

Moderating Influence of Firm Age on the Adoption of E-Publishing Innovations

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Abstract

Demographic factors such as age are known to be correlates of innovation adoption across industries, including the publishing industry, but several studies present conflicting results on the correlates of technology adoption. Thus, it is yet to be clearly understood whether firm age exercises moderating influence on organisational adoption of e-publishing innovations or not. This study, using data collected from 109 publishing firms, therefore, attempts to assess the influence of firm age on the adoption of e-publishing hardware, e-formats, e-promotion and e-commerce. Findings indicate that firm age played a role in the adoption behaviour of firms but did not significantly influence innovation adoption rates, suggesting that innovation characteristics play more crucial roles in the adoption of e-publishing innovations. The fact that e-publishing is needed for survival by both old and young publishers explains the contradiction and suggests that business focus might be more important in understanding adoption behaviour in some industries.

Key words: Firm age, Innovation, E-publishing, E-commerce, Book formats

1. Introduction

Trend in global publishing is characterized by steady migration from paper to digital formats, and demographic factors have long been recognised as important correlates of innovation adoption in different publishing contexts (Latha and Aparna, 2023; Tshetshema and Chan, 2020). In the context of organisational adoption of innovation, availability of innovation champions, prior technological base, existing capacity, funding and environmental considerations are factors frequently associated with innovation adoption (Drechsler, Reibenspiess, Eckhardt and Wagner, 2021).

The moderating effects of firm age and size on knowledge maturity and innovation value was investigated in a study which argues that older firms outperform younger ones when mature knowledge is employed. It also argues that younger organisations are often more able to exploit new and middle-aged knowledge. The study also found that larger business organisations present a greater capability to innovate by strategically combining nascent and mature knowledge whereas smaller business organisations produce more valuable innovations when they build on knowledge with a moderate level of maturity (Petruzzelli, Ardito and Savino, 2018).

Firm age is also indicated to have effect on organisational performance. Coad, Holm, Krafft and Quatraro (2018) examined the influence of firm age on performance, including innovation performance, financial performance, exports, survival as well as growth. A related study found that young firms face larger performance benefits from research and development at the upper quantiles of the growth rate distribution and larger decline at the lower quantiles; implying that young firms' Research and Development (R&D) investments appear to be riskier than R&D investment made by more mature firms (Coad, Blasco and Teruel, 2013). Such investments in R&D could sometimes relate to innovations but there is hardly any research clearly focusing specifically on the moderating influence of firm age on digital publishing innovation adoption in a developing environment such as Nigeria.

This study, therefore, focuses on the influence of firm age on the adoption of digital publishing innovations with a view to answering the following questions:

Does firm age play any significant role in the organisational adoption of digital publishing hardware?

Does firm age play any significant role in the organisational adoption of digital book formats?

Does firm age play any significant role in the organisational adoption of e-promotion innovations?

Does firm age play any significant role in the organisational adoption of e-commerce?

2. Review of Relevant Literature

Technology has become a part of daily life in today's world. It is being applied in everything from the most basic to the most complex due to its quickness and simplicity. In the age of digital transformation, businesses assess how to leverage technology and combine it with their existing strengths to create a competitive edge. Information and communication technologies (ICT), and particularly digital technologies are acknowledged to be radically changing firm capabilities, business strategies, business processes, and even important inter-firm interactions in extended business networks (Popa, Soto-Acosta & Perez-Gonzalez, 2018). In a time when technology is advancing quickly, the realm of digital publishing has become known as a dynamic and transformative force, reshaping how information is created, disseminated, and consumed. As the digital landscape continues to evolve, understanding the factors that influence the adoption of digital publishing innovations is imperative for organizations seeking to remain competitive in the information age. One such important consideration in this process is the age of the adopting firm (Peter, et al., 2021).

This research embarks on an exploration of the moderating influence of firm age on the adoption of digital publishing innovations. As technology advances at an unprecedented pace, firms find themselves at various points in their lifecycle, each stage presenting a unique set of challenges and opportunities in the context of digital transformation. Whether established industry giants navigating legacy systems or agile startups navigating uncharted territories, the age of a firm is poised to act as a moderating factor that shapes the adoption dynamics of digital publishing innovations (Alex, Agustí and Mercedes, 2016).

Innovation is a key factor in the competitiveness and success of organizations in the ever-changing commercial climate of today. Innovation plays a crucial role in helping organizations remain relevant and expand as they attempt to adapt to changing consumer expectations, technological advancements, and changing market conditions. Nonetheless, a frequently disregarded aspect impacting a company's capacity for innovation is its age. A firm's age, which is a representation of its stage in the organizational lifecycle, brings with it a special set of possibilities, difficulties, and traits that significantly influence how it approaches innovation (Dukeov, et al., 2018).

The relationship between the age of the firm, organizational performance and innovation is not straightforward and depends on the context. Older firms may be more stable and have more resources at their disposal. On the other hand, younger firms are often more dynamic and bring a new approach to innovation. Understanding the relationship between age and innovation is important for strategic management as well as long-term business success. The Impact of Firm Age on Organizational Performance and Innovation is a fast-paced and multi-faceted field of study that has attracted considerable attention in business and management research. Researchers are interested in how firm age affects an organization's ability to innovate and perform well in a fast-evolving business landscape.

Wang and Rafiq (2019) observe that young firms tend to have a lot of growth and innovation in their early days but find it difficult to maintain this growth and stability as they grow. Hitt et al. (2020) maintain that older firms tend to have accumulated more experience and expertise, which allows them to better adjust to changing market conditions. According to the authors, this flexibility contributes to organizational performance in the long run. Chandler and Hanks (2021) opine that older firms may have relationships that improve their performance because age affects resource allocation, which affects access to capital, network, and strategic relationships. On the other hand, Ireland et al (2022) mention that organizational immobility and rigidity may be a challenge for older firms which could impede the ability to respond to market changes. According to Chesbrough and Appleyard (2020), younger firms tend to be more creative and risk-takers, which can result in innovative breakthroughs and a competitive advantage.

March and Simon (2021) submit that older firms benefit from a reservoir of knowledge and experience that can be used for incremental innovation. This reservoir of knowledge contributes to long-term innovation. Laursen and Salter (2022) observe that open innovation and collaboration can be practiced by both young and established firms. For example, younger firms may look for external partners to provide resources, while older firms can use their network and reputation for collaboration. Older firms may be able to adopt new technologies more quickly, while newer firms need to re-engineer their technology capabilities (Teece, 2023). The interest of this study is to unravel the intricacies of the moderating influence of firm age on the adoption of digital publishing innovations, offering a road map for organizations to navigate the digital frontier effectively. The study will contribute to the body of existing literature on digital transformation, which will help organizations leverage their age-related characteristics to embrace and excel in the rapidly changing landscape of digital publishing.

Review of Empirical Literature: BarNir, Gallagher and Auger (2003) examined the impact of firm age and size on business process digitization, it was argued that established and larger firms are less likely to shift activities to the Internet than newer and smaller firms. The study by Meyer (2008) on older workers and the adoption of new technology, found that firms with a higher share of younger employees are more likely to adopt new technologies and the older the workforce the less likely is the adoption of new technologies. Bouncken, Ratzmann and Kraus (2021) maintain that firms may engage in alliances and prioritize innovation for high performance, but the more mature and established firms may not be sufficiently innovative.

The study of Coad, Blasco and Teruel (2013), investigated the relationship between firm growth, innovation and firm age. The authors hypothesized that young firms take on more risky innovation initiatives. Firm age was found to have a significant negative impact on young firms, while the impact of firm age was not significant for the sample of old firms examined.

Balasubramanian (2017) investigated how the age of firm is related to the technical quality of innovations and whether the age of the firm affects the quality of innovations differently depending on the nature of the technology. The study found that firm age is significantly and negatively related to technical quality. Similarly, Calvo studied the effect of age using concentration especially in the samples of young companies. The results show that old firms grow less than young ones, and innovative activity (Calvo, 2006).

Westerman et al. (2014) have highlighted the significance of digital transformation techniques in their recent literature. It indicated that a company's age has an impact on its capacity to strategically match its digital endeavours with organizational objectives, with older companies having to overcome cultural obstacles and legacy systems. In the same vein, Popa, et. al (2018) maintained that technology adoption may be different in different firms, stressing that younger firms may find new inventions or technology easy to use, while older ones may find it difficult to use.

De Vries et al. (2003) investigated the diffusion of innovations in newspaper organizations within the context of media firms. According to their findings, media firms' ages have a moderating effect on how eager they are to embrace digital innovations. It was discovered that older businesses were more cautious and adopted innovations slowly. Kotha, Zheng and George (2011) presented data showing that when young firms enter technological niches, they consistently produce innovative work that is different from that of older firms. The authors tracked 128 biotechnology firms over time and analyze data from these firms. The findings show that the firms' innovative activity is highly influenced by the organizational age at which it enters new technological niches.

Adegbite-Badmus and Folayan (2020) looked into Nigeria's potential for electronic publishing. 150 end users and 39 publishers were carefully selected using stratified sampling, which was part of the study's quantitative cluster design. Stakeholders participated in a focus group discussion to offer their perspectives on the findings. According to the study, authors and marketers stand to gain the least from e-publishing, while publishers are thought to be the primary beneficiaries. However, end users of electronically published content are better equipped to handle e-products than publishers are. The findings of the analysis report on how age affects the adoption of digital publishing, indicating that older publishers have a greater number of e-products than younger ones. And 9.9% of e-products were published by those with less than ten years of experience, whereas those with eleven to twenty years owned 12%. Twenty years of age and older publishers stated that e-products made up 14% of their total revenue. This result implies that the majority of the publishers who adopted e-publishing were younger publishing firms.

In a study by Mohammed et al. (2022), on the variables influencing the adoption of digital information technologies in higher education, it was reported that the characteristics of the user, such as perceived technological readiness and ease of use, may influence how valuable users perceive digital information in education. This was supported by the study of Haller et al. (2008) which found that different firms, industries, and geographical locations have different factors influencing the adoption of digital technologies at the firm level. In terms of adopting and utilizing digital technologies, the report states that firms with more skilled workers, firms operating in ICT-producing and ICT-using industries, and firms located in the capital city region have been relatively more successful. Furthermore, the study states that there are differences between domestic and foreign-owned firms' ICT adoption patterns, particularly when it comes to the impact of pressure from global competition and firm size.

A study on the intra-firm diffusion of innovation: evidence from Tunisian SMEs in information and communication technology was conducted by Youssef et al. (2010). The study found a positive relationship between the age of the technologies, seniority, firm size, and the firm's ability to absorb new technologies and build its ICT usage intensity

Theoretical Perspectives: The Technology-Organisation-Environment theory postulates that organizational characteristics could influence the propensity of an organization to adopt innovations. Among the organizational characteristics likely to influence the adoption of technological innovations in a firm is the age; and some previous studies have investigated this variable from several perspectives. Huergo and Jaumandeu (2004) found that entry age, post-entry age and advanced age of firms affect innovation adoption levels. The study also found that start-up firms tended to innovate more readily than

older firms in Spain. In the same vein, another study found that start-up firms present a high probability of innovation and observed that such firms seem to have extra capabilities which outweigh their size and age handicap (Huergo and Jaumandeu (2004). Also, Meyer (2008) found that organisations in the service sector, with a higher number of younger employees, are more likely to adopt new technologies whereas firms with older workforce are less likely to adopt innovations. In the same vein, George, Mindila and Ouma, (2013) found that age was a barrier to the adoption of technological innovation among Kenyan banks.

In contrast, Hui, Radzi, Jenatabadi, Kasim & Radu, (2013) found that firm age is a moderator that controls the relationship among organization innovation, organisation learning and performance. They argued that old age of an organisation could be an advantage in terms of availability of resources and experience needed for profitable innovation (Li, Wu & Zhang, 2013). Another study, however, provided a possible explanation for these contradictory findings, indicating that firm age could influence innovation adoption decisions in organisations. That is, age could be either a facilitator or a barrier to innovation adoption (Boonsiritomachai; McGrath and Burgess, 2014).

In the present study, the population has both young and old organizations with employees cutting across age brackets. Thus, the need arises to examine the role of firm age in the adoption level of digital publishing innovation in the environment under study. The aim is to examine if age of organisations acts as moderators of innovation adoption level, that is, facilitators or inhibitors.

1. Methods

A questionnaire was employed to collect data from 109 publishing firms. Within the firms, the survey targeted three categories of staff—directors/managers, editors/digital production staff and senior content management staff. By so doing, the potential challenge of collecting data of questionable validity and authenticity was avoided. The data in Table 1, thus, clearly indicate that over 99% of the responding publishers were competent and in positions that likely enabled them to offer useful information. Details are presented in Table 1:

Table 1: Positions of Respondents

SN	Positions	No of Respondents	Percent
1	Managing Editor	38	34.9
2	Chairman/Director	25	22.9
3	Senior Officer	18	16.5
4	CEO	17	15.6
5	Editor	10	9.0
6	Other	1	.9
	Total	109	100

Age Range of Responding Firms: Probability of innovating could change with age of organizations as some studies indicated, but some start-up firms seem to be totally innovation-driven. In the case of Nigeria, going by age, it was expected that the successors of multinational publishers in Nigeria, which are generally older, should be in a better position to innovate. This study assumed that age could be a moderating factor in the innovation adoption process (Moohamad, Aini and Kamal, 2014). The publishers were, therefore, asked to indicate the age of their firms and the age ranges indicate that almost 60% of the publishing firms were established in the past 40 years, that is, between 1986 and 2020, while 22% are between 45 and 60 years old. Only one firm established in 1949 has been in business for over 60 years.

Twenty firms were established only a few years before the study or could not clearly indicate their age. They were all categorised as NA (Not Applicable or Not Available). A breakdown is presented in Table 2:

Table 2: Age Range of Respondent Publishing Firms

SN	Age Range	Frequency	Percent
1	1940—1954	1	.9
2	1955—1970	12	11.0
3	1971—1985	12	11.0
4	1986—2000	32	29.4
5	2001--2015	32	29.4
6	2016-2020	20	18.3
	Total	109	100

*NA: Not Applicable or Not Available

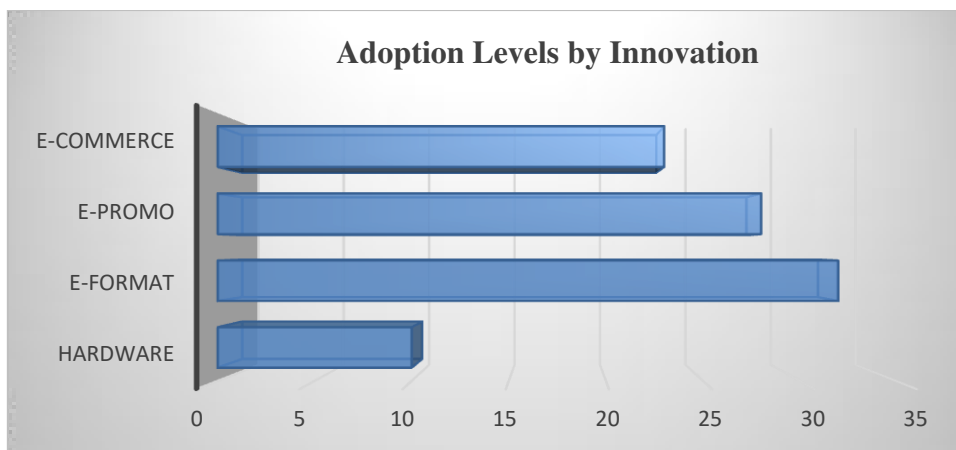
2. Data Presentation and Analysis

RQ1: To what extent have digital publishing innovations (digital publishing hardware, digital book formats, e-promotion and e-commerce) been adopted by the publishing firms?

Responses to questions on the adoption level of digital publishing hardware, digital book formats, e-promotion and e-commerce indicated that awareness is high but adoption level about 10% and below in some cases, especially in the case of print-on-demand machines and CD replicating machines.

With regard to e-formats, over 13% adopted HTML Format, over 12% adopted EPUB format, and almost 30% published in PDF format whereas about 21% adopted compact disc formats. About 56% of the respondents had placed online advertisements or planned to do so whereas almost 13% had social network presence. With regard to e-commerce adoption level, it was found that over 21% adopted online sales, 16.5% adopted e-distribution by print-on-demand whereas over 21% made use of e-payment instruments. Details are presented in figure 1:

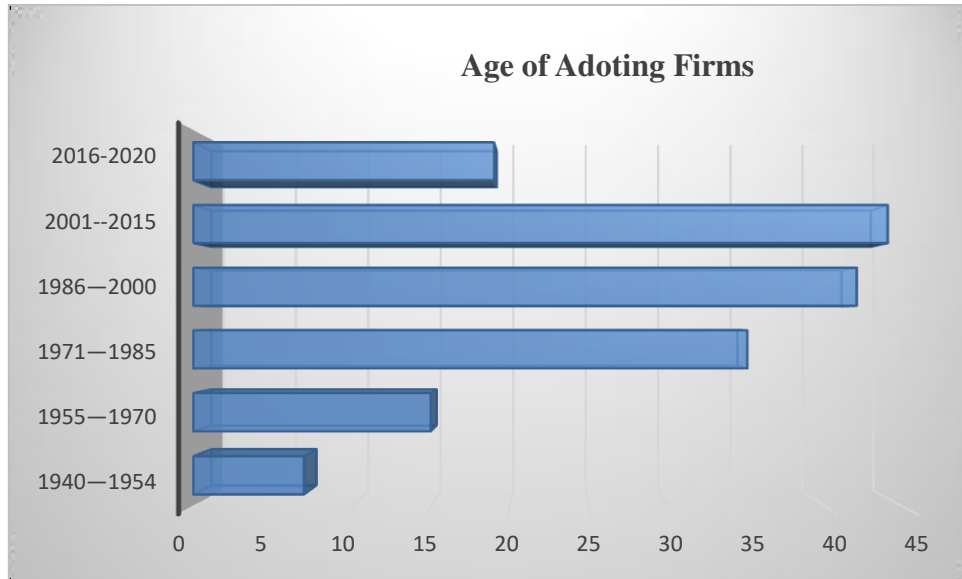
Figure 1



RQ2: Does firm age play a moderating role in the adoption of digital publishing hardware, book format, e-promotion and e-commerce in publishing firms?

To answer this research question, respondents were asked to indicate the kinds of firm, in terms of age, perceived to be adopting digital publishing innovations. Their responses were classified and summarised in Figure 2:

Figure 2:

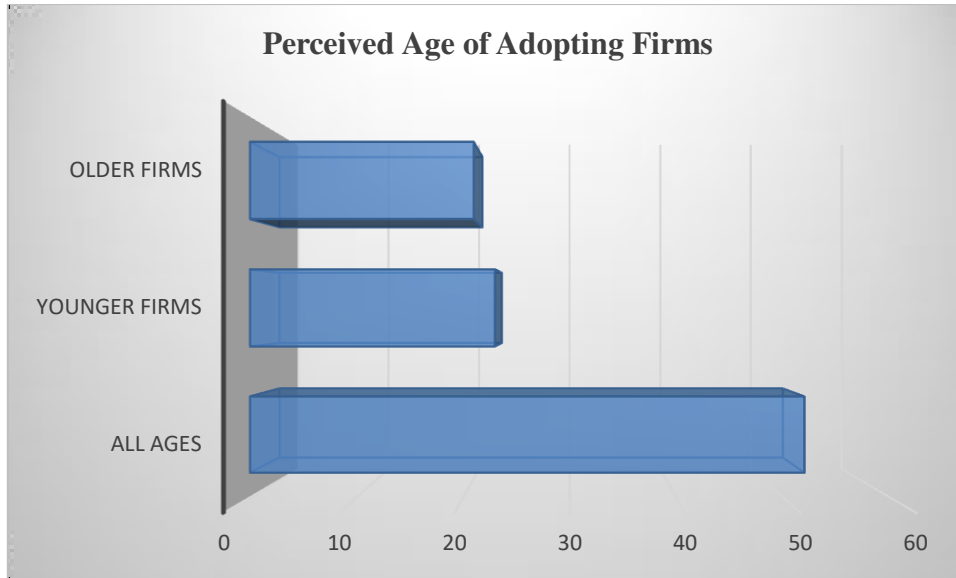


Adoption level by Age range

From Figure 1, the overriding perceptions seem to be that all ages of publishing houses are inclined to adopting digital publishing innovations though younger firms may be more inclined to adopting. This is consistent with the adoption figures reported in this study, indicating that all sizes of publishing house are interested in adopting digital publishing innovations, but new start-ups firms seem to follow through up to the implementation stage, especially with regard to digital book formats and e-commerce. Moreover, the findings indicate that all sizes of firms adopted e-promotion whereas all other bits of innovation were adopted by young start-ups firms, slightly more than the older firms. Overall, it could be inferred that firm age did not play any significant role in the adoption level of digital publishing innovations investigated in this study.

To get more insight into the role of firm age, the respondents were asked in an open-ended question, to indicate the kinds of firm, in terms of age, perceived to be adopting digital publishing innovations. Their responses were classified and presented in Figure 3:

Figure 3:



Age of Firms Perceived to be Adopting Digital Publishing Innovations

Cross Tabulation Analysis of the Role of Firm Age in Digital Publishing Innovation Adoption

Data on the age ranges of the firms are cross tabulated with each of the four innovations and Pearson Chi Square Test conducted and presented in this section. Presentation begins with hardware innovations:

Hardware Innovations: A cross tabulation analysis of the responses indicates that publishing firms established between 2001 and 2015 adopted digital publishing hardware (2.8%) more than the older ones which adopted slightly above .9%. There were also more indications of plan to adopt (1.8%) and interest in adopting (7.3%) within the same period. Though this finding suggests that younger publishing firms adopt innovations more than older firms, a Pearson Chi Square Test indicated that the relationship (.464) is not significant. It may, therefore, be inferred that firm age played no significant role in the adoption level of digital hardware innovations. Details are presented in Table 3:

Table 3: Firm Age, Hardware Cross Tabulation

SN	Firm Age	Not Aware	Just Aware	Interested but no plan	Plans to Adopt Soon	Already in Use	(NA) Not Available	Total
1	1940-1954 Count % of Total	0 0%	0 0%	0 0%	0 0%	0 0%	1 .9%	1 .9%
2	1955-1970 Count % of Total	1 .9%	1	5 4.6%	0 0%	1 .9%	3 2.8%	11 10.1%
3	1971-1985 Count % of Total	2 1.8%	1 .9%	4 3.7%	1 .9%	1 .9%	4 1.8%	13 11.9%
4	1986-2000 Count % of Total	5 4.6%	2 1.8%	13 11.9%	1 .9%	0 0%	9 8.3%	30 27.7%
5	2001-2015 Count % of Total	3 2.8%	7 6.4%	8 7.3%	2 1.8%	3 2.8%	11 10.1%	34 31.2%

6	NA Count % of Total	2 1.8%	3 2.8%	5 4.6%	1 .9%	0 0%	9 8.3%	20 8.3%
	Total Count % of Total	13 11.9%	14 12.8%	35 32.1%	5 4.6%	5 4.6%	37 33.9%	109 100%

Digital Book Format Innovations: A cross tabulation analysis of the responses for firm age and adoption level of digital book formats indicates that publishing firms established between 2001 and 2015 adopted digital book formats (4.6%) more than the older ones established between 1986 and 2000 which adopted slightly less (3.7%). Though these findings suggest that younger publishing firms adopt digital book formats more than older firms, a Pearson Chi Square Test indicated that the relationship (.065) is not significant. It is, therefore, inferred that firm age played no significant role in the adoption level of digital book formats. Details are presented in Table 4:

Table 4: Firm Age, Book Format Cross Tabulation

SN	Firm Age	Not Aware	Just Aware	Interested but no plan	Plans to Adopt Soon	Already in Use	(NA) Not Available	Total
1	1940-1954 Count % of Total	0 0%	0 0%	0 0%	0 0%	0 0%	1 .9%	1 .9%
2	1955-1970 Count % of Total	0 0%	0 0%	5 4.6 %	0 0%	2 1.8%	4 3.7%	11 10.1%
3	1971-1985 Count % of Total	0 0%	3 2.8%	2 1.8%	4 3.7%	0 0%	4 3.7%	13 11.9%
4	1986-2000 Count % of Total	4 3.7%	1 .9%	12 11.0%	2 1.8%	4 3.7%	7 6.4%	30 27.5%
5	2001-2015 Count % of Total	2 1.8%	5 4.6%	3 2.8%	3 2.8%	5 4.6%	16 14.7%	34 31.2%
6	NA Count % of Total	0 0%	4 3.7%	5 4.6%	3 2.8%	0 0%	8 7.3%	20 18.3%
	Total Count % of Total	6 5.5%	13 11.9%	27 24.8%	12 11.0%	11 10.1%	40 36.75	109 100%

E-promotion Innovations: A cross tabulation analysis of the responses for firm age and adoption level of e-promotion innovations indicates that publishing firms established between 2001 and 2015 adopted e-promotion (6.4%) more than the older ones established between 1986 and 2000 which adopted less (3.7%). Though these findings suggest that younger publishing firms adopt digital book formats more than older firms, a Pearson Chi Square Test indicated that the relationship (.464) is not significant. It is,

therefore, inferred that firm age played no significant role in the adoption level of digital book formats. Details are presented in Table 5:

Table 5: Firm Age and E-Promotion Cross Tabulation

SN	Firm Age	Not Aware	Just Aware	Interested but no plan	Plans to Adopt Soon	Already in Use	(NA) Not Available	Total
1	1940-1954 Count % of Total	0 0%	0 0%	0 0%	0 0%	0 0%	1 .9%	1 .9%
2	1955-1970 Count % of Total	0 0%	0 0%	5 4.6%	1 .9%	0 0%	5 4.6%	11 10.1%
3	1971-1985 Count % of Total	1 .9%	1 .9%	4 3.7%	1 .9%	1 .9%	5 4.6%	13 11.9%
4	1986-2000 Count % of Total	3 2.8%	0 0%	13 11.9%	3 2.8%	4 3.7%	7 6.4%	30 27.5%
5	2001-2015 Count % of Total	2 1.8%	5 4.6%	3 2.8%	4 3.7%	7 6.4%	13 11.9%	34 31.2%
6	NA Count % of Total	0 0%	2 1.8%	7 6.4%	2 1.8%	1 .9%	8 7.3%	20 18.3%
	Total Count % of Total	6 5.5%	8 7.3%	32 29.4%	11 10.1%	13 11.9%	39 35.8%	109 100%

E-commerce: A cross tabulation analysis of the responses for firm age and adoption level of e-commerce indicates that publishing firms established between 2001 and 2015 adopted e-commerce (7.3%) more than the older ones. Though these findings suggest that younger publishing firms adopt e-commerce more than older firms, a Pearson Chi Square Test indicated that the relationship (.910) is not significant. It is, therefore, inferred that firm age played no significant role in the adoption level of digital book formats. Details are presented in Table 7:

Table 6: Firm Age and E-Commerce Cross Tabulation

SN	Firm Age	Not Aware	Just Aware	Interested but no plan	Plans to Adopt Soon	Already in Use	(NA) Not Available	Total
1	1940-1954 Count % of Total	0 0%	0 0%	1 .9%	0 0%	0 0%	0 0%	1 .9%
2	1955-1970 Count % of Total	0 0%	0 0%	5 4.6%	1 .9%	1 .9%	4 3.7%	11 10.1%

3	1971-1985	1	1	4	1	2	4	13
	Count % of Total	.9%	.9%	3.7%	.9%	1.8%	3.7%	11.9%
4	1986-2000	2	2	13	3	3	7	30
	Count % of Total	1.8%	1.8%	11.9%	2.85	2.85	6.4%	27.5%
5	2001-2015	2	5	5	5	8	9	34
	Count % of Total	1.8%	4.6%	4.6%	4.6%	7.3%	8.3%	31.2%
6	NA	0	2	7	1	3	7	20
	Count % of Total	0%	1.8%	6.4%	.9%	2.8%	6.4%	18.3%
	Total	5	10	35	11	17	31	109
	Count % of Total	4.6%	9.2%	32.1%	10.1%	15.6%	28.4%	100%

Overall, the analysis indicates that younger firms may be more inclined to adopting digital publishing innovations than older firms, though their role in adoption of digital publishing is not statistically significant. This is consistent with the adoption figures reported in this study, indicating that all age ranges of publishing house are interested in adopting digital publishing innovations. But new start-ups firms seem to follow through up to the implementation stage, especially with regard to digital book formats and e-commerce. This is also consistent with observed output on websites (cutting across all ages) but the role is generally insignificant. Thus, it is inferred that firm age played no significant moderating role in the adoption level of digital publishing innovations.

Measuring the Moderating Influence of Firm Age: Pearson correlation was used to further assess the influence of firm age on adoption extent. The extent of adoption of each of the innovations was first correlated with the scores for firm age. It was also correlated with all the digital publishing innovations (DPI) jointly. The results indicate that there is no significant relationship between the extent of adoption of each innovation and firm age. There was significant relationship between the overall DPI and other variables when firm age is excluded. But when firm age was included, the result was insignificant. Details are presented in Table 7:

Table 7: Moderating Role of Firm Age on Digital Publishing Innovation (DPI) Adoption

Variables	Pearson R.	P. Value	Decision
DPI (without Firm Age)	.591	.007	Significant
DPI (with firm age)	.599	.016	Insignificant

5. Discussion of Findings

This section discusses the findings of this study. The findings are discussed drawing inferences from authors' findings from the reviewed literature and relating them to the researchers' findings. On the research question which sought to find out if firm age plays a moderating role in the adoption extent of

digital publishing innovations in Nigeria, it was found that firm age played no significant role in the adoption level of digital publishing innovations.

The finding is consistent with the result of Mohammed et al. (2022) on the variables influencing the adoption of digital information technologies in higher education. It was found that the characteristics of the user, such as perceived technological readiness and ease of use, may influence how valuable users perceive digital information in education. Similarly, the study of Haller et al. (2008), found that different firms, industries, and geographical locations have different factors influencing the adoption of digital technologies at the firm level. According to the findings of Meyer (2008), adoption of new technologies by organisations in the service sector, is influenced by the employees. The author reported that organizations with a higher number of younger employees, are more likely to adopt new technologies whereas firms with older workforce are less likely to adopt innovations.

Similarly, Laursen and Salter (2022) observed that open innovation and collaboration can be practiced by both young and established firms, noting that younger firms may look for external partners to provide resources, while older firms can use their network and reputation for collaboration.

In contrast, the findings of this study contradict those of (Hitt et al, 2020; Chandler and Hanks, 2021; Chesbrough and Appleyard, 2020; March and Simon, 2021; Teece, 2023; Coad, Blasco and Teruel (2013; Bouncken, Ratzmann and Kraus (2021; Bouncken, Ratzmann & Kraus (2021), whose studies found a significant positive relationship between the age of firm and technologies adoption.

6. Conclusion

The study examined the moderating influence of firm age on the adoption of digital publishing innovations and found that though the age of a firm could be associated with its innovating behaviour, such relationships is limited to bivariate results in this study. Other variables such as market readiness individually played significant role in the adoption level of digital publishing innovations, but played no significant role when assessed together with firm age. This implies that e-publishing innovations can be initiated and followed through by both young and older publishing firms, in contrast to what obtains in some other industries. The fact that both old and young firms seem to equally depend on digital innovations for every aspect of publishing accounts for this inconsistency with findings on other industries. This finding accentuates the difference between publishing firms whose products could be wholly digitized and other organisations whose products may or may not be digitized.

Though the literature indicates that firm age could have significant moderating influence on innovation adoption, this study clarifies that this could be industry-specific, meaning that future search for the correlates of innovation adoption in the publishing sector should focus more on other organisational factors.

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