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Article

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Article

Strategic IT Alignment and Organizational Agility in Nonprofits during Crisis

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Abstract: As the study of nonprofit organizations and their operating environment has become increasingly interdisciplinary, scholars have leveraged business strategies to increase knowledge and improve performance. This study considers how strategic information technology alignment can impact organizational agility among nonprofits that are in the midst of the COVID-19 pandemic, a dynamic and complex crisis environment. Using a survey of United States-based nonprofits, we find that organizational alignment as well as aspects of financial stability significantly impact organizational agility. This study concludes with implications for nonprofits to broaden their participation in a digital society by developing their capacity to strategically plan, design, and implement strategic initiatives that align the organizational mission and assist with agility. Further, a broader discussion on the need to expand the definition of alignment in the context of nonprofit organizations is made, particularly in regard to new initiatives to include underrepresented groups and diverse voices in strategic initiatives.

Keywords: information technology; strategic information technology alignment; organizational agility; nonprofit leadership



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1. Introduction

Strategic information technology (IT) alignment and organizational agility are critical organizational capacities and concurrent organizational goals that enhance performance. Primarily studied in the business sector, strategic IT alignment refers to an organization's business strategy, enabled and supported by IT to improve performance and achieve a competitive advantage (Coltman et al. 2015; Queiroz 2017). Organizational agility refers to an organization's ability to adapt and respond to environmental challenges with flexibility and speed to sustain a competitive advantage (Kirkpatrick et al. 2021; Lee 2017).

In the digital society, IT use, including web-based software, applications, and social media, has presented new opportunities not only to organize, collect, and share performance and impact information but also to inform organizational decision making and strategic direction to help with agility. This is true for any organization, private and nonprofit (Azevedo 2021). The novel coronavirus (COVID-19) presents an opportunity to study these phenomena in a dynamically unfolding turbulent environment. COVID-19 amplified the need to adopt strategic technology use for organizations and examine other factors that help maintain the continuity of operations while following health and safety guidelines and remaining agile in a volatile financial environment characterized by dynamically unfolding ambiguous and conflicting information. For instance, research has considered various impacts of business practices like collaborative knowledge creation, e-business proactiveness, crisis preparedness, sensemaking, and other business capabilities' impact on organizational agility during the pandemic (Al-Omoush et al. 2020; El Idrissi et al. 2022; Wanasida et al. 2021).

Despite the critical importance of ambidextrous pursuits of alignment and agility for organizational survival and sustainability, particularly in the aftermath of a pandemic, this emerging stream, while important for all sectors, has been almost exclusively explored in for-profit settings (Kirkpatrick et al. 2021; Lee 2017; Suh et al. 2023). As a result, these relationships have received much less attention in the public and nonprofit sector context. Nonprofit organizations are essential in providing services in their communities and are a core part of society in terms of economic, social, cultural, and political contexts. The nonprofit sector, like its public and private sector counterparts, also faces increasing pressure for high performance and value creation among stakeholders, particularly as it takes on increasingly important roles in their communities (Azevedo et al. 2022). Additionally, nonprofit organizations may collect and utilize various types of information regarding their programs, services, performance, and impact to improve future programming and work toward mission fulfillment that contributes to their effectiveness and efficiency. However, agile nonprofit organizations can better respond to environmental threats and crises like the COVID-19 pandemic.

As with the field of strategic management, nonprofits can become more competitive through the strategic use of key organizational resources like information technology (Ahmed 2017; Hackler and Saxton 2007; McNutt et al. 2018). Currently there is a limited understanding of how nonprofit organizations strategically exploit information technology to improve performance and decision-making and create social value. While previous studies have highlighted the vast potential of IT use for nonprofits, as well as the importance of IT capacity within the sector (Azevedo 2021; Hackler and Saxton 2007; Kang and Norton 2004; Lovejoy and Saxton 2012; Saxton et al. 2007), more work is needed to examine nonprofit IT use and organizational alignment and consider the impact of information use in decision making and organizational agility during a crisis like the COVID-19 pandemic (LeRoux and Wright 2010).

This research seeks to investigate factors like strategic IT that may contribute to nonprofit organizational agility, particularly during a crisis. Our research questions include the following: What is the relationship between strategic IT alignment and agility? And, do expense management and financial security influence agility? To examine these questions, nonprofit organizations associated with the Pennsylvania Association of Nonprofit Organizations (PANO) were surveyed regarding their IT use and other factors, with emphasis on the period during COVID-19. In doing so, this study makes two contributions to the knowledge on strategic IT alignment and agility. First, this work advances our scientific understanding of the multifaceted pursuit of strategic IT alignment and agility in the nonprofit sector particularly during a worldwide health and economic crisis. Second, this work advances our understanding of how nonprofits strategically plan, design, and implement their IT-dependent strategic initiatives to respond to environmental threats and opportunities and offers implications for the public sector.

The following section examines the literature on strategic information technology use and organizational agility in nonprofit organizations. Then, drawing on strategic management theories like systems theory, we propose a theoretical framework that guides our hypotheses.

2. Literature Review

2.1. Organizational Agility in Nonprofit Organizations

The literature surrounding organizational agility is vast, and the past decade has seen a tremendous increase in terms of theory, research, and practice surrounding agile organizations (Pulakos et al. 2019; Tallon et al. 2019; Walter 2021). Organizational agility considers how organizations can operate in a changing environment. Those organizations that are agile can timely and effectively respond to environmental changes, implement new processes and procedures, adapt to stakeholder requirements, and fulfill their missions (Holbeche 2015). The literature surrounding organizational agility suggests that three habits distinguish agile organizations—feeling, understanding, and responding (But-

ler and Surace 2015; Phuong et al. 2012; Tallon et al. 2019). The organization must feel, or make sense of an environmental change, interpret and understand that information and what it means for the organization, and then determine an appropriate response. These habits are integrated into the structure, processes, leadership actions, roles, norms, and expectations of agile organizations (Doz and Kosonen 2010).

Agile organizations have staff, leaders, or stakeholders at all levels engage in feeling out their environment by gathering information, interpreting it, and sharing it with the organization for potential adaptations and changes that need to occur (Butler and Surace 2015; Tallon et al. 2019). In addition, agile organizations can positively impact organizational performance and remain sustainable in crisis situations (Tallon and Pinsonneault 2011; Lee 2017). Marjerison et al. (2022) have also learned that organizations with high agility were more likely building a knowledge sharing culture, which benefited them in their adaptability, collaboration, and innovation in a turbulent environment. Furthermore, they confirmed that these benefits were coherent across governments, public sectors, private firms, and social enterprises. In the context of COVID-19, agile nonprofits sensed the multifaceted needs of their communities, understood changes that needed to occur in terms of operations, programming, and fundraising in a pandemic, and made those necessary changes to maintain the continuity of operations.

Copious factors related to antecedents of organizational agility are worthy of study and can generally be broken down into those related to an organization's internal and external environment. The external environment is a clear driver of agility and in the nonprofit sector may include social and political factors, citizen expectations, resource constraints or limitations, current technology, and natural events or disasters, among others (Boin and Van Eeten 2013; Sharifi and Zhang 1999). Internally, IT use, strategic IT alignment, supportive board and leadership, organizational structure, and various policies, actions, and programs can impact organizational agility. More specifically, organizations with flat structures, or with limited numbers of individuals between executives and staff, are more likely to have agile organizations because decisions can be made without formal processes and multiple individuals that can slow the decision-making process (Butler and Surace 2015; Golann 2006).

Organizational structure can also influence feeling, understanding, and responding based on how changes are interpreted. Sometimes this is through formal leadership structures and other times it is due to informal teams that ensure flexibility and quick responses, such as through prototyping or rapid testing (Cegarra-Navarro and Martelo-Landroguez 2020). In nonprofits, structure is impacted by use of volunteers and volunteer structures. Similarly, organizations with strong and supportive board and executive leadership can clearly define and work towards an organization's mission, goals, and strategies and act quickly when necessary. Policies, actions, and programs can impact organizational agility because they constrain the ability of an organization to serve their stakeholders.

Technology can also be a key facilitator of organizational agility (Gunasekaran et al. 2018; Huang and Nof 1999). Not only can technology serve as a vital resource and facilitator of agility, but it can also inhibit innovation and flexibility if used inappropriately or ineffectively (Butler and Surace 2015). Though this may vary by industry, organizations that are responsive to community needs will require technology to communicate and be responsive to customers, just as in the business sector. To date, very little research has examined organizational agility among nonprofit organizations. Some emerging work from Kirkpatrick et al. (2021) has sought to create a model of organizational agility for use in government and nonprofit organizations called the Government Organizational Agility Assessment (GOAA). The GOAA was developed based on the previous private sector literature on organizational agility, specifically considering dimensions of organizational structures, knowledge sharing, decision-making, leadership, processes, roles, norms, and expectations. Within the assessment, items were included that reflected each of these dimensions and it was administered to different units of public and nonprofit agencies (approximately 1119 responses received). The purpose of the assessment is to support organizational devel-

opment consultants and leaders to take an action approach to change and is a good starting point; however, the tool requires additional validity studies and the consideration of data types, particularly in the nonprofit sector who operate with additional resource constraints and considerations from the public and for-profit sector. Lee (2017) examined a case study of a community benefit organization and found that an organization that can align their IT systems and strategy can achieve competitive advantages, specifically better performance and social value creation; however, agile organizations can sustain that advantage. Lee's work highlights the importance of IT alignment with an organization's strategic planning process, as well as knowledge sharing between IT initiatives and business executives.

2.2. Strategic Information Use and Alignment in Nonprofit Organizations

Organizational alignment is a strategic process that ensures that operations, programs, policies, and practices are working together to achieve strategic goals and ultimately the mission. The strategic planning process facilitates alignment and is important in identifying ways to sense and respond to environmental threats and opportunities (i.e., agility). IT strategy and infrastructure are important components of an organization's strategic alignment (Coleman and Papp 2006). IT strategy refers to the scope (all IT used in an organization), competencies (capabilities of the technology used), and IT governance and includes all essential IT that the organization uses (Papp 2004; Coleman and Papp 2006). Infrastructure is important in strategic alignment, and it includes architecture (technology priorities), processes (managing IT infrastructure), and skills (human resource activities related to IT technology) (Coleman and Papp 2006).

The capability to strategically plan and manage technology is key to achieving strategic IT alignment. However, many nonprofits, particularly small nonprofits, do not have a formal IT strategic planning process even though there are many benefits (Allison and Kaye 2005; Bryson 2011; Hu et al. 2014; Hu and Shi 2017). Moreover, NPOs often lack the capacity to exploit their IT resources and capabilities to improve service delivery and resource development (Hackler and Saxton 2007). While these points are not always dissimilar to very small private businesses, the nonprofit sector is unique in that profit is not distributed to shareholders and they are mission-oriented. Nonetheless, strategic planning and strategic IT planning, which may be separate from the organization's formal strategic plan, are important for facilitating IT alignment in nonprofits and can impact organizational performance (Croteau et al. 2001; Hu et al. 2014; Lee 2017).

The literature on the particulars of organizational alignment centers in the business sector and is often associated with perceived IT success and performance, effectiveness, higher sales and profit with lower costs, increased reputation, and an overall higher business value (Bergeron et al. 2004; Chan et al. 2006; Croteau et al. 2001; Oh and Pinsonneault 2007; Wu et al. 2015; Sabherwal and Chan 2001; Tallon 2007). Nonprofits, however, should also be concerned with issues of organizational alignment if they are to remain effective and efficient and achieve higher performance, particularly in a turbulent financial environment. Strategic alignment can be identified in nonprofits and offers implications for higher-performing organizations (Brown and Iverson 2004). Because nonprofits have a board of directors that are vital for resources and board capacity, ensuring the alignment of board structures can emphasize the organization's strategic purpose and enable or prevent the implementation of strategy (Brown and Iverson 2004). Bryson (2010) suggests that one important aspect of the future of public and nonprofit strategic planning in practice and future research revolves around issues of strategic alignment, where "major attention will be focused on highlighting and resolving issues of alignment so that coherent, consistent, persuasive, and effective patterns are established across mission, policies, budgets, strategies, competencies, actions, and results..." and these concerns will mount as organizations are pushed to remain efficient, effective, and accountable (p. S262).

A stream of research has found significant relationships between IT governance mechanisms and strategic alignment (Wu et al. 2015). IT governance mechanisms are governing systems, including structures, processes, and relationship mechanisms, that yield deci-

sions and actions on IT that are aligned with an organization's strategic intentions (Huang et al. 2010) and are an important predictor of organizational value obtained from IT use as well as organizational performance (Lazic et al. 2011; Prasad et al. 2012; Weill and Ross 2004). Wu et al. (2015) find that effective IT governance is important in achieving alignment with IT strategies and corporate objectives, and they theoretically and empirically examined this relationship in a field study using perceptual dyadic data from Taiwan. Although research has begun to examine IT governance mechanisms and strategic alignment within the public sector (Winkler 2013), nonprofit organizations are still widely unexplored, though the benefits for the sector would be vast considering their broad use of IT and various governance structures and the importance of strategic planning, agility, and performance for the sector and the social value brought to communities they serve.

2.3. Strategic Management and Systems Theory

In the last two decades, strategic management has been increasingly applied to nonprofit organizations to assist nonprofit leaders in making appropriate decisions in the context of their environment (Kong and Prior 2008). Strategic management theories aim to describe the origin, principles, and applications of strategic management and has evolved from systems perspectives and IT approaches to business management (Omalaja and Eruola 2011). Strategic management encompasses organizational decision-making for facilitating a competitive advantage and improving performance (Powell 2001; Wheelen and Hunger 2004), or more simply put, it is deciding what an organization should do in the future. Strategic management involves purposeful actions (Drucker 1974) and critical steps of understanding and collecting information from the environment, creating benchmarks, scanning and interpreting relevant data, creating a strategic model, and testing the model by putting it into action (Parnell 2013).

Organizational theorists suggest that organizations are impacted by the complexity, volatility, and ambiguity of their environment (Aghina et al. 2015; Felipe et al. 2016). Widely applied in organizational theory, systems theory argues that organizations are open systems with interdependent structures in regard to communication, feedback, and management, which are linked (Katz and Kahn 1978). The theory posits that when there is a disruption to one part of the system, the entire system is impacted. Given that nonprofits are often operating in a turbulent environment where critical resources are insecure, agility and survival can be increased by understanding that nonprofits are open systems (Moeller and Valentinov 2012).

Within the nonprofit context, open systems mean that nonprofit organizations receive various inputs from their environment and stakeholders, interact with this information, and release outputs back into the environment in which it is operating, in an ongoing system. Nonprofits are important parts of their communities and often connect with their communities through various IT arrangements. A systems approach is valuable in understanding nonprofit organizational agility, particularly during a pandemic, given the various ideals of logic and sequential control that are required in nonprofit decision-making (Novikov 2016). Systems theory can also be used by nonprofit leaders to help examine feedback protocols regarding IT use and help leaders to align data needs to their organization's strategic priorities (Azevedo 2021). Systems theory is helpful in understanding agility as organizations are responding to changing circumstances within their environments. Systems that are less stable are less likely to be agile (Bronlet 2021); therefore, organizations that are more financially secure and can handle unexpected expenses may be more agile.

This work utilizes an open systems perspective and strategic management theory as the theoretical foundation and as the fundamental basis of the variables put forth and analyzed. The focus is on internal organizational attributes in attaining agility, recognizing that external dimensions must also be considered, particularly in terms of stakeholder support. Figure 1 shows the theoretical framework for this study. Drawing on the literature related to strategic IT alignment and organizational agility, we suggest that factors in the internal environment including strategic IT alignment, expense management, finan-

cial stability, and volunteer reliance will impact organizational agility during a crisis. The hypotheses are as follows:

- H1.** *Organizations that report strategic IT alignment are more agile.*
- H2.** *Organizations that can handle unexpected expenses are more agile.*
- H3.** *Organizations that have secure financial resources are more agile.*
- H4.** *Organizations that have an overreliance on volunteers are less agile.*

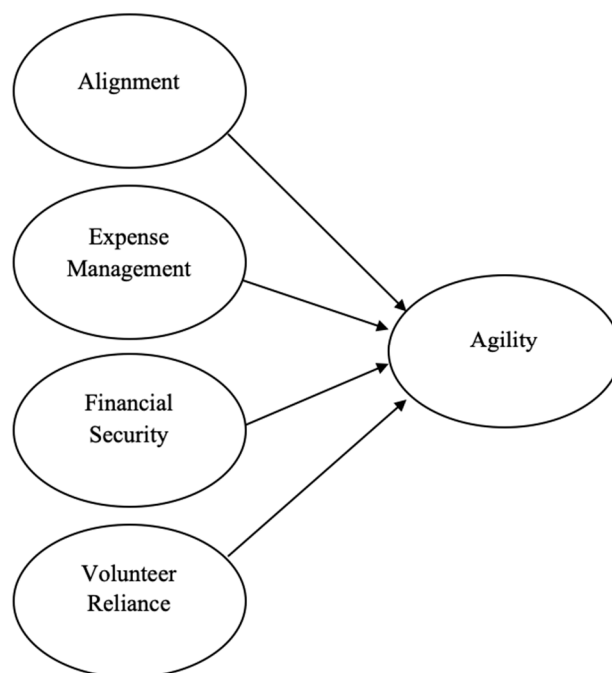


Figure 1. Theoretical framework.

3. Methodology

Researchers surveyed nonprofits across subsectors (e.g., human services, health care, education, arts, advocacy, etc.) associated with the Pennsylvania Association for Non-profit Associations (PANO), which has approximately 557 members with contact information listed on their website in 2020. These organizations were chosen not only because of convenience for the researchers and access but also due to their varying representation of organizations including type, size, and service area. The online survey was sent over a 2-month period in Fall 2021 to organizational leadership and included 35 quantitative and qualitative questions regarding technology use during crisis, organizational agility, strategic decision-making, nonprofit financial stability, and support of new technology. A total of 142 responses were received (response rate of 25%), though 117 surveys were usable (missing data rate is 17%).

3.1. Study Variables

The endogenous latent variable (dependent variable) in this study is organizational agility, which is measured generally by how information is learned and gathered, shared and processed, and responded to with quality and speed, which can often happen through technology (Ahmadi and Ershadi 2021; Butler and Surace 2015; Gunasekaran et al. 2018; Huang and Nof 1999; Tallon et al. 2019). Ahmadi and Ershadi (2021) reported that the reliability of using these measurement items to the organizational agility was 0.874 (Cronbach's alpha), and the convergent validity was 0.83. Both of these statistical indicators met

the suggested threshold (Fornell and Larcker 1981). In line with previous work, this study considers organizational agility specifically during organizational responses to COVID-19 and is measured by the ability to adapt to the crisis, ability to adapt to changes, responsiveness to technology changes, and the speed of response during the pandemic year, 2020.

Exogenous latent variables (independent variables) in this study include strategic IT alignment (SITA), expense management, financial security, and volunteer reliance, an important aspect of structure in nonprofit organizations. SITA is measured in three ways based on the previous literature: scope, competencies, and IT governance (Papp 2004; Coleman and Papp 2006). More specifically, questions related to technology and its use are used to capture this information, as seen in Table 1. The study also controlled for the executive director's degree (business knowledge) and the executive director's IT training (technology knowledge). All variables and their measurements are listed in Table 1.

Table 1. Study Variables.

Variable	Type	Measurement
Organizational Agility (OA)	Endogenous latent variable	1. Speed of organizational response to COVID-19 (Q10) 2. Ability to adapt to crisis (Q11) 3. Responsiveness to tech changes (Q14) 4. Adapt to changes quickly over the past year (Q5)
Strategic IT alignment (SITA)	Exogenous variable	Scope 1. Total amount of IT use during the pandemic (an index based on Q3)
		Capacity 1. Organization relies on strategic planning to guide decisions on IT strategic initiatives (Q9) 2. Technology can help when dealing with crises like the COVID-19 pandemic. (7a) 3. Technology has improved mission fulfillment during COVID-19 (7b)
		IT Governance 1. Board support for IT (Q8a) 2. Executive director support for IT (Q8b) 3. Executive leadership support for IT (Q8c) 4. External stakeholder support for IT (Q8d) 5. The executive director understands the potential of technology to facilitate information, enhance decision-making, and empower community voices (Q15h)
Expense Management	Independent variable	Organization can handle unexpected expense (Q32a)
Financial Security	Independent variable	Organization has a secure finance source (Q32b)
Volunteer Reliance	Independent variable	Organization over-relies on volunteers (Q32c)
Executive Director's Degree	Control variable	ED highest degree obtained (Q33)
Executive Director's IT Training	Control variable	ED had formal training in IT (Q34)

3.2. Analysis

The variables used in the study, as well as other variables that give the study context, were first considered descriptively. Then, a structural equation model (SEM) was utilized to consider organizational agility, the latent endogenous variable, along with several independent variables including SITA, expense management, financial security, and volunteer reliance. SEM is an advanced regression analysis that allows for the examination of latent variables using multiple indicators (Bollen 1989; Tomarken and Waller 2005). SEM is ideal for considering various theoretical propositions that bind conceptual variables that may be difficult to measure but can be reflected by multiple measurable items (Nishishiba et al. 2005).

4. Findings

4.1. Respondent Information

First, respondent information was considered to better understand who responded to the survey. We asked respondents how long they had been in their current position with the organization, their gender, age, and general understanding of technology. Respondents' ages ranged from 23 to 74, with a median age of 43. Respondents varied in terms of years of experience in their current position, with 32.1% working between 1 and 5 years, 25.5% working between 6 and 10 years, and 36.7% with over 11 years of experience. The vast majority (80%) of respondents identified as female.

4.2. Other Descriptive Information

We also asked survey respondents questions about the organizations they represent, to capture a general understanding of the organizations in the sample. Annual budget, organizational type (focus area), and service area are included to better understand the PANO members that participated in the research. Generally, organizations were small-to-medium-sized nonprofits. Focus areas ranged greatly, but 36.9% identified that their area was human services. There was fairly equal representation in the sample of organizations serving rural, urban, and an equal mix of rural and urban areas, as seen in Table 2.

Table 2. Organization information.

	Variable	n	%
Budget Size	Less than USD 50,000	2	1.9%
	USD 50,000–USD 99,999	6	5.7%
	USD 100,000–USD 250,000	22	21.0%
	USD 250,001–USD 499,999	26	24.8%
	USD 500,000–USD 999,999	18	17.1%
	USD 1,000,000–USD 5,000,000	23	21.9%
	Over USD 5 million	8	7.6%
Focus Area	Arts, Culture, and Humanities	11	10.7%
	Education	24	23.3%
	Environment and Animals	3	2.9%
	Health	8	7.8%
	Human Services	38	36.9%
	Public, Societal Benefit	16	15.5%
	Mutual/Membership Benefit	1	1.0%
	Unknown/Unclassified	2	1.9%
Service Area	Primarily rural	24	23.3%
	Primarily urban	25	24.3%
	An equal mix or rural/urban	54	52.4%

The descriptive findings of the independent and dependent variables are next presented in Table 3. This table shows that most organizations felt that their organization's response to crisis was extremely fast, they felt their organizations were extremely able to adapt in crises, generally responsive to change, and somewhat agreed that their organizations were adaptive to new IT technology. Other question demographics are also presented in the table.

Table 3. The descriptive findings.

Variables	Mean/Mode	Frequency (%)	S.D.
Q10. Response Speed to Crisis	5		0.852
Extremely slow (1)		0.7	
Somewhat slow (2)		2.1	
Average (3)		14.1	
Somewhat fast (4)		27.5	
Extremely fast (5)		55.6	
Q11. Crisis Adaptability	5		0.814
Extremely unable (1)		1.4	
Somewhat unable (2)		0.7	
Average (3)		9.9	
Somewhat able (4)		24.6	
Extremely able (5)		63.4	
Q14. Responsibility to IT Change	4		0.821
Not at all responsive (1)		1.4	
Slightly responsive (2)		6.3	
Moderately responsive (3)		27.5	
Very responsive (4)		52.8	
Extremely responsive (5)		12.0	
Q5. New IT Adaptability	4		01.127
Strongly disagree (1)		8.5	
Somewhat disagree (2)		3.5	
Neither agree nor disagree (3)		6.3	
Somewhat agree (4)		51.4	
Strongly agree (5)		30.3	
IT Scope			
Q3. The Amount of IT Use (Index)	6.20		4.356
IT Capacity			
Q9. Strategic Planning	0		0.458
Yes (1)		29.6	
No (2)		70.4	
Q7a. Crisis Management	7		1.085
Strongly disagree (1)		2.8	
Disagree (2)		0	
Somewhat agree (3)		4.2	
Neither agree nor disagree (4)		0	
Agree (5)		14.8	
Somewhat agree (6)		0	
Strongly agree (7)		78.2	
Q7b. Mission Fulfillment	7		1.399
Strongly disagree (1)		2.1	
Disagree (2)		2.1	
Somewhat disagree (3)		1.4	
Neither agree nor disagree (4)		7.0	
Somewhat agree (5)		11.3	
Agree (6)		19.7	
Strongly agree (7)		56.3	
IT Governance			
Q8a. Board Support	7		1.264
Strongly disagree (1)		1.4	
Disagree (2)		1.4	
Somewhat disagree (3)		2.1	

Table 3. Cont.

Variables	Mean/Mode	Frequency (%)	S.D.
Neither agree nor disagree (4)		5.6	
Somewhat agree (5)		7.0	
Agree (6)		26.8	
Strongly agree (7)		55.6	
Q8b. ED Support	7		0.930
Strongly disagree (1)		0.7	
Disagree (2)		1.4	
Somewhat disagree (3)		0	
Neither agree nor disagree (4)		0.7	
Somewhat agree (5)		4.2	
Agree (6)		17.6	
Strongly agree (7)		75.4	
Q8c. ED Leadership Support	7		1.053
Strongly disagree (1)		0.7	
Disagree (2)		0.7	
Somewhat disagree (3)		1.4	
Neither agree nor disagree (4)		4.2	
Somewhat agree (5)		4.2	
Agree (6)		24.6	
Strongly agree (7)		64.1	
Q8d. Stakeholder Support	6		1.163
Strongly disagree (1)		0.7	
Disagree (2)		0	
Somewhat disagree (3)		3.5	
Neither agree nor disagree (4)		15.5	
Somewhat agree (5)		13.4	
Agree (6)		44.4	
Strongly agree (7)		22.5	
Q15h. ED Understanding on IT potentials	7		1.221
Strongly disagree (1)		1.4	
Disagree (2)		0.7	
Somewhat disagree (3)		2.8	
Neither agree nor disagree (4)		2.8	
Somewhat agree (5)		12.0	
Agree (6)		22.5	
Strongly agree (7)		57.7	

4.3. SEM Findings

To answer the research questions, this paper uses structural equation modeling to analyze the data. Because there are two latent variables being identified in the theoretical framework, confirmatory factor analysis (CFA) was conducted first. CFA is a good technique to test relationships among latent variables and manifest indicators that are supported by logic or theories (Schreiber et al. 2006). For the latent variable organization's agility, this study subjected four items to evaluate the observed data. The results show that this four-item scale has good reliability ($\alpha = 0.702$, see Table 4). The hypothesized measurement model provides a good model fit ($\chi^2(2) = 1.270$, $p < 0.01$; CFI = 1.000; GFI = 0.995; RMSEA = 0.000). For the latent variable SITA, this study considered a nine-item scale to measure scope of IT use, IT capacity, and IT governance in observed organizations. Again, the results show that this nine-item scale has a good reliability ($\alpha = 0.800$). The hypothesized measurement model also provides a good model fit ($\chi^2(2) = 1.270$, $p < 0.01$; CFI = 1.000; GFI = 0.995; RMSEA = 0.000).

Table 4. Confirmatory factor analysis.

Items	Factor Loadings	
	Alignment Reliability ($\alpha = 0.800$)	Agility Reliability ($\alpha = 0.702$)
Q10. Response Speed to Crisis		0.786
Q11. Crisis Adaptability		0.950
Q14. Responsibility to IT Change		0.578
Q5. New IT Adaptability		0.207
IT Scope		
Q3. The Amount of IT Use (Index)	−0.148	
IT Capacity		
Q9. Strategic Planning	0.061	
Q7a. Crisis Management	0.550	
Q7b. Mission Fulfillment	0.575	
IT Governance		
Q8a. Board Support	0.833	
Q8b. ED Support	0.884	
Q8c. ED Leadership Support	0.895	
Q8d. Stakeholder Support	0.607	
Q15h. ED Understanding on IT potentials	0.668	

Next, using the full structural equation model, this study tested the relationships among organizations' IT strategy's alignment, financial stability, volunteer dependence, executive directors' professional training, and organizational agility. The model has a significant chi-square ($\chi^2(119) = 171.540, p < 0.001$). The goodness of fit indices (CFI = 0.951; GFI = 0.891; RMSEA = 0.055) indicate that the model has a close fit, which is also acceptable (Schumacker and Lomax 2016) (see Table 5).

Table 5. Structural equation model fit summary.

Model	χ^2/df	RMSEA	CFI	GFI
CFA				
Endogenous Variable (Agility) Measurement Model	0.635	0.000	1.000	0.995
Exogenous Variable (Alignment) Measurement Model	0.925	0.000	1.000	0.971
SEM				
Whole Model	1.442	0.055	0.951	0.891

The findings from the SEM analysis also show that IT alignment is a significant predictor of organizational agility ($\beta = 0.590, p < 0.05$). If an organization has IT alignment, including a wide scope of IT use, a strong strategic capacity, and supportive IT governance, the organization is agile. Another important finding shows that the independent variable volunteer reliance is a significant predictor ($\beta = -0.268, p < 0.05$) of organizational agility during a crisis. If a nonprofit organization overly depends on its volunteers due to lack of resources, its agility in response to crises will be weaker. Expense management and financial security did not yield significant results in the model. The results of the whole model are summarized in Figure 2.

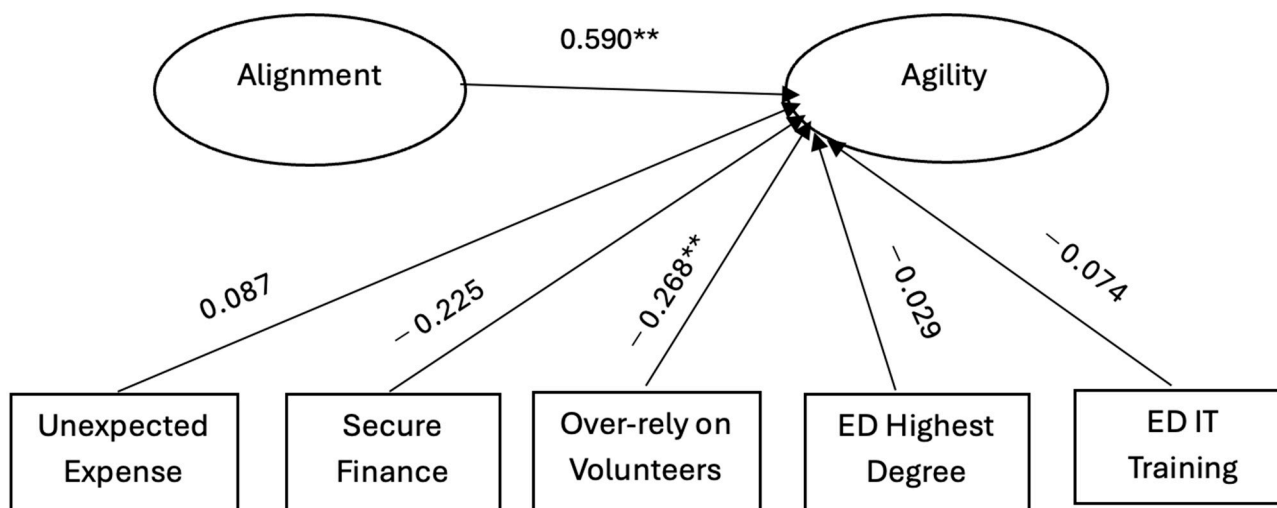


Figure 2. SEM with factor loadings (betas). ** significant at the 0.05 level.

5. Discussion

The findings in this study reconfirmed the key findings from other research on the importance of strategic IT alignment on organizational agility in the nonprofit sector (Suh et al. 2023) by using data from different regions and contexts. Interestingly, all areas of alignment, including the scope of IT used, capacity, and IT governance, were important in the factor analysis and produced a significant relationship on organizational agility. These results were not surprising, given the importance of SITA and organizational agility in the business sector and implications for government and nonprofit organizations (Kirkpatrick et al. 2021; Lee 2017). In this study, we considered the scope of IT used during the pandemic as the total number of different technologies, including volunteer management software, human resources software, programming software, social media, and remote meeting communication software, among others. Understanding that the unique nature of the pandemic required more “distancing”, we suspect that the scope of technology likely increased during the pandemic which helped these organizations become more agile.

Further, capacity indicators suggest that organizations rely on strategic planning to guide IT decisions and that technology can help improve missions and deal with crises like COVID-19. These findings were important, though these are likely to remain consistent inside and outside of crises. IT governance was defined as supportive infrastructure and flexibility on the board, with the executive director, executive leadership, and stakeholders having an understanding of technology in facilitating information, enhancing decision-making, and empowering community voices, and these indicators also yielded significance in our model. These findings are in line with work on the importance of contingent board structures and governance frameworks that are less impacted during unpredictable environments or crises (McMullin and Raggo 2020).

This study finds that organizations that report strategic IT alignment and organizations that do not overly rely on volunteers are more agile, confirming Hypotheses 1 and 4. Interestingly, no significant relationships were found that supported Hypotheses 2 and 3 regarding expense management and financial security (see Table 6). We believe that this may be related to the COVID-19 pandemic and the impact that it had on the financial security of nonprofit organizations during survey completion. The recent literature on nonprofit impact from the pandemic has shown that COVID-19 has significantly impacted many nonprofit finances as well as caused “career shocks” for nonprofit workers (Johnson et al. 2020; Kuenzi et al. 2021). We feel that outside of crises, perhaps there may be more support for these hypotheses and these questions should be reexamined.

Table 6. Hypotheses.

Organizations that report strategic IT alignment are more agile.	Confirm
Organizations that can handle unexpected expenses are more agile.	Reject
Organizations that have secure financial resources are more agile.	Reject
Organizations that have an overreliance on volunteers are less agile.	Confirm

This study offers several practical and theoretical implications for nonprofits. First, it is very important for nonprofits to broaden their participation in a digital society by developing their capacities to strategically plan, design, and implement strategic initiatives that align the organization and can therefore assist with agility, particularly when a crisis occurs. For years, nonprofit organizations have been operating under the assumption that they have not put enough effort into their IT development (Vogelsang et al. 2021). They have consistently faced numerous challenges without financial resources, a lack of skilled personnel on staff, and weak IT strategies for decision-making, adaptabilities, and operations. Additionally, there is very little application of the importance of agility mentioned in the nonprofit literature. We suggest that more research needs to be conducted that can broaden the scope of this work in nonprofit organizations to better represent the diverse nature of community-based groups. More specifically, new initiatives that involve diverse stakeholder voices in strategy and decision-making processes may help nonprofits by ensuring that programs, operations, policies, and practices are working together not only strategically but also ethically and equitably to fulfill their mission. This is particularly important when considering IT alignment and ensuring that the technology used is accessible, clear, and culturally and linguistically appropriate. Additionally, we echo the call from Suh et al. (2023) on exploring more leadership roles and leadership mindsets that promote agility within organizations. This includes calls for an exploration of leadership styles that can promote (or hinder) agility and governance structures and mechanisms that foster flexibility.

6. Limitations

There are some limitations of this study that should be noted and considered in future work. First, there may be issues with generalizability given that all participants in the project were members of PANO and based in Pennsylvania. Nonetheless, organizations were diverse in terms of their type and service area. Second, there may be a nonresponse bias present in our study given the timeframe of data collection and COVID-19 in the United States. Additionally, our measurement indicators are limited by parameters captured in the survey. We could better explore organizational structure, for instance, by asking questions related to decision-making hierarchy. Instead, we focused on the use of volunteers and volunteer reliance, as this was a unique dimension from previous measures of financial indicators and organizational structure from private organizations. The study also did not attempt to capture indicators related to the external environment, which is important considering nonprofit systems and agility. Nevertheless, we found that the data used in our model related to the internal environment fit well and provided an examination into factors in the internal context of nonprofit organization agility.

Future work may better explore factors related to the external environment and consider some sort of dynamic systems model to study the structural properties of various systems that can account for structural changes simultaneously (Morçöl 2012). Future work may also expand beyond Pennsylvania and look more closely at indicators' alignment within the context of nonprofits. With the current dearth of the literature surrounding nonprofit alignment, this work is an excellent starting point for applying widely accepted and applied business concepts like organizational alignment to the nonprofit sector.

7. Conclusions

This study sought to apply business strategies of strategic IT alignment and organizational agility to the nonprofit sector. We specifically focus on this relationship during a large-scale health and economic crisis, as we know that crises require organizations to be more agile if they are to remain sustainable. Findings reveal that strategic IT alignment and volunteer reliance significantly impact organizational agility, which suggests that nonprofits should better work on their strategic processes that align their operations, programs, policies, and practices toward their strategic goals to help them overcome crises and remain agile in a turbulent and complex environment. Ensuring that nonprofits have an IT strategy and infrastructure in place is an excellent first step, which includes an understanding of the IT used within the organization, capabilities to lead and manage the technology, and IT governance that leads these initiatives.

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