

12-7-2022

Digital responses by small businesses during COVID-19: the role of entrepreneurial success factors

Scott Bingley
Victoria University, Scott.Bingley@vu.edu.au

Stephen Burgess
Victoria University, Stephen.Burgess@vu.edu.au

Craig Parker
Deakin University, craigmrc@gmail.com

Follow this and additional works at: <https://aisel.aisnet.org/acis2022>

Recommended Citation

Bingley, Scott; Burgess, Stephen; and Parker, Craig, "Digital responses by small businesses during COVID-19: the role of entrepreneurial success factors" (2022). *ACIS 2022 Proceedings*. 52.
<https://aisel.aisnet.org/acis2022/52>

This material is brought to you by the Australasian (ACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ACIS 2022 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Digital responses by small businesses during COVID-19: the role of entrepreneurial success factors

Submission type: Full research paper

Scott Bingley

Victoria School of Business
Victoria University
Melbourne, Australia
Email: Scott.Bingley@vu.edu.au

Stephen Burgess

Institute of Sustainable Industries and Liveable Cities
Victoria University
Melbourne, Australia
Email: Stephen.Burgess@vu.edu.au

Craig Parker

Independent Scholar
Melbourne, Australia
Email: craigparker1@outlook.com.au

Abstract

Small businesses' revenues worldwide were affected drastically when governments introduced lockdowns to mitigate the effects of the COVID-19 pandemic. As a response, many small businesses introduced digital technology initiatives. This article examines digital responses introduced by 68 small businesses that have been sourced from Google News. The news stories were analysed according to how small businesses behaved across different phases of their pandemic response (initial impact, digital response and evaluation of the response). The results, which used entrepreneurial success factors as an analytical lens, suggested that success factors were front of mind for small business owners throughout all phases of their responses. These involved traditional measures of financial success (such as measures of turnover or profit) and owner/managers' personally oriented measures (such as wanting to assist the local community and taking care of employees and customers during the pandemic). The paper proposes new entrepreneurial success measures.

Keywords small business; COVID-19 response; digital response; entrepreneurial success factors.

1 Introduction

There was an increase in the use of digital technologies by small businesses after the commencement of the COVID-19 pandemic. Ratten (2022) attributed this to the requirements of social distancing and increased instances of working from home. However, small businesses often face difficulties in determining how to evaluate the success of digital technology initiatives (Sellitto et al., 2017) and this situation is potentially exacerbated during a crisis. Measures of business success are often limited to financial measures, such as profit levels (Angel et al., 2018), but many small business owner/managers use a range of entrepreneurial success factors to determine the success of their operations. These can include financial measures (such as turnover and profit), but also personally oriented measures such as attaining personal satisfaction, achieving a suitable work/life balance and contributing to local communities (Wach et al., 2020). Jeyaraj (2020) noted that studies investigating ‘success’ in the information systems (IS) literature typically focusses on models developed by DeLone and Mclean in 1992 and 2003, or derivations of these. In their various forms these models mostly focus on factors leading to IS success, such as the quality of systems, usage of systems and satisfaction levels of users with the measure of success often categorised as ‘net benefits’ (Jeyaraj, 2020). This is usually measured by asking the opinions of systems users in generic questions that equate to their value judgement of the level of systems success.

Herbane (2010) suggested three chronological stages that are typically encountered by small businesses during crises: the immediate threat, the business response, and the effectiveness of the response. The primary research question that this study examines is “do entrepreneurial success criteria measures provide further granulation of the notion of ‘net benefits’ (or the ‘success’) of digital responses by small businesses to the COVID-19 pandemic? Addressing this question provides a theoretical contribution by unpacking the ‘net benefits’ of information systems from a small business perspective. A related question is “do the success criteria assist in explaining business behaviours during the different phases of their pandemic responses (as described by Herbane 2010)? To investigate these questions, this paper reports on a study examining digital responses introduced by 68 small businesses during COVID-19 lockdowns, sourced from the news recommender service, Google News. The research questions are investigated using entrepreneurial success factors as an analytical lens. The paper commences with a literature review, introducing entrepreneurial success factors and what ‘success’ means for small businesses during crises. The Methodology section introduces the study. Study results are then presented, followed by a discussion of the research questions. Finally, the study contributions, limitations, potential for future research and a conclusion are presented.

2 Literature review

2.1 Small business and the success of digital technology innovations

Small businesses often face difficulties when evaluating the success of digital technology initiatives, as they involve costs that are difficult to determine and benefits that are difficult to quantify. Three common approaches used to determine success are (Sellitto et al., 2017):

- *Measures of the level of usage* of a system, such as the number of transactions created using a system or a count of the number of times a website has been visited.
- *Organisational performance measures*. The problem with these measures is that digital technology initiatives are often linked with some other business activity, such as improvements in business processes, and it is difficult to determine the extent to which digital technology led to any business outcomes that are achieved.
- *User satisfaction measures*, which is the most common approach. For instance, owner/managers will have instincts as to how they feel a system has performed.

The first two measures relate to business wide usage or business performance and represent measures that can be quantified. User satisfaction levels are part of a wider range of measures that are more difficult to assess, related more to the personal opinions of owner/ managers.

However, there are some recent examples of how digital technology initiatives by small businesses have been assessed using such personally oriented measures, around what ‘satisfaction’ (success) means for the business owner when judging digital technology initiatives. For instance, Anwar, et al. (2018) examined the use of social media by Indonesian female small business owners, regarding how their social media strategy helped them to achieve wide ranging business goals. For them, success included not only financial objectives, but also *personal well-being*, which encompassed criteria such as self-development (through development of digital skills), work-life balance (using social media when it suited, often outside of usual business hours) and advancing religious practices (promoting personal religious beliefs through the business). The authors noted that participating small businesses did not tend to use formal measures to ascertain social media success. Chanda and Salimath (2020) examined small and medium sized enterprises (SMEs) from the cultural and craft industries which had participated in a technology-based cybermediary platform designed to promote crafts, with each business bringing its own unique products to the virtual environment. The platform linked businesses with business networks and community members (potential customers). They found that participation in the platform by SMEs positively influenced both the business performance and the *personal satisfaction levels* of participants. The following section unpacks these varied types of success measures.

2.2 Small business success measures

As discussed, measures of what ‘success’ means are usually limited to financial measures (Angel et al., 2018). However, success for small businesses can also include personally oriented measures that are particular to owner/managers and can relate to their own personal values (Gorgievski et al., 2011). In a study of 150 Dutch small business owners, Gorgievski et al. (2011) examined the relationship between small business success and owner/managers’ personal values. In our study we are particularly interested in a list of 10 criteria that Gorgievski et al. developed to represent business owners’ view of ‘success’ (refer Table 1). The success rankings are separated into more traditional categories (financial returns/ extrinsic rewards) and criteria “of a softer nature” (Gorgievski et al., 2011, p.210), in the category of personally oriented success objectives. Gorgievski, et al.’s (2011) survey asked businesses to rank the success criteria. Interestingly, whilst there was a mix of rankings across the two categories, personally oriented success objectives occupied three of the four highest rankings. A study of 216 New Zealand SME business owners (Kirkwood, 2016) examined how they perceived success, with the results being classified into Gorgievski, et al.’s (2011) categories.

Table 1: *Entrepreneurial Success Criteria [adapted from Gorgievski, et al. (2011), Table 1]*

Category	Criteria	Ascertained by	Rank
Financial returns/ extrinsic rewards	Profitability	High yields and/or profit margins	2
	Growth	Employee numbers, sales, market share and/or distribution markets	10
	Innovation	New products or methods of production	5
	Business survival/ continuity	Ongoing transfer across generations or the ability to sell at a profit	6
	Contributing to society	Use of production methods that socially conscious and/or sustainable	8
Personally oriented success objectives	Personal satisfaction	Attaining things that are important in life. Examples given included autonomy, power, security, etc	1
	Satisfied stakeholders	Satisfied customers; employees who are satisfied and/or engaged	3
	Good work/life balance	Positive (mutual) influence between work and private life; time for self, family, friends	4
	Public recognition	Good reputation; winner of prizes/ awards	9
	Utility or usefulness	Business fills a need in society; provides an important product or service.	7

The top four rankings were similar to those listed in Table 1, with the exception that financial success ranked the highest of all criteria. Later studies involving the same researchers (Wach et al., 2016; Wach et al., 2020) refined the list of criteria into five categories (listed in Table 2).

Table 2: *Entrepreneurial Success Criteria [Source: Wach et al. (2020)]*

Category	Criteria
Business performance	Profitability; turnover; sales; growth; market share
Workplace relationships	Customer relationships; employee relationships (including employee satisfaction)
Personal fulfilment	Work/life balance; work flexibility; decision making (can implement own ideas); personal development
Community impact	Contributing to society; managing an environmentally sustainable business; looking to take care of employees
Personal financial rewards	Personal income growth; personal financial security; abundance of disposable income

Angel et al. (2018) contended that whilst such ranking lists provide a more holistic view of success, at least compared to traditional financial measures, the measures could be interpreted inconsistently. For instance, different meanings may be applied to personal satisfaction measures depending upon the individual. Angel et al. contended that these approaches do not capture what success *means* for entrepreneurs. They identified four main criteria for gauging success (personal fulfilment, customer relationships, community impact and business growth). However, they also identified four understandings (classifications) of entrepreneurial success, based upon how the meaning of criteria were expressed. An *individualist* prioritises individually focussed goals. A *tribalist* also values individual goals, but additionally looks to create a community of employees and/or customers connected to the business. An *evolutionist* is similar to a tribalist, but also gains fulfilment through reinvention and innovation (with business growth as an important measure). A *revolutionist* seeks to create positive social change, with goals being set in terms of the ‘collective good’. Wach et al. (2020) noted Angel et al.’s (2018) approach and suggested that future research could provide a more refined understanding of the similarities/ differences between valued and achieved success.

2.2.1 Success during crises

Crises such as the COVID-19 pandemic can have a profound effect on the success of a small business. Early pandemic studies (Fabeil et al., 2020; Katare et al., 2021) concentrated upon the immediate financial impacts on small businesses. However, Herbane (2010) noted that small businesses also face an emotional impact during crises, related to a lack of cash, a lack of control of events, and the speed in which events can occur, causing increased stress and other emotional strains. Bartik et al.’s (2020) survey of US small businesses’ reactions to the pandemic revealed these difficulties, as well as concerns among owner/managers for employee welfare. Whilst the conservative use of digital technologies by small businesses is often limited to basic uses such as simple accounting systems, basic websites and email usage (Sellitto et al., 2017) many small businesses reacted quickly to introduce different digital responses when they were faced with the problems caused by the COVID-19 pandemic (Manolova et al., 2020).

Herbane’s (2010) three chronological stages reported by small businesses during crises (the immediate threat, the crisis response and the response effectiveness) are in this paper to present the study results, and within those themes entrepreneurial success criteria (listed in Table 2) are also examined.

3 Methodology

This paper presents the results of a larger study that investigated digital responses by small businesses during the pandemic. Whilst the larger study involved a modified case study approach to examine small businesses, this paper examines one aspect of the data collection, a survey of news stories accessed via the news recommender service Google News. We used Google News to source stories of small business ‘pivots’ early in the pandemic, just after

lockdowns were introduced around the world. At this stage we felt that this was enough to examine the primary research question to assess if entrepreneurial success factors could be used to ‘drill down’ the notion of success of information systems in small businesses, with the study building theory rather than attempting to prove this to be the case. Baskarada and Koronios (2013) had previously used Google News to identify articles that used terms such as ‘data’, ‘information, and so forth in their text. Google News provided us with access to more recent examples of pivots than would appear in, say, the academic literature. This is important as we intended to access digital technology initiatives by small businesses taken as an immediate response from when the pandemic began to effect businesses. The Google News search was manually conducted in Australia by one of the authors using the search terms: **“small business” pivot**. One of the issues faced was that definitions of ‘small business’ differ around the world (Burgess et al., 2009), including measurement by number of employees, turnover and who was in charge of the business (such as a single owner). In our case, we were relying on the new stories that identified the small businesses to be ‘accurate’ for our purposes, so we looked for businesses that had up to 20 regular employees (a definition adopted by Burgess et al., 2009) and were clearly run by one or two people (rather than a governance board). We were comfortable that all the businesses in our sample fitted within this category. We focused on the use of the word ‘pivot’ in our search because although the term has been around for some time, during the COVID-19 pandemic it became part of mainstream vernacular to describe how small businesses had reacted to pandemic lockdowns and closures. However, Bohn and Kundisch (2020) had noticed differences between academia and the general media regarding the use of the term *technology pivot* (pivots that involve the use of technology). Whilst the academic literature regarded a pivot as something that involved a business reorienting its business direction, the media definition of the term was less restrictive. We found a similar occurrence, with our search mostly resulting in stories about small businesses that had adopted e-commerce or e-services. In these instances, these businesses were mostly converting face-to-face business processes to online, which could not be considered to be a reorientation of business direction (and therefore were not pivots in the academic sense). This was fine for our purposes as we were investigating digital responses by small businesses during the early stages of the pandemic, and we not concerned if or not they represented pivots from an academic viewpoint. The search was conducted daily in the period 20 March 2020 to 30 April 2020, which was when the peak of news articles containing stories related to how small businesses were adjusting to COVID-19 lockdowns occurred.

It is estimated that over the period the search resulted in 800-900 articles. These news articles were reviewed by one of the authors to eliminate articles unrelated to small business digital initiatives, which were mostly in these categories:

- They offered general advice to small businesses on *how* to pivot during the pandemic.
- They discussed grant schemes supporting small businesses during the pandemic.
- They discussed small business responses that did not overtly involve digital technologies. For instance, many manufacturing small businesses altered their operations to produce essential items such as personal protective equipment, face masks and hand sanitiser.

This left 64 news articles that mentioned digital responses by small businesses. Some articles contained stories about multiple small businesses. Overall, there were digital responses in 90 small businesses listed in these articles. There was one more filtering activity that was conducted to specifically identify *new* digital responses. For instance, a reaction to lockdowns that involved just increasing the use of an existing e-commerce facility *was not* included in the study. However, the introduction of a *new* e-commerce capability was included as it involved adding new digital technology functionality. Thus, stories involving 18 businesses were removed from the study because their digital response did not involve the adoption of new digital technologies. Four other stories were subsequently not used as they involved businesses that operated across sectors. This left us with our final number of 68 business cases.

Table 3: Digital technology adoption cases by sector and location

General sector	Industry Sector	Sub Sector	Example(s)	#
Bulk products	Manufacturing		Brewery	1
	Wholesale Trade		Food/ meat suppliers	5
Consumer goods	Hospitality		Cafés/ restaurants	5
	Retail Trade		Stores/ bakeries	14
Services	Health and Community Services	Health	Fitness/ yoga/ cycling studios	16
		Community	Education/ counselling	3
	Cultural, Recreational & Personal Services	Recreational	Events/ tours	6
		Personal	Tutoring/ bridal services/ music schools	10
	Communication, Property & Business Services	Communication	Media training	1
		Property	Real estate	2
		Business	Incubators/ co-working spaces	5
Total:				68

Three ‘general’ sectors emerged during the analysis: bulk products, consumer goods, and services. Table 3 provides a breakdown of the small businesses by general sector, industry/sub sector and location. There was a spread of cases across sectors, but most were from North America including 49 from the USA, which this is a potential limitation of the study. This was perhaps not surprising as Watanabe (2013) analysed the news coverage patterns of Yahoo News! and Google News in the US and India and found a skewed representation towards ‘Western’ news results, which was likely a function of their sources of content. The higher proportion of consumer goods and service businesses is consistent with research that found consumer-focused sectors were disproportionately affected by lockdowns (Facebook, 2020).

The text from each article for each business was extracted and saved into an MS Word file (one for each business). The files were imported into the qualitative software analysis software, Nvivo. In the software, nodes were set up to represent each of the success categories and criteria listed in Table 2, as well as Herbane’s (2010) three chronological stages reported by small businesses in responding to crises. The relevant text in each file (such as owner comments or observations about business reactions to the pandemic) were placed into their respective nodes by one of the authors, but issues related to the coding were discussed with the other authors during weekly meetings. During this stage, new categories emerged (as described in the Results section) and nodes were subsequently created for these. Note also that apart from some brief direct quotations, comments directly attributable to businesses in articles have been paraphrased in the findings (as per our university ethics approval) to avoid specific comments being traced back to specific businesses via a search engine investigation of news articles. Short, direct quotes have been used where possible.

4 Results

4.1 Phases of the initial small business response to the pandemic

As indicated, the results are discussed according to Herbane’s (2010) three distinct phases.

4.2 Initial impact of the pandemic

As could be expected, most comments about the initial impact of the pandemic were related to *business performance*, with the majority of these related to *turnover* and *sales*. This was due to the sudden impact of lockdowns on sales, with consumer goods and retail businesses being affected directly and bulk products businesses being affected by their business customers shutting down. Different business owners referred to cash flow being “abruptly cut off”

[consumer goods: jewellery boutique], their operations “grinding... to a near halt” [consumer goods: bakery], orders being “cancelled indefinitely” [another bakery], business takings being decimated [bulk products: food wholesaler], customers “dropping like flies” [services: event management], income being “totally gone” [services: makeup artist] and so forth. Where indicated, sales losses ranged from over 50% to complete loss of sales.

Some other potential business success measures (not mentioned in Table 2) emerged. One theme was feelings of insecurity (or lack of *business security*) caused by the pandemic. These concerns were based around the lack of certainty of when businesses could reopen (“it feels like...weeks, ...it could be months” [consumer goods: jewellery boutique]; “all this hard work... what’s going to happen?” [consumer goods: restaurant]), and a “concern and real fear” that if the situation was ongoing then the business may have to close [services: cycling fitness studio]. Related to business insecurity was the *personal health* of the owners, and particularly the stress levels and other *mental health* issues caused by the pandemic. Business owners referred to some days being “heartbreaking” [consumer goods: pub], “panic” setting in [services: event management], “moments of actual anxiety” and being “terrified” [services: music school], feeling “a lot of emotions” [services: tour business], and so forth.

4.3 Digital responses to the pandemic

This section refers to stage when businesses moved from the initial impact of the pandemic to their digital response. One theme that emerged in this phase (related to personal health), was how some owner/managers adopted a *positive mindset* to cope. For some, it was a choice of either acting immediately or risking their business closing: “we could... lament or innovate” [bulk products: health drink producer], “there was a big decision...accept defeat... or fight” [services: science education], and “I can sit at home...scared and worried... or... take action” [services: events management]. Others referred to the need to have a positive mindset to deal with the uncertainty: “let’s really push it and we’ll... adapt” [bulk products: food wholesaler], “she [business partner] viewed it as personal challenge” [consumer goods: restaurant], “people in the business... are finding ...silver linings” [bulk products: health drink producer], “I’ll get through this... this is temporary” [services: yoga fitness studio] and “our strength is... our optimism” [services: manage holiday camps].

The theme of *business security* arose again in this stage, with many owner/managers indicating that their digital response was mostly aimed at staying in business. For instance, a food wholesaler (bulk products) just wanted to “trade through” the pandemic until it ended, a general fitness studio (services) was trying to “keep the business afloat”, a cycle fitness studio (services) wanted to generate enough income to “weather the storm”, and a media training business (services) just wanted to find a way to “survive during the COVID-19 lockdown”.

Additionally, many businesses wanted to introduce initiatives that assisted them to *take care of their employees* (which relates to *community impact* in Table 2). Typical comments were: “I don’t want to lose anyone” [bulk products: food wholesaler], and “it’s been important to us... to support our employees” [consumer goods: gift shop]. A camera store (consumer goods) aimed to keep most of its employees in work, a spin class fitness studio (services) directed fees for online classes to instructors, a circle fitness studio (services) used owners’ savings to pay their instructors, and a restaurant (consumer goods) noted the importance of retaining staff. A related theme to taking care of employees (not listed under *community impact* in Table 2) was that businesses also talked about *taking care of customers* (or clientele). Many fitness studios (services) mentioned this, with the idea that assisting clients to maintain a routine and/or undertake physical activity were important strategies for them to get through the pandemic. A general fitness studio stated how it was important for people to avoid feelings of isolation and anxiety. An interval training fitness studio owner noted he was staying up late answering emails and posting on social media to nurture their community. Another general fitness studio referred to the importance of their members “feeling the connection”.

The desire to achieve these different measures of success lead to the small businesses’ digital responses. It is not the purpose of this paper to describe these in detail, but a brief description of them follows to provide context regarding what initiatives were developed to achieve the

business owner/managers' aims. The small businesses adopted new e-commerce facilities (allowing customers to order and/or pay for goods online) and/or new e-services (either replacing existing face to face services or, in a few instances, introducing new online services). E-commerce facilities were often supplemented by changes in business processes. For instance, bulk products businesses typically introduced e-commerce to switch from selling goods to other businesses (such as restaurants) to selling direct to consumers. This meant introducing new delivery processes and repackaging products into smaller sizes for consumers. Consumer goods businesses introduced new ways for customers to receive their goods after online purchase, through new delivery processes or curbside pickup. Some consumer goods businesses even introduced e-services where appropriate. For instance, a business that sold high-end cameras transferred the process of 'moving' the extensive advice that it previously provided in-store to online consultations. Service businesses introduced new e-services – such as online fitness or education classes or online consultations – to replace face-to-face services. Some service businesses also introduced e-commerce to support customer payments.

One other interesting theme emerged during the development of digital responses. Some businesses (mostly services) developed new digital technology skills (classified as *personal development* (a subset of *personal fulfilment* in Table 2). A barre fitness studio (services) owner developed new skills to stream videos of classes online and a makeup artist (services) noted that she had time during lockdowns to develop skills to create a new video series offering tips for clients. A real estate business (services) spent time learning how professional speakers spoke so that her virtual home tours could be heard clearly. Other business owners discussed how they overcame a lack of knowledge to implement their initiatives. A fitness instructor (services) noted that it required "trial and error....it was like starting from scratch", as did a husband and wife running a yoga fitness studio (services), who noted that neither of them were "tech savvy" but were able to move their classes onto Zoom in just a few days.

4.4 The outcome (success) of the digital technology response

This section discusses how small business owners evaluated the success of their digital response. There were many comments related to *business performance*. Regarding *turnover* and *sales*, most business owners noted that achieved sales levels that were satisfactory, allowing them to survive. A retail store (consumer goods) noted that were enough sales to "stay afloat". An alcohol wholesaler (bulk products) noted that the switch to online sales had been "an incredible lifeline for us". A restaurant (consumer goods) switched to selling meal kits' online (for delivery to customers) and sold all their online meal kits by the second week.

Some businesses achieved similar or even improved sales compared to pre-pandemic levels. A retail vintage goods store (consumer goods) exceeded pre-pandemic levels of sales via online auctions. An events management business (services) switched to sell alcohol online and sales were so successful the owner had to "jump in a van" and to complete some deliveries. Another restaurant owner (consumer goods) that sold meal kits online described the initiative as being "extremely successful", with some days' takings being the most lucrative recorded ever.

In the previous section, one of the reasons that small businesses indicated was a motivation for them to introduce digital responses was to *take care of employees*, a subset of *community impact*. Another success factor listed in Table 2 is *workplace relationships*, a subset of which is *employee relationships and satisfaction*. A few businesses suggested that employees were thankful of the efforts that business owners had made on their behalf. For instance, the owner of an events planning business (services) indicated that their employees had "really embraced" the introduced changes, and a restaurant owner (consumer goods) commented that he could see "how appreciative the staff are". Another subset of *workplace relationships* is *customer relationships*. There were numerous examples of customers expressing their appreciation of the businesses introducing digital responses. A nurse appreciated the efforts of a fitness studio (services) to continue operations, indicating that it was "the only thing I do for myself". Another fitness studio (services) indicated that members were grateful to be able to have a "feeling of connection". Another aspect of customer relationships is that some small businesses indicated that customers went out of their way to support their digital responses. The owner of

an interval training fitness studio (services) noted that members were keeping memberships active to “support the studio”. A yoga studio (services) set up a process by which clients could donate what they could for online classes and was surprised by their level of generosity.

5 Discussion

The primary research question was “do entrepreneurial success criteria measures provide further granulation of the notion of ‘net benefits’ (or the ‘success’) of digital responses by small businesses to the COVID-19 pandemic. The results in Section 4.4 suggest that this was the case in our study, with comments related to business success falling into Wach et al’s (2020) varied categories of business performance, community impact and workplace relationships, the latter two categories being personally oriented measures.

The related research question was “do the success criteria assist in explaining business behaviours during the different phases of their pandemic responses. The results in Section 4.2 (initial impact) and especially Section 4.3 (digital response) suggest that this was the case on our study, with both financial and personally oriented success measures emerging during the initial impact of the pandemic, the digital responses and the measure of success of the responses. However, the analysis also indicates that there might be some additional factors that could be added to the criteria in Table 2 (as described below). This paper contributes to the IS literature by providing a more detailed picture of the success of digital responses.

It is not surprising that the most prominent theme across the phases related to *business performance*, and particularly *turnover* and *sales*, which relate to immediate cash flow. This confirms the work of Herbane (2010), who found that a lack of cash flow was a typical outcome of crises, and of Bartik et al. (2020) who reported the level of cash on hand as a particular problem for many small businesses at the early stages of the pandemic.

It was noted that concerns about *business security* was a theme that emerged during the initial impact of the pandemic and in the consideration of the digital technology response. Whilst not listed in Table 2, *business survival/ continuity* was a success criteria that had been identified in earlier research (refer Gorgievski et al., (2011) in Table 1) and should be considered for reinclusion under the category of *business performance* as listed in Table 2.

One other factor that emerged that was not listed in Table 2 was *personal health*, which could be added to that list in its own category. It could include criteria such as *mental health* and *insecurity* that emerged during the initial impact of the pandemic and also the *positive mindset* adopted by small business as part of their initial response. This likely emerged in our study compared with earlier research examining success measures because we examined the success criteria under the conditions of a crisis. As noted earlier, research by Herbane (2010) observed that small businesses faced an emotional impact during crises, related to a lack of control of events and the speed in which they can occur and Bartik et al. (2020) observed these during the early stages of the COVID-19 pandemic. It therefore seems reasonable to include personal health as a category to be added to the list.

One of the criteria listed in Table 2 that was evident in the results was that small business owners wanted to *take care of their employees*, a subset of *community impact*. It emerged that small businesses, especially services businesses, also wished to take care of their customers (clientele) with regards to supporting them to manage their mental health during the pandemic. In addition to the positive feelings imbued in owners by supporting their client base, Liguori and Pittz (2020) suggested that the pandemic provided a unique opportunity for small businesses to connect with customers and develop stronger community ties by maintaining regular contact to “check in and maintain the relationship” (p.108). This is a theme that seems worthy of inclusion as an extra success criteria under *community impact* in Table 2.

6 Contributions, limitations and future research

Whilst this study involved findings from 68 businesses, it should be remembered the data was sourced from Google News stories, which provide ‘snapshots’ of business responses and not

the detailed insights of, say, in-depth interviews. Also, the stories tended towards businesses that had successfully navigated the early stages of the pandemic. However, the results do provide some insights into the issues that were front of mind for small businesses during this time and contribute towards possible success factors that could be added to existing success measures identified in the academic literature. Research conducted into the success of IS in small businesses can be improved by having a greater understanding of the factors that encompass 'net benefits' used in models such as Delone and McLean (refer Jeyaraj, 2020). To this end, research involving in-depth interviews that examines the suitability/comprehensiveness/ usefulness of the entrepreneurial success criteria for examining digital responses by small businesses to crises could test some of the additions to the success criteria suggested. Such studies could examine how small businesses use digital responses to navigate crises such as the COVID-19 pandemic, but also investigate their use of digital technologies generally. Such studies could help to inform policy makers dealing with crises of the factors important to small businesses when identifying ways to support them.

7 Conclusion

Small businesses worldwide were drastically hit by lockdowns put in place by governments because of the COVID-19 pandemic. Many of them introduced digital response to alleviate the problems caused by the lockdowns. Although in a theory building stage, the study suggests that entrepreneurial success criteria framework can be an effective proxy for investigating the 'success' of information systems introduced by small businesses. This article analysed articles sourced on via Google News to examine how small businesses implemented digital responses across different phases of the pandemic (initial impact, digital response and evaluation of the response) that mitigated the initial impact of the pandemic. The analysis also suggested that entrepreneurial success factors were front of mind for small business owners throughout all stages of the pandemic response and that they involved both financial and personally oriented measures. New measurement criteria were proposed to supplement the success measures.

8 References

- Angel, P., Jenkins, A., and Stephens, A.. 2018, "Understanding Entrepreneurial Success: A Phenomenographic Approach," *International Small Business Journal* (36:6), pp. 611-636.
- Anwar, M., Bingley, S., and Burgess, S. 2018. "Understanding ICT Strategy of Women Small Business Owners in Developing Countries: Linking Social Media use, Business Strategy and Well-Being," in *Australasian Conference on Information Systems 2018 Proceedings*. 65. (<https://aisel.aisnet.org/acis2018/65>, accessed October 23, 2022)
- Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E.L., Luca, M. and Stanton, C. 2020, "The Impact of COVID-19 on Small Business Outcomes and Expectations," *Proceedings of the National Academy of Sciences* (117:30), pp. 17656-17666.
- Baskarada, S., and Koronios, A.. 2013, "Data, Information, Knowledge, Wisdom (DIKW): A Semiotic Theoretical and Empirical Exploration of the Hierarchy and its Quality Dimension," *Australasian Journal of Information Systems*. (18:1). (<https://doi.org/10.3127/ajis.v18i1.748>).
- Bohn, N., and Kundisch, D. 2020, "What are we Talking about when we Talk about Technology Pivots?—A Delphi Study," *Information & Management* (57:6). (<https://doi.org/10.1016/j.im.2020.103319>).
- Burgess, S., Sellitto, C., and Karanasios, S. 2009. *Effective Web Presence Solutions for Small Businesses: Strategies for Successful Implementation*, Hershey, PA: Information Science Reference.
- Chandna, V., and Salimath, M.S. 2020, "When Technology Shapes Community in the Cultural and Craft Industries: Understanding Virtual Entrepreneurship in Online

- Ecosystems," *Technovation* (92-93).
(<https://doi.org/10.1016/j.technovation.2018.06.005>).
- Fabeil, N. F., Pazim, K. H., and Langgat, J. 2020, "The Impact of Covid-19 Pandemic Crisis on Micro-Enterprises: Entrepreneurs' Perspective on Business Continuity and Recovery Strategy," *Journal of Economics and Business* (3:2), pp. 837-844.
- Facebook. 2020. *State of Small Business Report*. USA. (<https://about.fb.com/wp-content/uploads/2020/05/SMBReport.pdf>, accessed October 23, 2022).
- Gorgievski, M. J., Ascalon, M.E., and Stephan, U. 2011, "Small Business Owners' Success Criteria, a Values Approach to Personal Differences," *Journal of Small Business Management* (49:2), pp. 207-232.
- Herbane, B. 2010, "Small Business Research: Time for a Crisis-Based View," *International Small Business Journal* (28:1), pp. 43-64.
- Jeyaraj, A. 2020, "DeLone & McLean Models of Information System Success: Critical Meta-Review and Research Directions," *International Journal of Information Management* (54). (<https://doi.org/10.1016/j.ijinfomgt.2020.102139>).
- Katare, B., Marshall, M.I., and Valdivia, C.B. 2021, "Bend Or Break? Small Business Survival and Strategies during the COVID-19 Shock," *International Journal of Disaster Risk Reduction* (61). (<https://doi.org/10.1016/j.ijdrr.2021.102332>).
- Kirkwood, J. J. 2016, "How Women and Men Business Owners Perceive Success," *International Journal of Entrepreneurial Behavior & Research* (22:5), pp. 594-615.
- Liguori, E. W., and Pittz, T.G. 2020, "Strategies for Small Business: Surviving and Thriving in the Era of COVID-19," *Journal of the International Council for Small Business* (1:2), pp. 106-110.
- Manolova, T. S., Brush, C.G., Edelman, L.F., and Elam, A. 2020, "Pivoting to Stay the Course: How Women Entrepreneurs Take Advantage of Opportunities Created by the COVID-19 Pandemic," *International Small Business Journal* (38:6), pp. 481-491.
- Ratten, V. 2022, "Digital Platforms and Transformational Entrepreneurship during the COVID-19 Crisis," *International Journal of Information Management*. (<https://doi.org/10.1016/j.ijinfomgt.2022.102534>).
- Sellitto, C., Banks, D., Bingley, S., and Burgess, S. 2017. *Small Business and Effective ICT: Stories and Practical Insights*, New York: Taylor & Francis (Routledge).
- Wach, D., Stephan, U., and Gorgievski, M. 2016, "More than Money: Developing an Integrative Multi-Factorial Measure of Entrepreneurial Success," *International Small Business Journal* (34:8), pp. 1098-1121.
- Wach, D., Stephan, U., Gorgievski, M., and Wegge, J. 2020, "Entrepreneurs' Achieved Success: Developing a Multi-Faceted Measure," *International Entrepreneurship and Management Journal* (16:3), pp. 1123-1151.
- Watanabe, K. 2013, "The Western Perspective in Yahoo! News and Google News: Quantitative Analysis of Geographic Coverage of Online News," *International Communication Gazette* (75:2), pp. 141-156.

Copyright © 2022 Bingley, Burgess & Parker. This is an open-access article licensed under a [Creative Commons Attribution-Non-Commercial 3.0 Australia License](https://creativecommons.org/licenses/by-nc/3.0/), which permits non-commercial use, distribution, and reproduction in any medium, provided the original author and ACIS are credited.