, E., Rese, A., & Baier, D. (2017). Enhancing the online decision-making process by using augmented reality: A two country comparison of youth markets. *Journal of Retailing and Consumer Services, 38*, 81–95. https://doi.org/10.1016/j.jretconser.2017.05.011

Paydar, S, Endut, I. R., Yahya, S., & Abdull Rahman, S. H. (2014). Environmental Factors influencing the intention to adopt RFID technology In Retail Industry: An Empirical Study. *Asia Pacific Journal of Management and Reservation, 10*(1), 13-26

Population Pyramid. (2019). Retrieved from https//population.pyramid.net/Malaysia/2019

Priporas, C. V., Stylos, N., & Fotiadis, A .K. (2017). Generation Z Consumers' Expectations of Interactions in Smart retailing. *Computers in Human Behavior, 77*, 374-381.

Ramanathan, R., Philpott, E., Duan, Y., & Cao, G. (2017). Adoption of business analytics and impact on performance: a qualitative study in retail. *Production Planning & Control, 28*(11-12), 985-998. https://doi.org/10.1080/09537287.2017.1336800

Rapp, A., Baker, T. L., Bachrach, D. G., Ogilvie, J., & Beitelspacher, L. S. (2015). Perceived customer showrooming behavior and the effect on retail salesperson self-efficacy and performance. *Journal of Retailing, 91*(2), 358-369. https://doi.org/10.1016/j.jretai.2014.12.007

Riquelmi, I. P, Roman, S., Cuestas, P. J., & Iacobucci, D. (2019). The Dark Side of Good Reputation and Loyalty in Online Retailing. *Journal of Interactive Marketing, 47*, 35-52.

Santos, S., & Goncalves, H. (2018). Multichannel consumer behaviors in the mobile environment: Using fsQCA and discriminant analysis to understand webrooming motivations. *Journal of Business Research, 101*, 757-766. https://doi.org/10.1016/j.jbusres.2018.12.069

Saremi, S. Y., & Taghizadeh, M. (2013). RFID adoption by Supply Chain Organizations in Malaysia. *IPEDR, 57*, 163-167.

StarOnline (2018). Budget 2019: Guan Eng's Full Speech. Retrieved from https://www.thestar.com.my/news/nation/2018/11/02/here-is-the-full-speech-by-finance-minister-lim-guan-eng-during-the-tabling-of-budget-2019/

Tan, H. H. (2018). Dead mall scenario in Malaysia. Retrieved from http://www.starproperty.my/index.php/article/property news/dead-mall-scenario-in-malaysia/

Trotter, C. (2017). Top 40 On-Demand and 3D Printed Products in Retail. Retrieved from https://www.insidertrends.com/top-40-on-demand-3D-printed-products-in-retail)

Vermut, M. (2018). Future of Retail for Millennials and Everyone else, too. Retrieved from https://adage.com/article/neustar/omnichannel-future-retail-millennials/315054

von Briel, J. (2018). The future of omnichannel retail: A four-stage Delphi study. *Technological Forecasting & Social Change, 132*, 217–229. https://doi.org/10.1016/j.techfore.2018.02.004

Wan Abdul Ghani, W. S. D., Khidzir, N. Z., Tan. T. G., & Ismail, M. (2017). Towards Modelling Factors of Intention to Adopt Cloud Based M-retail Application Among Textile Cyberpreneurs. *Journal of Advances in Information Technology, 8*(2), 114-120.

Young, J. (2019). Global e-commerce sales grow 18% in 2018. Retrieved from https://www.digitalcommerce360.com/article/global-ecommerce-sales/