

Total quality management and Organizational Performance: A proposed model on the moderating Effect of Technological Turbulence.

***Waniko Ebenezer Ndabako, **Taofik Abidemi Bello, ***Najeemdeen Shiyanbade-Iliyasu**

*School of Entrepreneurship and management technology, Faculty of entrepreneurship and business management. Federal University of technology, Minna.

**School of Business management, College of Business, University Utara Malaysia

***School of Business management, College of Business, University Utara Malaysia.

Abstract: The study presents a conceptual framework showing the moderating role of technological turbulence on the relationship between total quality management and firms performance. Literature was reviewed before arriving at the proposed conceptual framework. From the model, it is proposed that the relationship between total quality management and organizational performance will be stronger when technological turbulence is supportive and taken in to consideration by Nigerian banking industry. Organizations that leverages on opportunities that evolves around its external environment in terms of change in technology has an edge in attaining competitive edge and improving performance of their organizations more efficiently and effectively than competitors do.

Key words: total quality management, performance, technological turbulence, competitive edge.

I. Introduction

The banking industry is an important pillar for any nation. It is a step to the economic development of any nation due to the financial services which they provide to the people. The efficient and effective functioning of the commercial bank indicates the financial stability of the country(Kolapo, Ayeni et al. 2012). The rate at which the banking industry provides loans to the public to aid industrialization and small scale business, aids in improving the growth and economy of the nation. There are many antecedents which have been considered which aids the performance of the banking industry such as organizational culture, market orientation, to mention a few. The present study intends to integrate total quality management and performance of Nigerian banks with moderating effect of technological turbulence.

A review of related literature indicates that firms that employs total quality management can improve organizational performance. For this purpose, it will be advantageous in looking at practices of total quality management in relation to improving performance of Nigerian banks.

A critical literature review shows that the relationship between total quality management and organizational performance has been studied. Some researchers revealed a positive relationship between total quality management and organizational performance(Claver and Tarí 2008, Vanichchinchai and Igel 2011, Morgan 2012, Morgan, Katsikeas et al. 2012, Jiménez-Jiménez, Martinez-Costa et al. 2015, Zeng, Phan et al. 2015). However, some studies shows non-significant relationship between TQM(Kober, Subraamanniam et al. 2012). Due to the inconsistent findings on the relationship between TQM and organizational performance necessitates the introduction of a moderating variable in order to add strength to the relationship that exists between TQM and firm's performance.

Similarly, some scholars have examined the moderating role of technological turbulence on organizational performance which is a dimension of environmental dynamism(Chavez, Yu et al. 2015, Najafi-Tavani, Sharifi et al. 2016, Zulu-Chisanga, Boso et al. 2016). The present study intends to use only technological turbulence. The banking sector is full of different changes in technology and any bank that is left out which does not move with adopting technologies is likely to fail. Using technological turbulence has a moderating variable is necessary due to the fact that there is changes in the

way and mode of doing business due to the fact that technological changes takes place rapidly over a short time. Past studies tend to concentrate on competitive intensity and market turbulence while abandoning the role of technological turbulence(Trkman and McCormack 2009). The present study makes use of technological turbulence as a moderating variable in other to strengthen the relationship that exists between total quality management and organizational performance. Moderators helps in tightening the bond and clarifying misleading relationship on the relationship between TQM and firms performance.

The present study also integrates the use of both contingency theory and resource base theory inexplaining the role of technological turbulence on the relationship between TQM and firm's performance in Nigerian banking sector. Based on contingency theory, a firm can perform optimally if their structure is targeted to face contingencies imposed by size, technology and environment in which the firm operates(Donaldson 1995, Donaldson and Preston 1995, Otley 2016).

The basic assumption off contingency theory is that firms align their capabilities and resources with both external and internal environment (Homburg, Hoyer et al. 2002, Holm, Kumar et al. 2012). The theory premise is that for a firm to improve its performance and attain profit in terms of improve financial performance, it must be take cognizance of what is happening in its external environment(Abidemi, Halim et al. 2017). In other words, firms should not only place emphasis on its internal resources, acquiring resources, or developing resources but should also consider and focus on how to enhance its capabilities so has to cope with what happens externally (external environment).

Organizations that are conversant with its environment (Contingent firms) can achieve competitive edge by studying what happens in its external environment and implement specific strategies that is appropriate in tacking the contingencies in the external environment(Johannesson and Palona 2010). That is to say firms have to keep up with its surroundings by interacting with its environment. Hence, contingency theory states how firms act in other to survive.Organizations are referred to as contingency based when it focuses on business environment in situations such as choice of innovation in dealing with engineering issues(Puranam, Alexy et al. 2014)..

The resource base theory is of the premise that for a firm to achieve competitive edge in needs to recruit resources (Penrose). Resource are assets, capabilities and information which is owned and controlled by the firm in tackling and implementing strategy (Barney 1991)..

The aim of the paper is to present a model that shows the moderating effect of technological turbulence on the relationship between TQM and organizational performance of Nigerian banks. The proposed model will show the moderating role of technological turbulence on the relationship between total quality management (TQM) and organizational performance which will be developed and explained. The remaining part of the paper reviews literature on TQM, technological turbulence and organizational performance so as to formulate prepositions showing the relationship between the variables under discussion. Finally, the methodology to be adopted, conclusion and implication of the study will be discussed.

II. Literatutre review

Total quality management

Organizations that places emphasis on quality stand a competitive edge because quality is a significant driver of success in today's competitive environment (Demirbag, Tatoglu et al. 2006).Organizations that attains favorable market position need to place emphasis on effective strategies such as TQM. Total quality management refers to a management approach that places emphasis on continuous improvement in all business operations or organizational functions in producing or offering services that satisfies the needs and expectations of customers(Demirbag, Tatoglu et al. 2006). In other words, total quality management aims at improving organizational performance and also offers improve quality in catering for customer's needs (Kaur, Singh et al. 2012). In the past, TQM was mainly used in manufacturing industries but lately it is being applied to the service sectors since it has been recognized as a primary driver in achieving competitive edge and improving performance (Subrahmanyam Bhat and Rajashekhar 2009, Talib, Rahman et al. 2011).Furthermore, TQM can assist mangers in managing the affairs of their organization and improve performance (Konecny and Thun 2011).

Similarly, a review of literature revealed that the relationship between TQM and performance has been studied and examined. However, most of these studies were conducted in developed countries, the result may vary from developing nations such as Ghana, South African and Nigeria due to different context and different cultures. In the same vein, most of the results on TQM and organizational performance varies but majority of the studies shows a significant

relationship between TQM and firms performance(Yeung and Chan 1998, Hendricks and Singhal 2001, Arumugam, Ooi et al. 2008, Miyagawa and Yoshida 2010, Corredor and Goñi 2011, Gunday, Ulusoy et al. 2011, Talib, Rahman et al. 2011, Al-Swidi and Mahmood 2012).

However, some studies also revealed insignificant relationship between TQM and organizational performance such as(Hendricks and Singhal 1996, Shin, Kalinowski et al. 1998, Prajogo and Sohal 2004, Kannan and Tan 2005, Kober, Subraamanniam et al. 2012). Due to the fact that studies on TQM and organizational performance are inconsistent, it is important to carry out another study in examining the relationship between TQM and organizational performance relationship in the context of banking sector in Nigeria which lacks empirical evidence (Meftah Abusa and Gibson 2013).

Thus, it is proposed that TQM as a positive relationship on performance of Nigeria banking industry.

III. Technological turbulence as a moderator

For a better understanding of the varying situation in which total quality management as an effect on financial performance requires contingency factor that emphasizes the various level of technological turbulence. External environment usually has a positive or negative effect on independent variables there by altering its impact on financial performance in the context of contingency. Prior studies also shows that external environment acts as a moderating variable (Zhang and Duan 2010, Wang and Fang 2012, Navarro-García, Arenas-Gaitán et al. 2014).

Technological turbulence tends to create an avenue in which organization seeks and collects information from customers on how to they can served better through the use of social media (Risselada, Verhoef et al. 2014). Information technology provides an avenue for organization to develop capabilities in various fields such as product development, marketing strategies, innovation and mergers and acquisitions (Schilke 2014). An organization that focus on new technologies can provide important services to customers and offers new innovation due to the fact that previous technologies becomes obsolete (Betta, Jones et al. 2010). The use of technological turbulence has a moderating variable gives credence to the importance of information technology to organizations (Cao and Zhang 2011, Abidemi, Halim et al. 2017). Technological turbulence leads to achieving success when other organizational factors such as total quality management are combined together. Organizations that leverages on information technology stand a better chance of improving performance and increasing market share (Lin and Wu 2014).

Furthermore, total quality management inclined firms seek new technologies so has to improve the quality of service provided to their customers. Technological turbulence creates an opportunity for banks to adapt to market and technological changes, organizations that fails to adapt to changes or respond adequately to new opportunities may lead to its failure or demise of such firms(Kumar, Jones et al. 2011).

Hence, technological turbulence moderates the relationship between TQM and performance of Nigerian banking industry.

IV. Total quality management, technological turbulence and organizational performance

Business firms are set up for the sole purpose of making profit. Performance can be measured objectively using financial reports or subjectively using manager's perception(Abidemi, Halim et al. 2017). Subjective measures of organizational performance reflect measures that are directed at firm's key informants such as managers, chief executive officers, directors and marketing managers(Wall, Michie et al. 2004). It has been argued that objective measurement of performance is a lag measure because it is based on past events and only measures a single indicator unlike subjective measures which is based on the present event and can measure various indicators(Dess and Robinson 1984, Wall, Michie et al. 2004). Organizations such as the banking sector can improve its performance and attain competitive edge by improving the quality of its services which is an internal resource of the firm and align its resources properly with that of the technological environment(Abidemi, Halim et al. 2017).

Previous empirical evidence has demonstrated and acknowledged that TQM is one of the most important strategies which organizations can use in retaining and gaining customers and improve performance of such organizations measured in terms of market and customer performance.

In the same vein, review of literature shows that technological turbulence can moderate performance outcomes in varying conditions (Cruz-González, López-Sáez et al. 2015, Abidemi, Halim et al. 2017). Technological turbulence is an important dimension of external environment which comprises of market turbulence and competitive intensity which is used frequently in research unlike technological turbulence which is rarely used(L. Sanders Jones and Linderman 2014,

Tsai and Hsu 2014, Bai and Chang 2015). Organizations that adapts the latest technology attains competitive edge over competitors and also improve organizational performance (Tsai and Yang 2014). A review of related literature showed that technological turbulence helps marketing firms in attaining competitive edge by offering superior products and improved quality of services (Calantone, Garcia et al. 2003, Fernández, Del Rio et al. 2010).

Similarly, review of literature shows that technological turbulence has both positive and negative impact on organizational performance activities (Kohli and Jaworski 1990, Jaworski and Kohli 1993, Chavez, Yu et al. 2015, Cruz-González, López-Sáez et al. 2015). The rapid changes in technological environment creates new offerings in the market place which makes previous technology to be obsolete (Tsai and Yang 2014). Organization that implements total quality management in their organizations, implements and monitor it and leverages on latest technologies so has to better satisfy prospective customers leads to superior organizational performance and improved quality of services by harnessing latest technologies. It is important to note that organization planning and decision making is contingent on the external environment (Wiklund and Shepherd 2005, Mohamad, Ramayah et al. 2011). A firm's Internal resources and capabilities are what organization uses in tackling opportunities that exists in the external environment.

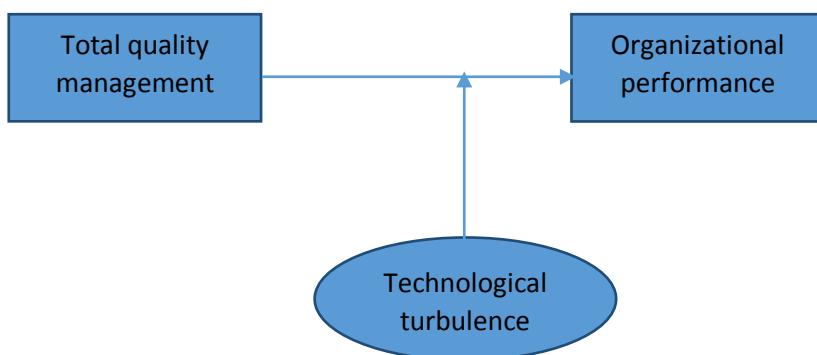


Figure 2.1 conceptual model

V. Proposed conceptual model

As mentioned earlier, the purpose of the article is to present a model showing the relationship between TQM, technological turbulence and firms performance. After a critical review of the literature, brings about the proposed model. The model shows the moderating effect of technological turbulence on the relationship between total quality management and organizational performance. The thick line shows direct relationship while the thin line shows the moderating variable. The proposed model depicts that the relationship between TQM and organizational performance is contingent on the moderating variable which is technological turbulence. In the same vein, the proposed model shows that technological turbulence as an influence on total quality management and organizational performance.

VI. Conclusion

The study presents a model that shows the moderating role of technological turbulence on the relationship between total quality management and organizational performance. A review of related literatures reveals that total quality management leads to improved organizational performance. Similarly, technological turbulence is an antecedent to organizational performance. The proposed model shows that banking industry can seek opportunities in the external environment by adapting to change in the technological environment so as to provide improved services to its clients more efficiently and effectively than those of competitors(Bello and Alshaabi 2017).

Organizations that employs the usage of latest technologies can achieve superior organizational performance, retains and attracts customers than organizations which fails to adopt new technologies and provide superior services quality to customers. Nigeria banking industry needs to focus on improving its total quality management efficiently, effectively and make use of available resources efficiently so as to attain competitive advantage and also improve performance of the sector. Organizations have to align its resources and capabilities with those of the external environment in terms of change in the way of doing things or change in technology so as to gain competitive edge and offer superior services to customers. It is important to harness technology with organizational capabilities. The present study aims to fill the gap

in the literature by studying technological turbulence as a moderating variable on the relationship between total quality management organizational performance. The implication of the conceptual model is that managers have to emphasize on quality of services in order to gain competitive edge and achieve improved organizational performance. It also implies that for organizations to achieve success in the market place, they have to leverage on opportunities which is presented in the external environment.

References

- [1.] Abidemi, B. T., et al. (2017). "MARKETING CAPABILITIES AND ORGANIZATIONAL PERFORMANCE: A PROPOSED MODEL ON THE MODERATING EFFECT OF TECHNOLOGICAL TURBULENCE." *International Journal of Management Research and Reviews*7(6): 626.
- [2.] Al-Swidi, A. K. and R. Mahmood (2012). "Total quality management, entrepreneurial orientation and organizational performance: The role of organizational culture." *African Journal of Business Management*6(13): 4717.
- [3.] Arumugam, V., et al. (2008). "TQM practices and quality management performance: An investigation of their relationship using data from ISO 9001: 2000 firms in Malaysia." *The TQM Journal*20(6): 636-650.
- [4.] Bai, X. and J. Chang (2015). "Corporate social responsibility and firm performance: The mediating role of marketing competence and the moderating role of market environment." *Asia Pacific Journal of Management*32(2): 505-530.
- [5.] Barney, J. (1991). "Firm resources and sustained competitive advantage." *Journal of management*17(1): 99-120.
- [6.] Bello, T. A., Fairol Bin Halim and and A. Alshaabi (2017). "Service Marketing Mix, Market orientation and Organisational Performance: A proposed framework." *ASIAN JOURNAL OF MULTIDISCIPLINARY STUDIES*5(7).
- [7.] Betta, M., et al. (2010). "Entrepreneurship and the innovative self: A Schumpeterian reflection." *International Journal of Entrepreneurial Behavior & Research*16(3): 229-244.
- [8.] Calantone, R., et al. (2003). "The effects of environmental turbulence on new product development strategy planning." *Journal of Product Innovation Management*20(2): 90-103.
- [9.] Cao, M. and Q. Zhang (2011). "Supply chain collaboration: Impact on collaborative advantage and firm performance." *Journal of operations management*29(3): 163-180.
- [10.] Chavez, R., et al. (2015). "Internal lean practices and performance: The role of technological turbulence." *International journal of production economics*160: 157-171.
- [11.] Claver, E. and J. J. Tarí (2008). "The individual effects of total quality management on customers, people and society results and quality performance in SMEs." *Quality and Reliability Engineering International*24(2): 199-211.
- [12.] Corredor, P. and S. Goñi (2011). "TQM and performance: Is the relationship so obvious?" *Journal of Business Research*64(8): 830-838.
- [13.] Cruz-González, J., et al. (2015). "Open search strategies and firm performance: The different moderating role of technological environmental dynamism." *Technovation*35: 32-45.
- [14.] Demirbag, M., et al. (2006). "An analysis of the relationship between TQM implementation and organizational performance: evidence from Turkish SMEs." *Journal of manufacturing technology management*17(6): 829-847.
- [15.] Dess, G. G. and R. B. Robinson (1984). "Measuring organizational performance in the absence of objective measures: the case of the privately-held firm and conglomerate business unit." *Strategic management journal*5(3): 265-273.
- [16.] Donaldson, G. (1995). "A new tool for boards: The strategic audit." *Harvard Business Review*73(4): 99-107.
- [17.] Donaldson, T. and L. E. Preston (1995). "The stakeholder theory of the corporation: Concepts, evidence, and implications." *Academy of management Review*20(1): 65-91.
- [18.] Fernández, P., et al. (2010). "Relationships among functional units and new product performance: The moderating effect of technological turbulence." *Technovation*30(5): 310-321.
- [19.] Gunday, G., et al. (2011). "Effects of innovation types on firm performance." *International journal of production economics*133(2): 662-676.
- [20.] Hendricks, K. B. and V. R. Singhal (1996). "Quality awards and the market value of the firm: An empirical investigation." *Management science*42(3): 415-436.

[21.] Hendricks, K. B. and V. R. Singhal (2001). "Firm characteristics, total quality management, and financial performance." *Journal of operations management*19(3): 269-285.

[22.] Holm, M., et al. (2012). "Measuring customer profitability in complex environments: an interdisciplinary contingency framework." *Journal of the Academy of Marketing Science*40(3): 387-401.

[23.] Homburg, C., et al. (2002). "Service orientation of a retailer's business strategy: Dimensions, antecedents, and performance outcomes." *Journal of Marketing*66(4): 86-101.

[24.] Jaworski, B. J. and A. K. Kohli (1993). "Market orientation: antecedents and consequences." *The Journal of Marketing*: 53-70.

[25.] Jiménez-Jiménez, D., et al. (2015). "Total quality management performance in multinational companies: A learning perspective." *The TQM Journal*27(3): 328-340.

[26.] Johannesson, J. and I. Palona (2010). "Environmental turbulence and the success of a firm's intelligence strategy: development of research instruments." *International Journal of Management*27(3): 448.

[27.] Kannan, V. R. and K. C. Tan (2005). "Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance." *Omega*33(2): 153-162.

[28.] Kaur, M., et al. (2012). "An evaluation of the synergic implementation of TQM and TPM paradigms on business performance." *International Journal of Productivity and Performance Management*62(1): 66-84.

[29.] Kober, R., et al. (2012). "The impact of total quality management adoption on small and medium enterprises' financial performance." *Accounting & Finance*52(2): 421-438.

[30.] Kohli, A. K. and B. J. Jaworski (1990). "Market orientation: the construct, research propositions, and managerial implications." *The Journal of Marketing*: 1-18.

[31.] Kolapo, T. F., et al. (2012). "CREDIT RISK AND COMMERCIAL BANKS' PERFORMANCE IN NIGERIA: A PANEL MODEL APPROACH." *Australian journal of business and management research*2(2): 31.

[32.] Konecny, P. A. and J.-H. Thun (2011). "Do it separately or simultaneously – An empirical analysis of a conjoint implementation of TQM and TPM on plant performance." *International journal of production economics*133(2): 496-507.

[33.] Kumar, V., et al. (2011). "Is market orientation a source of sustainable competitive advantage or simply the cost of competing?" *Journal of Marketing*75(1): 16-30.

[34.] L. Sanders Jones, J. and K. Linderman (2014). "Process management, innovation and efficiency performance: The moderating effect of competitive intensity." *Business Process Management Journal*20(2): 335-358.

[35.] Lin, Y. and L.-Y. Wu (2014). "Exploring the role of dynamic capabilities in firm performance under the resource-based view framework." *Journal of Business Research*67(3): 407-413.

[36.] Meftah Abusa, F. and P. Gibson (2013). "Experiences of TQM elements on organisational performance and future opportunities for a developing country." *International Journal of Quality & Reliability Management*30(9): 920-941.

[37.] Miyagawa, M. and K. Yoshida (2010). "TQM practices of Japanese-owned manufacturers in the USA and China." *International Journal of Quality & Reliability Management*27(7): 736-755.

[38.] Mohamad, O., et al. (2011). "Corporate Entrepreneurship and Firm Performance: The Role of Business Environment as a Moderator [dagger]." *IUP Journal Of Management Research*10(3): 7.

[39.] Morgan, N. A. (2012). "Marketing and business performance." *Journal of the Academy of Marketing Science*40(1): 102-119.

[40.] Morgan, N. A., et al. (2012). "Export marketing strategy implementation, export marketing capabilities, and export venture performance." *Journal of the academy of marketing science*40(2): 271-289.

[41.] Najafi-Tavani, S., et al. (2016). "Market orientation, marketing capability, and new product performance: The moderating role of absorptive capacity." *Journal of Business Research*69(11): 5059-5064.

[42.] Navarro-García, A., et al. (2014). "External environment and the moderating role of export market orientation." *Journal of Business Research*67(5): 740-745.

[43.] Otley, D. (2016). "The contingency theory of management accounting and control: 1980-2014." *Management accounting research*31: 45-62.

[44.] Prajogo, D. I. and A. S. Sohal (2004). "Transitioning from total quality management to total innovation management: an Australian case." *International Journal of Quality & Reliability Management*21(8): 861-875.

- [45.] Puranam, P., et al. (2014). "What's "new" about new forms of organizing?" *Academy of management Review*39(2): 162-180.
- [46.] Risselada, H., et al. (2014). "Dynamic effects of social influence and direct marketing on the adoption of high-technology products." *Journal of Marketing*78(2): 52-68.
- [47.] Schilke, O. (2014). "On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism." *Strategic management journal*35(2): 179-203.
- [48.] Shin, D., et al. (1998). "Critical implementation issues in total quality management." *SAM Advanced Management Journal*63(1): 10.
- [49.] Subrahmanya Bhat, K. and J. Rajashekhar (2009). "An empirical study of barriers to TQM implementation in Indian industries." *The TQM Journal*21(3): 261-272.
- [50.] Talib, F., et al. (2011). "Analysis of interaction among the barriers to total quality management implementation using interpretive structural modeling approach." *Benchmarking: An International Journal*18(4): 563-587.
- [51.] Trkman, P. and K. McCormack (2009). "Supply chain risk in turbulent environments –A conceptual model for managing supply chain network risk." *International Journal of Production Economics*119(2): 247-258.
- [52.] Tsai, K.-H. and T. T. Hsu (2014). "Cross-Functional collaboration, competitive intensity, knowledge integration mechanisms, and new product performance: A mediated moderation model." *Industrial Marketing Management*43(2): 293-303.
- [53.] Tsai, K.-H. and S.-Y. Yang (2014). "The contingent value of firm innovativeness for business performance under environmental turbulence." *International Entrepreneurship and Management Journal*10(2): 343-366.
- [54.] Vanichchinchai, A. and B. Igel (2011). "The impact of total quality management on supply chain management and firm's supply performance." *International Journal of Production Research*49(11): 3405-3424.
- [55.] Wall, T. D., et al. (2004). "On the validity of subjective measures of company performance." *Personnel psychology*57(1): 95-118.
- [56.] Wang, M.-C. and S.-C. Fang (2012). "The moderating effect of environmental uncertainty on the relationship between network structures and the innovative performance of a new venture." *Journal of Business & Industrial Marketing*27(4): 311-323.
- [57.] Wiklund, J. and D. Shepherd (2005). "Entrepreneurial orientation and small business performance: a configurational approach." *Journal of Business Venturing*20(1): 71-91.
- [58.] Yeung, C. and L. Chan (1998). "Quality management system development: Some implications from case studies." *Computers & industrial engineering*35(1-2): 221-224.
- [59.] Zeng, J., et al. (2015). "The impact of hard and soft quality management on quality and innovation performance: An empirical study." *International journal of production economics*162: 216-226.
- [60.] Zhang, J. and Y. Duan (2010). "The impact of different types of market orientation on product innovation performance: Evidence from Chinese manufacturers." *Management decision*48(6): 849-867.
- [61.] Zulu-Chisanga, S., et al. (2016). "Investigating the path from firm innovativeness to financial performance: The roles of new product success, market responsiveness, and environment turbulence." *Journal of Small Business Strategy*26(1): 51.