Digital Adoption by Agri-Based Enterprises in District Jammu : Benefits and Barriers

** Avantika Bakshi*

Abstract

The pervasiveness and ubiquity of technology have brought significant changes in customer behavior and preferences. In light of the rapidly changing social, psychological, and recently, health-related paradigm, diffusion of technology is becoming more of a necessity. In the business context, digital metamorphosis has changed the dynamics of buyer-seller relationships around the world, irrespective of the size and scale of operations. However, this change has been non-uniform and highly versatile with consumer-based businesses showing greater acceptance and digital orientation than B2B businesses. Underlying the significance of digital technologies for adapting to the new normal in the agri-business context in India, this paper focuses on exploring the benefits and barriers of digital adoption by agriculture based (agri - based) enterprises (manufacturing/processing and trading). Findings show that technology used by businesses follows an overlapping pattern with an evident low to moderate usage of tools. A small percentage of businesses have shifted to advanced functions such as e-commerce. The overall perception is positive but restricted to information and communication-based functions only. In terms of hindrances, accessibility as well as lack of technical know-how drastically affects the institutionalization of such technologies.

Keywords : **Agribusiness, digital adoption, Jammu, perceived benefits and barriers, small business**

Paper Submission Date : August 10, 2020 ; Paper Sent Back for Revision : September 27, 2020 ; Paper Acceptance Date : October 15, 2020

Digital adoption has been studied in different contexts, but most of the studies have been restricted to larger enterprises. Although several small business organizations have started making use of varied digital tools to carry out their marketing activities, little is known about the use and perceptual benefits of businesses involved in the Indian agri-value chain. This chain, like most emerging economies, is both complex and information-intensive. Granted, the acceptance and diffusion of such technologies in this sector are much slower and fragmented than other sectors, yet future potential remains vastly unexplored. Since technology acceptance is the result of both environmental and industry-related factors, several studies propose holistic models for firm-level adoption of e-business and e-commerce technologies. From the purview of the environment, the techno-social aspects in terms of Information and Communication Technology (ICT) affordability, accessibility, and pervasiveness is important in the context of developing countries like India. With the gradual development of the telecommunication infrastructure by the combined efforts of the public and private players, the intensity of digitization and internet activities has increased. This increase has been quick and more easily adaptable in some sectors, particularly involving consumer segments such as retail and tourism sectors, whereas slow in others such as agribusinesses. The state of the businesses reliant on agriculture products in most developing countries is largely unorganized with massive supply chain discrepancies. However, underlying the importance of such businesses in ensuring food and economic stability, policymakers, and think-tanks are shifting their focus to growing the resilience of the players through structural improvements.

E-marketing or digital marketing is defined as the integration of digital or electronic tools to marketing and other activities of businesses. While digital marketing, internet marketing, online marketing, and social media marketing are commonly used interchangeably, E- or D-marketing is the most generic, ubiquitous, and holistic term that goes beyond

* *Research Scholar,* The Business School, University of Jammu, Gujarbasti, Jammu, Jammu & Kashmir - 180 006 (Email : avantika.bakshi11@gmail.com)

DOI : 10.17010/amcije/2020/v3i4/155756

a website presence (Shaltoni, 2016). The efforts to strengthen the agri-supply chain through technological interventions such as e-trading platforms and real-time information portals point in the direction of 'e-agribusinesses' for the future. The paper is structured as follows :

The first part comprises a summary of the previous work on the extent of technology use, the perceived benefits and barriers experienced by owner-manager of agribusinesses. This is followed by insights into the methodological approach and empirical results, followed by a discussion of the findings and practical implications. The last section concludes with a summary of limitations and an outlook on future research.

Objectives of the Study

Understanding the significance of technology adoption in agri-market extension mechanisms, the paper aims to explore the extent of its use, perceived benefits, and barriers to its adoption in district Jammu. Broadly, it aims to achieve the following objectives :

(a) To summarize the opportunities and challenges provided by IT and digital marketing tools to agribusinesses.

(b) To explore the extent of the use of selected marketing digital tools in the study area.

(c) To study the benefits and barriers of such tools as perceived by the owners-managers of Agri - based enterprises in the study area.

(d) To provide suggestions and recommendations for businesses, policymakers, external support providers, as well as associations.

Literature Review

A. Agribusiness Sector and IT

Agriculture is both a resource as well as a network-intensive sector. Several perspectives and definitions of agribusinesses exist in literature. While a narrow definition includes all activities from farm to fork and is more focused on actual producers, the broader one encompasses all activities in the agri-chain such as producing, manufacturing, processing, trading, and extension services (Acharya, 2007 ; Beierlein and Woolverton, 1991). Since continuous interaction forms the basis of supply chain efficiencies and survival of businesses, different interventions are needed to integrate the elements of the sector. The stakeholders and government regulatory bodies play a major role in developing robust agricultural ecosystems due to the inherent socio-economic and entrepreneurial backwardness in third world nations.

Over the past years, the rapidly changing consumer demand and intense competition have diverted a shift from traditional production and distribution methods to the ones based on effective planning and coordination between agribusiness players. This has been accompanied by a parallel transformation from subsistence farming to commercial production which needs to be both technologically integrated and market-oriented (Gandhi, 2014). With the digital revolution in the mainstream, the creation of an interactive network through the use of ICT and web-related technologies (Aleke, Ojiako, & Wainwright, 2011) can be mutually advantageous for all agents. A large scholarship in agribusiness marketing literature considers innovation and technology integration to be critical factors for the success of future agribusinesses. This innovation can be systematic (requiring changes at all levels and systems of processes) or autonomous (change occurs at independent levels). While sophisticated and specialized technologies often require businesses to make adjustments across entire value chains, other user-friendly technologies may not. Since agri-product supply chains face challenges of coordination and integration at three levels, namely, product, information, and relationship, there is a huge scope of information and other technologies in supplementing these levels (Bröring & Cloutier, 2008). Additionally, the evolution of Web 1.0 to Web 2.0 to promote two-way hassle-free

marketing activities irrespective of geographical and spatial boundaries along with biological technology advancement has created opportunities for such businesses to formulate cost-efficient strategies while maintaining local, national, and global market linkages (Weatherspoon, Cacho, & Christy, 2001).

B. Digital Adoption in Business Context : Theoretical Background

The literature from the interconnected field of knowledge management, management information systems, marketing, and economics is replete on IT adoption and acceptance in different contexts and involves broad spectrums. The general ICT adoption aspects (Brady et al., 2002 ; Brodie, Benson-Rea, & Lewis, 2008) have been followed by specific contexts based discussions involving small and micro businesses, industrial firms, retail and service firms to name a few (Agrawal, 2018 ; Gandino, Rebaudengo, & Sanchez, 2007). The use and intensity of digital adoption are studied based on the bundle of services, applications, and functions the organizations can utilize (Poon & Joseph, 2000). In the Indian context, this includes email, social media (Whatsapp, Facebook, Twitter), online marketplaces (buying and selling and networking), online communities, blogs, vlogs, and webinars, banking services, procurement, and government dealings (Business to government service).

C. Perceived Benefits

Perceived benefits form an important determinant in most studies related to IS/ IT adoption and innovation diffusion literature in all sectors. The inclination of agri-based enterprises towards strategies that fulfill contingent requirements (meet potential value) instead of following rigid stages shows greater acceptance. The studies of technology adoption in the agribusiness context include several factors affecting ICT use such as cognitive (perceived usefulness or performance expectancy), managerial or organizational, or environmental. However, performance expectancy (perceived usefulness or perceived benefits) are most important in ICT adoption in this sector as well (Engotoit, Benard, Moya, Mayoka, & Bonface, 2016 ; Ibrahim, Hassan, & Gusau, 2018). Thus, supporting the argument that the chances of applying ICT to business increases when the perceived or expected benefits outweigh the effort required for adoption (Ibrahim et al., 2018 ; Sheikh, Shahzad, & Ishak, 2016). A study of benefits and barriers by agribusiness managers-owners can influence how firms use the internet for their business and marketing dealings (Henderson, Akridge, & Dooley, 2006). It was also found that little was known about the benefits and barriers perceived by the suppliers (Agri - based enterprises) in emerging countries who were slowly adapting to the digital metamorphosis (Seyal, Rahman, & Abid, 2013).

The ascertainment of heterogeneous beliefs of users has been carried out using several technologies in terms of transaction functions such as bitcoins, accounting systems, information and communication functions, and promotion functions. These help in identifying the value creation factors for users as well as understanding the individual or social benefits in the specific contexts. Perceived benefits are considered a critical factor in the adoption and continued use of internet marketing both for domestic as well as international operations. It forms an important antecedent in the context of small business internet use (Hsu, & Lin, 2008 ; Levy, Powell, & Yetton, 2001). The benefits of investing in IT by businesses are commonly studied on three levels a) at the level of focal business, b) at the level of the competitive environment (includes industry characteristics and trading partners and c) at the level of the macro environment (Melville, Kraemer, & Gurbaxani, 2004) as given in Table 1. The earliest literature by Poon (1999) identified three aspects of perceived benefits, namely, efficiency-related benefits (improved communication), effectiveness benefits (gather from research, competition information), and image perspective. This was followed by Levy, Powell, and Yetton (2001) to include the categorization of brochureware, support, opportunity, and development. Similarly, Henderson et al. (2006) identified the extent of perceived benefits to include external factor benefits, alignment to industry and business changes, reduced role of local dealers), internal benefits (inventory management abilities), research capabilities, the information providing abilities, and relationship development. Studies about the use of digital technologies differ in their reasons of technology use for their marketing activities, this can be either for the fulfillment of information need and promotion activities like in the study of Welsh Agri-Food industry wherein

it was considered a critical factor for firm success (Çetin, Akpinar, & Ozsayin, 2004) or like Turkish firms where it is perceived to be only a supplementary and not a critical factor for their success (Ashrafi, & Murtaza, 2008).

D. Perceived Barriers

The reasons for non-uniformity in the adoption of technologies among countries and sectors are manifold. Most of the agribusinesses are found to be slower in adopting and transitioning to newer integrative solutions owing to several factors. These can be broadly classified into the owner, organizational, situational, consequential, and psychological constraints (Alford & Page, 2015 ; Ali & Warpade, 2016 ; Burke, 2010 ; Jones, Simmons, Packham, Beynon-Davies, & Pickernell, 2012 ; Ritchie & Brindley, 2005). The small business enterprises, particularly engaged in agri-based activities in India are often characterized by resource constraints. Consequently, barriers related to security, flexibility, and technical-managerial incapability are more prominent (Becker, Huselid, & Ulrich, 2001 ; Mugera, 2012). Although comparative studies between developing and developed countries found skill-related barriers to be more pronounced than material access or infrastructure barriers in such enterprises (Arendt, 2008), the varying rate of ICT incidence requires a combined consideration in the Indian context. Many agribusinesses, particularly involved in Business to Business selling lose out on the potential gains of technology interventions as they perceive the tools to be irrelevant for their domain. It is also considered less useful in offering product recommendations or finding desired information (Järvinen, Tollinen, Karjaluoto, & Jayawardhena, 2012).

We use insights from the Information System (IS) Literature along with theories such as technology acceptance to explore the benefits and barriers of digital tools used on a micro-level. As given in the literature, the assimilation of technology by agribusinesses is proving to be a necessity in the long run. However, several future directions and gaps have existed in the domain of technology-enabled marketing in small business and agricultural businesses. Firstly, not only the literature is largely fragmented but a deeper understanding of what determines adoption remains elusive (Simmons, Armstrong, & Durkin, 2011). Many studies have considered factors affecting adoption, but not a lot have simultaneously captured success and resistance factors (positive and negative) for adoption (Lee, 2009).

Table 1. Perceived Benefits of IT Based on Literature Review

Author	Perceived Benefits	Scope
Salo, Lehtimäki, Simula, and Mäntymäki (2015)	Social prestige (image), extra services and eco consciousness	Focal
Abou-Shouk, Megicks, and Lim(2013)	Essential benefits : Marketing and competition benefits Internal business efficiency benefits	Focal & Competitive
Kaynak, Tatoglu, and Kula (2005)	Market development The efficiency of sales and promotion, Ease of accessibility Cost reduction	Focal
Avlonitisand Karayanni (2000)	Sales management benefits, Product management activities	Focal
• Wang, Ahmed, and Rafi (2008) • Ashrafi, and Murtaza (2008)	Finance Efficiency Retention and expansion of customer base Retention and expansion of supplier	Competitive
Seyal, Rahman, and Abid (2013)	Increased sales Improved customer service, Increase ability to compete, Greater access to a wide range of marketing improved distribution channel, Increase communication flexibility.	Competitive

Methodology

For the study, qualitative and quantitative data were collected from businesses involved in processing and trading of agri-products (food-based), in the Union Territory of Jammu (Erstwhile J&K state). The sampling frame was drawn from the list of industries from District Industrial Centre (DIC), Jammu along with the area chamber of commerce and association. The list was thereby used to collect a sample of 52 firms based on convenience from April 2020 to June 2020. To define the underlying constructs and questionnaire items, an extant review of literature on digital or e-marketing tools and technology was carried out to explore the benefits and potential barriers. The initial items concerning digital tools used for carrying out marketing activities were generated by interviewing the respondents to themes. The questionnaire comprised demographic and company profile, the extent of usage of specific digital tools, the perceived benefits as well the barriers hindering the extensive use of such tools. A five point Likert scale was used to measure the variables. The study uses a descriptive analysis along with cross-tabulation to identify and explain the relationship between variables.

Results and Findings

A. Profile of Firms

The profile of the respondents and firms is given in Table 2. An equal number (50%) of firms were taken from both manufacturing and trading in the agribusiness sector. Of these, 80.76% of the respondents served only B2B businesses while 19.2% had both B2B and B2C dealings.

Table 2. Characteristics of the Sample

Measure	Item	Frequency	Percent
Nature of Activity	Processing	26	50
	Trading	26	50
Investment	Less than 25 lakhs	15	28.8
	25 lakhs–5 crore	21	40.3
	5 crore –10 crore	4	9.6
	More than 10 crore	12	23.07
Scope of Business	Only Local	30	57.7
	National	16	30.7
	International	6	11.5
Target Buyers	B2B	42	80.76
	B2B and B2C	10	19.2
Years of Operation	Less than 10 years	16	31.4
	10 to 20 years	9	17.3
	20 to 30 years	10	19.6
	30–40 years	5	7.8
	More than 40 years	12	23.5
IT Infrastructure	Desktop, laptops, computers	28	53.8
	Only Smartphone	24	46.1
Type of Internet Connection	Broadband	28	53.8
	Only mobile internet	24	46.1
Website	No	33	62.7
	Yes	19	37.3
Whether IT outsourced	Yes	17	89.7
	No	2	10.3

The scope of the firm was assessed through the sales of the products on a local, national, or international level, where in only 11.5% of the firms were serving an international buyer base. The majority of the firms were having a local or national presence. In terms of size, 40.3% of the firms were small (capital investment more than 25 lakhs and upto 5 crores), followed by micro (28.8), and large businesses (23.07%) respectively.

In terms of technology infrastructure, most of the firms owned a desktop computer along with a smartphone (53.8%), but a significant proportion of owner-managers reported having only a smartphone (46.1%).

B. Extent of Use of Digital Marketing Tools

The current use of tools used for carrying out marketing activities follows an overlapping pattern with many businesses still relying on technologies for basic activities such as sending and receiving emails, SMSs, and calling (Table 3). This is attributed to the fact that the Union Territory is one of the few states with frequent mobile internet bans. However, in light of undisrupted broadband and satellite connections, some what mixed use of digital tools is observed. Around 37.3% of businesses owned a website with an autonomous address (.com domain). The main purpose of the website was found to be an information channel. In the absence of a well-maintained e-kart and payment processing facilities, the transaction functions of the website were not fully utilized. More over, the prevalence of static websites limited the scope of communications as well. Based on the qualitative inquiry, Whatsapp use was studied separately from other social media (such as Facebook or Twitter) due to its mobile-friendly and pervasive nature. From the findings, it is observed that the mean score of Whatsapp was higher than other social media apps, along with basic necessary functions such as banking and e-governance. On the other hand, the use of online marketplaces was found to be very low. This indicates a lack of trust in open community networks among small enterprises. Further, the complex nature of the products and the inability to verify the backgrounds, payments norms add to the limitations of the online exchange process.

Depending on the status of use, the firms can be classified in terms of their use intensity through the categories of non–user, and user (Table 4). In terms of user, the firms were found to be further subdivided into high, medium, or low users. Low users were categorized with a score of (<3), medium users (3–4), and high users (4 above) as given in Figure 1.With most of the firms channelizing technologies for information, communication, and limited transaction purposes, the extent of use varied between low to medium in the study area. Only a small proportion of businesses in the study (11.5%), were categorized as high users.

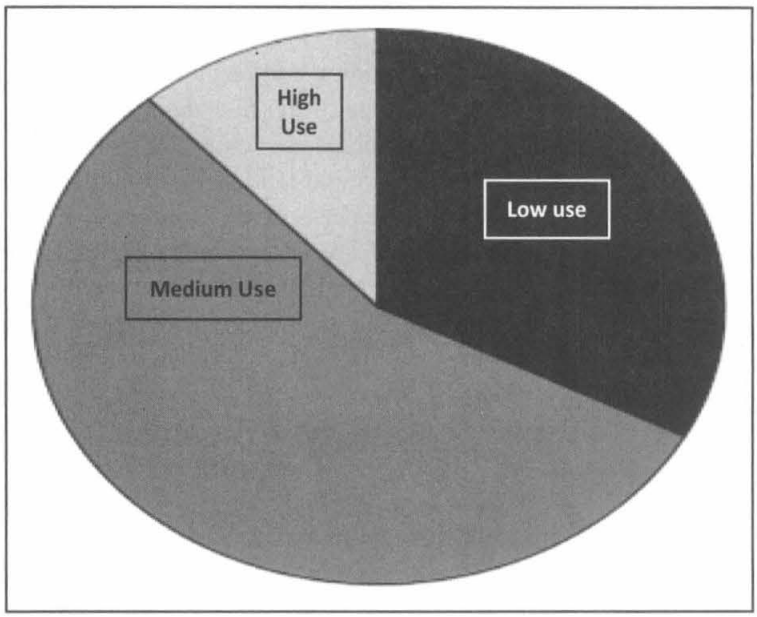
Table 3. Extent of Use of Digital Tools

	N	Minimum	Maximum	Mean	Standard Deviation
We use e-mail for our business related communications	52	1	5	3.04	1.427
We use Whatsapp to interact with suppliers	52	1	5	3.87	1.030
We use social media (Facebook, Whatsapp) to interact with customers	52	1	5	2.90	1.390
Online marketplaces for business contacts	52	1	5	2.67	1.216
SMS for business related communication	52	2	5	3.43	.927
Internet and mobile banking apps	52	2	5	3.79	1.126
Digital wallets	52	1	5	2.63	1.326
search engines for business related information	52	1	5	3.59	1.352
E-governance website & apps	52	1	5	3.73	1.359

Table 4. Classification of Extent of Use

Extent Category	Frequency	Percent
Low	17	32.7
Medium	29	55.8
High	6	11.5

Figure 1. Extent of Use of Tools



C. Perceived Benefits

Most of the firms believe that digital tools are beneficial for carrying out marketing activities. It can enhance customer service, competitive advantage, brand image as well as information dissemination. The findings suggest that a highly positive perception exists among firms with regard to digital tools, with Information acquisition, and research along

Table 5. Perceived Benefits

Statements	*N*	Mean	Standard Deviation
Help get desired information	52	4.12	0.704
Reduced cost of local and international marketing	52	4.10	0.846
In touch with buyers and customers	52	4.21	0.850
Tool for research in business	52	3.40	1.089
Promote brand image	52	3.90	0.995
Provide customer service	52	3.75	0.738
network and collaboration with suppliers/ partners	52	4.18	0.834
Faster discovery of customer needs	52	3.71	0.918
understanding of customer needs better	52	3.36	0.986
Ability to manage inventory levels	52	2.81	1.189
Increasing sales of products	52	3.01	1.144

with communication, networking, and cost-saving as prominent (Table 5). However, moderate response to '*increase in sales*' shows that the firms are more inclined to gaining indirect benefits of IT technologies instead of direct ones. This is also supported by the extent of use, where most of the businesses fall in the category of moderate users and lack well connected holistic e-commerce platforms. For communication, collaboration, and networking (such as making contacts), most businesses prefer Whatsapp (a mobile social media application), then using online marketplaces. Lesser use of such online platforms in the agribusiness sector can be due to the complex nature of the products as well as trust-related issues on the part of the exchange parties.

D. Barriers to the Use of Digital Tools

Even though it is suggested from the findings that digital and collaborative technology tools for carrying out the marketing activities are perceived to be more than beneficial by businesses involved in agri-product dealing, the extent of use is found to be only a little more than average. A possible reason for the low use is the higher constraints experienced by businesses in the use of tools. The majority of the firms report a lack of knowledge and technical skills as deterrents(Table 6) to technology use. This was followed by security risk and comfort with the existing ways of doing things indicating a lower level of flexibility in such businesses. Moreover, most of the businesses catering to other businesses (B2B) indicate that a lower customer e-readiness hinders their abilities to utilize digital tools to their utmost potential. Despite this, the basic purpose of information dissemination, communication, and promotion is carried out by almost all businesses using digital media and platforms. The customers of most of the businesses were able to utilize such technologies thereby proving that customer readiness was not the major barrier to the utilization of such technologies to their utmost potential.

Table 6. Barriers to Utilization of Tools

Statements	*N*	Minimum	Maximum	Mean	Standard Deviation
Does not support business objectives	52	1	5	2.44	1.267
Do not trust due to security issues	52	1	5	3.12	0.933
Do not have technical knowledge	52	1	5	4.18	0.834
Difficult to provide information about complex products	52	1	5	3.33	1.097
Do not have high-speed internet access	52	1	5	4.23	0.942
Customers not able to utilize these tools	52	1	5.	3	1.16980

Implications

The findings can help small agri-business owners/managers and external service providers to reflect upon the themes underpinning the initial digital adoption in a commercial context and plan their efforts meticulously. It also suggests the involvement of external environmental agents such as government for digital capacity building of small business owners and managers.

Conclusion

For reaping the benefits of technology in improving the marketing activities of agribusinesses, it is important to gain an insight into the perception of users towards it. The results indicate that Agri-enterprise owners lack the basic know-how and experience to use IT-related tools in a sustainable and integrated manner. Even though businesses have taken advantage of the maturity and institutionalization of IT resource markets by outsourcing several complex digital

functions, it is evident that creation of permanent IT resultant competitive advantage requires as much internal technical capacity and skill and capacity building as external assistance (Melville, Kraemer, & Gurbaxani, 2004). A possible suggestion in light of the findings of the study should be to include continuous up-gradation of managerial and owner IT skills. Since most small businesses are resource crunched, government assistance, and support in terms of digital skills enhancement should be given paramount importance. Decision-makers who utilize such technologies should be further encouraged through awards and incentives. Efforts should also be made by the industrial associations in collaboration with IT service providers to equip the B2B business owners with such tools for their day to day activities. Organization of seminars and training programs to demonstrate the impact of such tools on business efficiency and productivity (cost-benefit analysis), along with secured operations that can also help. Such initiatives can boost growth at the focal as well as competitive levels in the agribusiness sector. The role of agri-based enterprises in macro-level- strategic resource building (Awa, Ukoha, & Emecheta, 2016) requires a successful coalition with the digital age, and readiness on the part of all businesses, particularly at the small and micro level.

Limitations

The present study was based on an extensive review of literature in the sectoral contexts and it emphasizes the need to focus on strategic and implementation factors for achieving sustainable competitive advantage and marketing efficiency. However, its is limited to food-based agri-enterprises only. Thus, taking into account the small size and convenience of data collection, the study is limited in its scope.

Scope for Future Research

Further studies should focus on establishing a relationship between system based attributes and intention, and actual use (Lacka & Chong, 2016 ; Kooli, Tzempelikos, Foroudi, & Mazahreh, 2019). Future research can draw inferences based on the business size, the scope of operations, and product categories in the context of the region.

References

Abou-Shouk, M., Megicks, P., & Lim, W. M. (2013). Perceived benefits and e-commerce adoption by SME travel agents in developing countries: Evidence from Egypt. *Journal of Hospitality & Tourism Research, 37*(4), 490–515. https://doi.org/10.1177%2F1096348012442544

Acharya, S. S. (2007). Agribusiness in India: Some facts and emerging issues. *Agricultural Economics Research Review, 20,* 409–424.

Agrawal, S. (2018). The impact of emerging technologies and social media on different business (es): Marketing and management. In *Digital Marketing and Consumer Engagement: Concepts, Methodologies, Tools, and Applications,* pp. 1138–1147. IGI Global. doi: 10.4018/978-1-5225-5187-4.ch058

Aleke, B., Ojiako, U., & Wainwright, D. W. (2011). ICT adoption in developing countries: Perspectives from small-scale agribusinesses. *Journal of Enterprise Information Management, 24*(1), 68–84. https://www.researchgate.net/deref/http%3A%2F%2Fdx.doi.org%2F10.1108%2F17410391111097438

Alford, P., & Page, S. J. (2015). Marketing technology for adoption by small businesses. *The Service Industries Journal, 35*(11–12), 655–669. https://doi.org/10.1080/02642069.2015.1062884

Ali, S. A., & Warpade, S. (2016). Study of banana business traders' psychology of Jalgaon district (Maharashtra) towards adopting the e-marketing strategies. *EPH-International Journal of Business & Management Science, 2*(10), 101–110. https://ephjournal.org/index.php/bms/article/view/149/132

Arendt, L. (2008). Barriers to ICT adoption in SMEs: how to bridge the digital divide? *Journal of Systems and Information Technology, 10*(2), 93–108. https://doi.org/10.1108/13287260810897738

Ashrafi, R., & Murtaza, M. (2008). Use and impact of ICT on SMEs in Oman. *Electronic Journal Information Systems Evaluation, 11*(3), 125–138. http://www.ejise.com/issue/download.html?idArticle=727

Avlonitis, G. J., & Karayanni, D. A. (2000). The impact of internet use on business-to-business marketing: Examples from American and European companies. *Industrial Marketing Management, 29*(5), 441–459. https://doi.org/10.1016/S0019-8501(99)00071-1

Awa, H. O., Ukoha, O., & Emecheta, B. C. (2016). Using T-O-E theoretical framework to study the adoption of ERP solution. *Cogent Business & Management, 3*(1), 1–23.

Becker, B. E., Huselid, M. A., & Ulrich, D. (2001). *The HR scorecard: Linking people, strategy, and performance.* Harvard Business Press.

Beierlein, J. G., & Woolverton, M. W. (1991). *Agribusiness Marketing: The Management Perspective.* Prentice-Hall, Inc.

Brodie, R. J., Benson-Rea, M., & Lewis, N. (2008, July). Generic branding of New Zealand wine: From global allocator to global marketing. In *Fourth International Conference of the Academy of Wine Business.*

Bröring, S., & Cloutier, L. M. (2008). Value-creation in new product development within converging value chains: An analysis in the functional foods and nutraceutical industry. *British Food Journal, 110*(1), 76–97. https://doi.org/10.1108/00070700810844803

Burke, K. (2010). The impact of internet and ICT use among SME agribusiness growers and producers. *Journal of Small Business & Entrepreneurship, 23*(2), 173–194. https://doi.org/10.1080/08276331.2010.10593480

Çetin, B., Akpınar, A., & Ozsayın, D. (2004). The use of information and communication technologies as a critical success factor for marketing in Turkish agri-food companies. *Food Reviews International, 20*(3), 221–228. https://doi.org/10.1081/FRI-200029420

Engotoit, Benard, Moya, M. B., Mayoka, K. G., & Bonface, A. (2016). A mobile-based communication adoption model for agricultural market information dissemination in Uganda. *Global Journal of Computers & Technology, 5*(1), 249–265. https://www.academia.edu/30375956/A_Mobile_Based_Communication_Adoption_Model_for_agricultural_market_information_dissemination_in_Uganda

Gandhi, V. P. (2014). Presidential address: Growth and transformation of the agribusiness sector: Drivers, models and challenges. *Indian Journal of Agricultural Economics, 69*(1), 44–74. http://dx.doi.org/10.22004/ag.econ.206364

Gandino, F., Montrucchio, B., Rebaudengo, M., & Sanchez, E. R. (2007). *Analysis of an RFID-based information system for tracking and tracing in an agri-food chain.* 2007 1st Annual RFID Eurasia, Istanbul, 2007, pp. 1–6. IEEE. doi: 10.1109/RFIDEURASIA.2007.4368112

Henderson, J. R., Akridge, J. T., & Dooley, F. J. (2006). Internet and e-commerce use by agribusiness firms: 2004. *Journal of Agribusiness, 24*(1), 17–39. http://dx.doi.org/10.22004/ag.econ.57697

Hsu, C. L., & Lin, J. C. C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & Management, 45*(1), 65–74. https://doi.org/10.1016/j.im.2007.11.001

Ibrahim, A. M., Hassan, M. S. H., & Gusau, A. L. (2018). Factors influencing acceptance and use of ICT innovations by agribusinesses: A conceptual framework. *Journal of Global Information Management, 26*(4), 113–134. doi: 10.4018/978-1-5525-2107-5.ch003s

Järvinen, J., Tollinen, A., Karjaluoto, H., & Jayawardhena, C. (2012). Digital and social media marketing usage in B2B industrial section. *Marketing Management Journal, 22*(2).

Jones, P., Simmons, G., Packham, G., Beynon-Davies, P., & Pickernell, D. (2012). An exploration of the attitudes and strategic responses of sole-proprietor micro-enterprises in adopting information and communication technology. *International Small Business Journal: Researching Entrepreneurship, 32*(3), 285–306. https://doi.org/10.1177%2F0266242612461802

Kaynak, E., Tatoglu, E., & Kula, V. (2005). An analysis of the factors affecting the adoption of electronic commerce by SMEs. *International Marketing Review, 22*(6), 623–640. https://www.researchgate.net/deref/http%3A%2F%2Fdx.doi.org%2F10.1108%2F02651330510630258

Kooli, K., Tzempelikos, N., Foroudi, P., & Mazahreh, S. (2019). What drives B-to-B marketers in emerging countries to use social media sites? *Journal of Business-to-Business Marketing, 26*(3–4), 245–264. https://doi.org/10.1080/1051712X.2019.1611078

Lacka, E., & Chong, A. (2016). Usability perspective on social media sites' adoption in the B2B context. *Industrial Marketing Management, 54,* 80–91. https://doi.org/10.1016/J.INDMARMAN.2016.01.001

Lee, M. C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications, 8*(3), 130–141.

Levy, M., Powell, P., & Yetton, P. (2001). SMEs: Aligning IS and the strategic context. *Journal of Information Technology, 16*(3), 133–144. https://doi.org/10.1080%2F02683960110063672

Melville, N., Kraemer, K. L., & Gurbaxani, V. (2004). Review: Information technology and organizational performance: An integrative model of IT business value. *MIS Quarterly, 28*(2), 283–322.

Mugera, A. W. (2012). Sustained competitive advantage in agribusiness: Applying the resource-based theory to human resources. *International Food and Agribusiness Management Review, 15*(4), 27–48.

Poon, S. (1999). Small business and internet commerce. In F. Sudweeks, C. T. Romm. *Doing Business on the Internet, Computer Supported Cooperative Work,* pp. 113–124. London: Springer. https://doi.org/10.1007/978-1-4471-0561-9_10

Poon, S., & Joseph, M. (2000). Product characteristics and internet commerce benefit among small businesses. *Journal of Product & Brand Management, 9*(1), 21–34.

Ritchie, B., & Brindley, C. (2005). ICT adoption by SMEs: Implications for relationships and management. *New Technology, Work and Employment, 20*(3), 205–217. https://dx.doi.org/10.1111/j.1468-005X.2005.00154.x

Salo, J., Lehtimäki, T., Simula, H., & Mäntymäki, M. (2015). Social media marketing in the Scandinavian industrial markets. *International Journal of E-Business Research, 9*(4), 16–32. doi: 10.4018/ijebr.2013100102

Seyal, A. H., Rahman, M. N. A., & Abid, A. A. (2013). An investigation of perceived benefits and perceived barriers of e-businesses among Bruneian SMEs. *Journal of Advanced Management Science, 1*(2). https://doi.org/10.12720/JOAMS.1.2.258-264

Shaltoni, A. M. (2016). E-marketing education in transition: An analysis of international courses and programs. *The International Journal of Management Education, 14*(2), 212–218. https://doi.org/10.1016/j.ijme.2016.04.004

Sheikh, A. A., Shahzad, A., & Ishak, A. B. K. (2016). The mediating impact of e-marketing adoption on export performance of firms: A conceptual study. *Journal of Technology and Operations Management, 11*(1), 48–58. http://repo.uum.edu.my/19192/1/JTOM%2011%200%202016%2048-58.pdf

Simmons, G., Armstrong, G. A., & Durkin, M. G. (2011). An exploration of small business website optimization: enablers, influencers and an assessment approach. *International Small Business Journal, 29*(5), 534–561.

Wang, C. L., Ahmed, P. K., & Rafiq, M. (2008). Knowledge management orientation: Construct development and empirical validation. *European Journal of Information Systems, 17*(3), 219–235. https://doi.org/10.1057/ejis.2008.12

Weatherspoon, D., Cacho, J., & Christy, R. (2001). Linking globalization, economic growth and poverty: Impacts of agribusiness strategies on sub-Saharan Africa. *American Journal of Agricultural Economics, 83*(3), 722–729. https://www.jstor.org/stable/1245106

About the Author

Avantika Bakshi is pursuing Ph.D. in Marketing with specialization in IT integrated marketing, digital marketing, and agribusiness marketing.