

The Contribution and Potential of Digital Transformation on Malaysian Handicraft Products; A Mobile Apps Approach.

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Abstract.

This paper is a review of past research on the digital transformation of handicraft products in Malaysia. Previous research indicates that there is a lot of area and possibility to make handmade items using today's technological breakthroughs. To obtain information from prior studies, researchers employed the Systematic Literature Review (SLR) method in this study. They discovered past studies on handmade products that featured digital transformation, such as the usage of mobile applications. This study's findings bring together a variety of handcrafted products that have used digital platforms and mobile applications. Researchers were able to discover six contributions and potential that can be used in the digital transformation of handicraft items in Malaysia by analysing the data of previous studies. The study's findings are expected to provide a deeper knowledge of the benefaction of digital transformation on Malaysian handicrafts, particularly with a mobile application approach. As a result, this study gives a complete review of the most recent innovations in the application of digital technology in Malaysia's handicraft business. It also sheds light on the different contributions and potential that may be used to improve the sustainability and development of handmade items in the digital age.

Keyword: Digital transformation, mobile application, handicraft product, Malaysia.

1. Introduction

Digital technology has drastically altered practically every element of human life, including the handcraft sector. Handcraft products, which are frequently linked with beauty, handcrafted quality, and cultural history, are now being influenced by technological breakthroughs. The use of electronic devices, software, and internet networks to facilitate the creation, promotion, and sale of handcraft items is referred to as digital technology in this context. Malaysia, according to Dr. Mahathir Mohamad (2022), cannot afford to fall behind any longer because our production will suffer. Malaysia's productivity rate lags behind that of industrialised countries, and the country will be able to raise its productivity rate through effective use of technology. As a result, implementing digital technology in the manufacturing process will improve organisations' existing operations and make them more cost-effective or reduce production time by enabling digital technology to carry out complex manufacturing processes efficiently and effectively (Gökalp et al., 2017). In 2016, Demirkan et al. argued that incorporating modern technology into organisational manufacturing processes, such as smart machines and robots via advanced robotic management, will boost organisational efficiency and allow them to further develop their products and services.

Kokolek et al. (2019) and Nwankpa & Roumani (2016), mentioned that digital skills are becoming increasingly important for successful digital transformation, and the demand for such talents will grow in the future years. These assertions demonstrate unequivocally that digital skills are required for successful digital transformation, and the demand for these talents will grow in the future. Furthermore, there is frequently dread associated with technology. Workers frequently fear that technology will replace them and risk their jobs as the transformation process unfolds (Heavin & Power, 2018). As a result, using digital technology will foster an open innovation culture within organisations, particularly in the manufacturing process. Everything is achievable if we focus on digital technology (Ismagilova et al., 2019). This technology, which includes machine learning, makes equipment more efficient and effective in its operations. They can become aware of procedures, learn on their own, and solve difficulties that may develop during the manufacturing process. According to the references mentioned by Hartley and Sawaya (2019), with technology, equipment can grow smarter and better adapt to the production environment.

2. Literature Review

According to the 'Etymology Dictionary,' the term 'transformation' originated in the 14th century with the development of Church Latin and French. Around 1400, the word became popular. The term is derived from the Latin word 'transformare,' which is an action noun derived from the verb 'transformare.' 'Transformare' refers to a change of shape or metamorphosis in Latin. The term is made up of two elements: 'trans,' which means "to cross" or "across," and 'formare,' which means "form" or "appearance." Since then, the term 'transformation' has been frequently utilised in a variety of sectors, including science, mathematics, art, and technology. It refers to a considerable change in an entity's or system's form, structure, or nature.

Despite the fact that digital transformation has become a key focus of academic research in recent years, there is still misunderstanding about the definition, framework, and accompanying opposition, particularly in the manufacturing industry. In the mentioned literature, there is no clear and consistent description of what digital transformation is, including authors such as Nwankpa and Roumani (2016), De Carolis et al. (2018), Ng et al. (2019), and Zangiacomi et al. (2020). Depending on the industry sector or topic they are researching, such as banking, government, or manufacturing, each writer will bring a unique background and perspective. However, academics attempt to collect past scholars' perspectives on digital transition.

Morakanyane (2017) defines digital transformation as an evolutionary process that employs digital technology to develop or change a process, such as business, operational, or customer processes, in order to produce new value. The phrase is comparable to Niall McKeown's (2015) belief that digital transformation is a journey of strategic plan organisational change. It begins with equipping teams with new tools for developing highly responsive strategies and fostering a culture of fearless innovation. The 'Internet of Things' (IoT), additive manufacturing, big data, artificial intelligence, cloud computing, and augmented and virtual reality are all part of the new digital paradigm (Rindfleisch et al., 2017; Nambisan, 2017). Mobile, location-based, virtual reality, digital twins, blockchain, artificial intelligence (AI), wearable technology, chatbots, neuroscience, and business process automation, as well as machine-to-machine interaction via the 'Internet of Things' (IoT), are all convergent today. In mixing multiple technologies that traverse the physical, digital, and social realms, innovation strengthens and reinforces each other (Bolton et al., 2018).

Digital transformation is not a fixed state, but rather a deliberate choice among several options (Furr, 2022). Furr through the Digital Transformation Tension table, offers three primary things that need to be emphasised in digital transformation, namely (1) 'Product VS Platform', (2) 'Firm VS Ecosystems' and (3) 'People VS Tools'. Digital transformation must also consider the changes that digital technology can bring to a company's business model, such as a modified product or organisational structure or process automation. This shift is visible in rising demand for Internet-based media, which has resulted in a shift in the overall business model (Hess et al., 2016). Research on digital transformation may also investigate new innovation approaches to handle various sorts of product challenges (Bremner & Eisenhardt, 2022), allowing researchers to stay on the cutting edge (Furr, 2019). The digital divide is not only about access to or usage of digital technology, but also about the ability to integrate digital technology into social life and benefit society as a whole (Song et al, 2020).

Because digital applications are one of the tools or mediums for the success of digital transformation, Bellman (2011) defines a mobile application in Khan (2022) as "software that can be downloaded to a mobile device that clearly displays the identity of the application, the appearance of the logo or brand icons coincide with the user experience." Mobile applications are also software that is specifically developed for use on mobile devices such as smartphones or tablets and give up-to-date information, real-time interaction between users, and various entertainment or instructional activities (Picoto et al, 2019). Picoto went on to say that mobile applications are quite popular in modern society because they allow users to read and access information from anywhere and at any time.

This circumstance gave rise to the 'digital citizenship' group, who belong to a digitally literate society, i.e. they are intelligent and responsible in their use of digital media, as well as the internal notion of digital culture itself (Benaziria, 2018). According to the most recent data from application research firm data.ai (formerly known as App Annie), digital users in more than 12 markets around the world now spend four to five hours per day using various applications, and the majority of smartphone users are among the younger generation (Sarah Perez, 2023). This demonstrates that the next generation of handicraft heirs will use technology to produce and preserve local handicrafts in the future.

3. Methodology

The systematic literature review (SLR) method is used as the major approach in this investigation. This approach collects, analyses, and discusses important materials to form the study's findings. Furthermore, the study incorporates the 'triangulation' methodology, which entails collecting data via numerous methods. Document/text analysis (including journals, articles, books, websites, and newspapers) and online field research are used to collect data in this instance. This combination of data sources yields useful insights and helps to the overall conclusions of the study.

4. Findings and Discussion

As a consequence of the information gathering procedure, researchers updated previous researchers' research data from 2010 to 2023 from multiple sources such as Google Scholar, Mycite, and comparative search in Elicit. The information relates to Malaysian heritage handicraft products that employ digital platforms, digital technology, or digital transformation in the manufacturing, marketing, or management of local handicraft products. The table below is an attachment for past researchers' digital transformations of Malaysian handicraft products.

Table 4.1: Research on craft products that use digital platforms.
Source: Google Scholar, MyCite, Elicit, 2021-2023.

No.	Year	Research	Craft Product	Method
1.	2023	<i>Strategi Pemasaran Muzium Wau Tumpat, Kelantan</i>	<i>Wau</i>	Digital Marketing
2.	2022	Terengganu Brassware Handicrafts Industry And Globalisation: A Review	Copper	None
3.	2022	Digital Marketing For Optimizing The Bamboo Handicrafts Marketing In Ikm 'Mandiri Bambu Craft	Bamboo	Digital Marketing
4.	2021	Visualizing Of Blowpipe Business Identity Symbol Of The Orang Asli Community	<i>Sumpit</i>	Visual
5.	2021	<i>Aplikasi Teknik Pemotongan Laser Dalam Rekabentuk Produk Batik Merbok</i>	<i>Batik Merbok</i>	Laser
6.	2021	<i>Teknologi Digital Dan Transformasi Batik Canting Tradisional Pantai Timur</i>	<i>Batik Canting</i>	Manual Method
7.	2021	<i>Dorongan Kelangsungan Usahawan Wanita Dalam Perusahaan Batik Dan Songket</i>	<i>Batik & Songket</i>	Digital Marketing
8.	2021	<i>Adaptasi Pemasaran Digital Dan</i>	<i>Batik</i>	Digital

		<i>Halangan: Kajian Kes Pengusaha Batik Terengganu</i>	<i>Terengganu</i>	Marketing
9.	2020	Cultivating Traditional Malaysian Handicraft Market Demand Through Social Media Technology	General	Social Media
10.	2019	<i>Inovasi Rekabentuk Acuan Model Didi Kraf Seramik Menerusi Teknologi Pencetakan Tiga Dimensi</i>	Ceramic	3D Printing Technology
11.	2019	<i>Kajian Rekabentuk Blok Batik Dari Bahan Akrilik Untuk Teknologi Pembuatan Batik Secara Digital Bagi Industri Batik Di Malaysia</i>	Batik Block	Computer Numerical Control (CNC) Laser
12.		The Development And Evaluation Of W-Songket Courseware Using Cognitive Apprenticeship Strategy	<i>Songket</i>	Courseware
13.	2018	<i>Aplikasi Warisan Songket Menggunakan Augmentasi Realiti Mudah Alih: SMARTSONGKET</i>	<i>Songket</i>	AR Apps
14.	2017	Preservation Of Malaysian Handicraft To Support Tourism Development	General	3D handicraft
15.	2016	Sulaman Keringkam: Motif kemasan Sisi Beridentiti Melayu	<i>Keringkam</i>	Adobe Illustrator
16.	2016	<i>Pengaruh Elemen Vegetal Dalam Seni Mushaf Nusantara</i>	Mushaf Art	Adobe Illustrator
17.	2015	<i>'Fusion': Eksplorasi Bentuk Kraf Tembaga Melalui Integrasi Teknologi</i>	Copper	3D Laser Cutting
18.	2013	Technology And Production Process Of Malay Traditional Heritage Pottery In Malaysia	Pottery	Tradisional Method
19.	2013	Songket Motives Retrieval Through Sketching Technique	<i>Songket</i>	Sketch Based Image Retrieval (SBIR)
20.	2013	Digital Archiving Of Traditional Songket Motifs Using Image Processing Tool (IPT)	<i>Songket</i>	<i>Image Processing Tool (IPT)</i>

The investigation of handicraft products through the use of mobile applications provides an intriguing glimpse into the integration of traditional creative heritage with new technical innovations. In this context, previous research focusing on the use of mobile applications in the development and promotion of craft items becomes increasingly relevant in order to explore new potential and prospects with modern technological platforms. The following is a collection of past studies that are mobile application geared towards Malaysian handicraft products;

Table 4.2: Handicraft products using mobile applications.

Year	Author	Research	Research Outcome	Keyword
2018	Nurlieda Ellyanna Munirah Razali	<i>Aplikasi Warisan Songket Menggunakan Augmentasi Realiti Mudah Alih:</i>	Providing motif modules, videos and quizzes as well as songket	Motif, songket, augmented reality apps

		SMARTSONGKET	making methods through mobile AR	
2017	Mega Widia Agustina	<i>Rancang Bangun Aplikasi Pembelajaran Membuat Pola Kebaya Untuk Dressmaker Berbasis Android</i>	The pattern of kebaya using a smartphone	Learning, kebaya, dressmaker, android
2013	Nadiyah Yusof	Songket Motives Retrieval Through Sketching Technique	Songket motifs using Sketch Based Image Retrieval (SBIR)	Motif, songket, sketching technique
2013	Nursuriati Jamil	Digital Archiving Of Traditional Songket Motifs Using Image Processing Tool (IPT)	Collecting traditional songket motifs using IPT	Motif, songket, digital, IPT

Based on the two tables above, it is possible to conclude that digital transformation has a substantial impact and promise for Malaysian handcraft products. The handicraft sector can tackle new problems and capitalise on new opportunities in the digital era by utilising digital technologies. Among these are: (1) improving market access, (2) expanding networking opportunities, (3) encouraging product innovation, (4) increasing efficiency and productivity, (5) help to preserve and protect cultural product and (6) improving user experience. Handicraft products in Malaysia can capture the interest of local and international clients, boost the industry's competitiveness, and extend the market with the contribution and potential of this digital revolution. Digital transformation creates several new chances for handicraft entrepreneurs to build their businesses and propel Malaysia's handicraft industry forward.

5. Conclusion

The theme of this study is the contribution and potential of digital transformation on handicraft products in Malaysia. The application of digital technology to improve the manufacturing and marketing of handmade products is referred to as digital transformation. The purpose of this research is to determine the extent to which digital transformation has aided the development of Malaysia's handicraft industry. A systematic literature review (SLR) was carried out in this study to obtain significant material about digital transformation in the handicraft business. This method will be used to investigate how the use of digital technology, such as mobile applications, has affected the manufacturing, marketing, and distribution of handicraft products in Malaysia. The findings of this study are expected to provide a deeper knowledge of the consequences and potential of digital transformation on Malaysian handicrafts, particularly with a mobile application approach. With a better grasp of the benefits and drawbacks of digital technology, Malaysia's handicraft sector may capitalise on this opportunity to boost competitiveness and growth in the digital era. This study can serve as a reference to future researchers that earlier studies have provided many models that can be used based on the suitability of handicraft items that desire to be transformed.

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