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Information technology as a resource to counter domestic sex trafficking in the United States

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Abstract

Globally, millions of individuals are victims of sex trafficking and are compelled to perform sexual acts through force, fraud, or coercion. Law enforcement agencies, non-profit organisations, and social entrepreneurs increasingly are using information technology as a resource to locate, identify, and rescue victims and find, arrest, and convict traffickers. In this qualitative case study, we partnered with a non-profit organisation that trains law enforcement officers to use information technology to counter sex trafficking. For this research study, we observed training courses, interviewed law enforcement officers and non-profit staff, and reviewed technology usage logs and other data sources. Some officers readily used the new information technology post-training, while others failed to use the new technology. Using conservation of resources theory as a sensitising lens, we identify two factors affecting the use of new technology post-training: the level of organisational resources available to individuals and the individual's perceptions of the new information technology as a resource. With these findings, we develop the Resources Model of Information Technology Use to explain how perceptions of organisational and technology resources affect information technology usage patterns and outcomes.

KEYWORDS
conservation of resources theory, human trafficking, information technology use, responsible research, sex trafficking

1 | INTRODUCTION

Over 40 million victims of human trafficking are compelled to work or perform services through force, fraud, or coercion by individuals, organisations, or nations (International Labour Organisation, 2016). One form of human trafficking is sex trafficking, which occurs when a trafficker forces an individual to perform commercial sex acts, such as prostitution or pornography (Polaris Project, 2020). In the United States, sex traffickers increasingly use information technology, such as social media and other online forums, to groom and recruit victims (Sarker, 2015). Online intermediaries reduce the search costs for buyers and sellers of sexual services (Chan, Mojumder, & Ghose, 2019), enabling sex traffickers to advertise their victim's services on the internet.

In the United States, several non-profit organisations and social entrepreneurs are creating new or adapting existing information technologies to help law enforcement agencies eliminate sex trafficking. These information technologies use artificial intelligence techniques to detect potential sex trafficking activity or incorporate other technological advancements to disrupt the traffickers' ability to recruit victims or conduct business transactions (Captain, 2019; Mzezewa, 2017). For these information technologies to produce benefits to society, those with the authority to remove traffickers from society (e.g., law enforcement officers and prosecutors) must adopt and use the information technologies when investigating human trafficking cases.

Walsham (2012) called upon information systems (IS) scholars to move beyond research that focuses on effective and efficient information technology use by businesses and governments. He called for IS researchers to be future-oriented by encouraging them to ask, 'Are we making a better world with ICTs?' and to embrace ethical goals and critical approaches (p. 92). Our research elucidates how traditional IS research questions regarding technology use can be future-oriented as we seek to improve our world through the use of information technology.

This article explains our collaboration with DeliverFund, a non-profit organisation that trains law enforcement officers[1] within the United States on information technology and investigative techniques related to human trafficking. DeliverFund has developed an information technology, Platform for the Analysis and Targeting of Human traffickers (P.A.T.H.), to support officers in conducting human trafficking investigations. P.A.T.H. supports human trafficking investigations by recording, storing, collecting, and visualising data related to trafficking networks (DeliverFund, 2020). We learned from DeliverFund leadership that during training, officers would describe the usefulness of P.A.T.H. After returning to their agencies, the same officers would fail to continue to use the technology. We initially expected our research objective to be the examination of barriers that prohibit P.A.T.H. use post-training. After observing DeliverFund training sessions and interviewing officers, we gained greater insight into the challenges experienced in law enforcement agencies. Law enforcement agencies often are understaffed, underfunded, and have increasing responsibilities to the public (Deeb-Swihart, Endert, & Bruckman, 2019). Our initial observations and analysis quickly revealed that available resources influence whether officers were more or less likely to continue to use P.A.T.H. post-training. As our understanding of the context evolved during this study, we adapted our research objective to examine how available resources affect the use of a new information technology.

This research seeks to make the world a better place by investigating why officers use or do not use information technology that could address a critical human rights issue: sex trafficking. Throughout this research effort, we engaged with DeliverFund to learn about their successes and challenges, shared our research-based findings with them, and offered ideas for improving their training and interventions with officers. Increasing the use of information technology (i.e., P.A.T.H. or other tools) for human trafficking investigations can positively impact society by supporting law enforcement agencies' efforts to identify victims of sex trafficking, provide victims with services, and increase the arrest of sex traffickers. Our findings offer theoretical contributions related to information technology use as we embrace the sensitising lens of conservation of resources theory. This research also has significant practical implications regarding information technology use in resource-constrained environments. Organisations with a mission to make the world a better place tend to operate with limited organisational and individual resources, making their environments different from for-profit organisations. As such, our primary contribution is the Resources Model

of Information Technology Use which explains why individuals use or fail to use new information technology in resource-constrained environments.

This article is organised as follows. First, we explain the primary tenets of the conservation of resources theory. Then, we explain our research method, including data collection and data analysis. The next section shares the findings from our research effort. The theoretical implications, practical implications, limitations, and future research are discussed in the penultimate section. We conclude with a discussion of our contributions to IS research.

2 | THEORETICAL BACKGROUND

Conservation of resources theory explains why individuals experience psychological stress by considering how an individual's resources can be lost or gained through adverse events and everyday activities (Hobfoll, 1989). Resources are 'anything perceived by the individual to help attain his or her goals' (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014, p. 1338). Resources may be actual or perceived, and the actual loss or threat of loss of a resource affects how individuals respond to events (Hobfoll, 1989). Resources exist at many levels—including individual, group, organisational, and societal—and resources can interact across these levels (Hobfoll, 2001).

The central tenet of conservation of resources theory is that individuals seek to protect current resources and make efforts to obtain new resources (Halbesleben et al., 2014); however, actual or potential loss of resources is more salient than resource gains (Hobfoll, 1989). Individuals must invest resources to obtain more or new resources, avoid the loss of resources, or recuperate from the loss of resources (Halbesleben et al., 2014; Hobfoll, 1989). Those with more (actual or perceived) resources are likely to generate resource gains, resulting in gain spirals for resources; those with fewer (actual or perceived) resources are more likely to lose resources, resulting in loss spirals for resources (Hobfoll, 1989). Conservation of resources theory also purports that individuals lacking resources are more likely to expend resources to defend and conserve any remaining resources (Halbesleben et al., 2014; Hobfoll, 1989).

Conservation of resources theory acknowledges that an individual's perceived benefits of resources may fluctuate over time (Halbesleben et al., 2014). To avoid loss spirals, individuals may stall or devalue resources to limit resource loss. In the case of stalled resources, an individual stops using a resource because (a) the resource is no longer useful in helping the individual to achieve one's goals or (b) the individual is pursuing different goals (Halbesleben et al., 2014). Resource devaluation is a protective mechanism used by individuals to avoid resource loss by redefining and lessening a resource's perceived value (Hobfoll, 1989).

Resources are not single entities but rather travel together in what is known as resource caravans, at both the individual and organisational level (Hobfoll, 2018). Environmental conditions at work, home, or within a society affect the availability and use of resources by individuals. Resource caravan passageways are 'environmental conditions that support, foster, enrich, and protect the resources of individuals, families, and organisations, or that detract, undermine, obstruct, or impoverish people's resource reservoirs' (Chen, Westman, & Hobfoll, 2015, p. 98). Because perceived resources not only consist of an individual's resources, but also the resources made available to the individual at work, home, and other settings, these interconnected resource caravan passageways affect how individuals respond to changes in their environment (Hobfoll, 1998; Hobfoll & Schumm, 2002). To embrace an intervention that may yield a resource gain, the person must have sufficient resources to make these changes at the individual and organisational level (Alvaro et al., 2010), which may be supported or inhibited by resource caravan passageways (Hobfoll & Schumm, 2002).

Individuals working in law enforcement tend to have high work demands and limited resources. High work demands deplete resources more quickly, which leads to loss cycles or defensive posturing regarding the use of resources (Ward & Steptoe-Warren, 2014). As a result, these individuals must expend resources to preserve their current level of resources (van Woerkom, Bakker, & Nishii, 2016). Officers often possess limited resources at an individual level, and resource caravan passageways can further affect an officers' perception of available resources. Many law enforcement agencies within the United States are severely resource constrained, mainly due to limited funds and personnel shortages, coupled with increasing responsibilities to serve the public (Deeb-Swihart et al., 2019).

Conservation of resources theory identifies factors affecting stress (Westman, Hobfoll, Chen, Davidson, & Laski, 2005), exhaustion (de Cuyper, Makikangas, Kinnunen, Mauno, & de Witte, 2012), resilience (Chen et al., 2015), and one's ability to adapt (Alvaro et al., 2010) in the workplace. Studies examining conservation of resources theory in the context of new information technology introduced within the workplace have considered how information technology may impose a faster pace of work (Chen, Westman, & Eden, 2009), increased work demands (Ward & Steptoe-Warren, 2014), or potential for technology overload (Harris, Harris, Carlson, & Carlson, 2015). These studies apply conservation of resources theory to explain how individuals react and respond to new stimuli in their day-to-day work based on the type and level of (actual or perceived) available resources. In these contexts, individuals may have some resource deficits, but the organisation is likely to possess a sufficient level of resources that individuals can use to replenish their personal resource deficits. Still, little is known regarding how individuals respond to new information technology resources provided within a resource-constrained environment. Individuals must possess a certain level of resources to acquire or use a new resource, and an individual with fewer resources will struggle in dedicating existing resources to engage, learn, and master the use of a new resource (Hobfoll, 1989). Rather than assuming a new information technology is a stressor, we recognise that a new information technology has the potential to be a stressor or a resource that enables an individual to achieve one's goals.

Many IS theories and models identify factors that predict the use or non-use of information technology. Some theories consider the individual's perceptions regarding the usefulness of the technology (Venkatesh, Morris, Davis, & Davis, 2003) or organisational factors that influence information technology use (Delone & McLean, 2003; Goodhue & Thompson, 1995). Although these theories and models predict some of the variance in information technology use, we still do not understand how one's perceptions regarding new information technology and organisational conditions influence use. Furthermore, in contexts in which the organisation (or individual) seeks to make the world a better place with a social mission (as opposed to a profit mission), individuals and organisations tend to operate in highly resource-constrained environments. Individuals who believe a new information technology could be useful may fail to use this resource due to other factors within their environment. Although many existing IS theories identify factors that predict or explain adoption, use, and user resistance, few studies have elaborated on the role of resources as factors that influence technology use. Because of the limited resources available to organisations and individuals in this research context (i.e., law enforcement agencies and officers), conservation of resources theory provides an alternative perspective to explore reasons for use or lack of use of a new information technology.

3 | RESEARCH METHOD

For this research study, we partnered with a non-profit, DeliverFund. DeliverFund seeks to end human trafficking by providing reliable, actionable, and verifiable intelligence to law enforcement on trafficking activity. DeliverFund provides free (or low-costt) training courses to teach officers how to conduct sex trafficking investigations, including how to use P.A.T.H. to support these investigations.

We conducted an inductive, qualitative case study using an interpretive approach (Klein & Myers, 1999; Walsham, 1993). Our interpretive approach allowed us to gain insight into the officers' experiences and socially constructed perspectives related to their use (or lack of use) of P.A.T.H. Conservation of resources theory (Hobfoll, 1989) served as a sensitising lens during our analysis to gain insight into emerging concepts from our data (Sarker & Sahay, 2003; Walsham, 1995).

3.1 | Research context

Sex trafficking generates more than $100 billion in profits worldwide for individuals, organisations, and nations (International Labour Organization, 2014). Multiple business models are used to engage in sex trafficking within the

United States, including escort services, illicit massage parlours, and brothels (Polaris Project, 2019). Appendix A explains the most popular business model of sex trafficking within the United States (i.e., escort services) and explains how officers investigate these types of crimes.

As a non-profit seeking to eliminate human trafficking, DeliverFund strives to remove jurisdictional silos and create a common platform for information sharing among law enforcement agencies. Through its public-private partnership model, uniquely qualified personnel, and modern information technologies, DeliverFund engages with law enforcement to disrupt human trafficking networks. A primary activity of DeliverFund is providing end-to-end training for officers regarding how to investigate sex trafficking networks. In their most intensive seven-day course, DeliverFund provides instruction on victim interaction from the perspective of trafficking survivors, tactical training when rescuing victims or approaching traffickers, and intelligence-led policing methods. The trainees also learn how to use existing and new information technologies, including P.A.T.H., to support a target-centric approach to countering domestic sex trafficking. We provide additional information about P.A.T.H. in Appendix A.

3.2 | Data collection

We utilised multiple data collection methods including interviews, direct observation, course evaluations, and P.A.T.H. usage logs. We also used secondary data sources, such as press articles about DeliverFund, course training documents, and participant information. DeliverFund invited us to attend and observe three multi-day training courses offered in May, July, and October 2019 for 47 officers. The participants included officers from local, state, and federal agencies across the United States. At least one researcher was present for 16 of the 19 days of training, and two researchers were present for most of the training days. The researchers used the training courses as an opportunity to engage with the participants and DeliverFund staff during breaks, lunches, and downtime. These interactions offered more insight into the investigation process and organisational challenges related to conducting trafficking investigations.

We conducted semi-structured interviews before, during, and after training with trainees who were willing to participate. When possible, we recorded and transcribed each phone or in-person interview. If we were unable to record the interview, we took detailed notes during the interview. Pre-interviews were 15 to 30 minutes in duration and focused on the participant's current role and experience with sex trafficking investigations, information technology use, and expectations for training. In-person and phone interviews during and after training were typically 30 to 60 minutes in length. These semi-structured interviews included questions related to the officer's approach and experience with human trafficking investigations, use of P.A.T.H., and challenges related to using P.A.T.H. (see Appendix B for pre- and post-training interview protocols).

We also interviewed multiple staff members of DeliverFund, including analysts and senior executives, and we recorded and transcribed these interviews when possible. The insights offered by staff members provided additional perspectives regarding P.A.T.H. and DeliverFund. We requested and received training documentation, course evaluations, and last login dates for P.A.T.H. from DeliverFund. We also supplemented our understanding of DeliverFund and human trafficking investigations through information obtained through public data sources, such as news articles, press releases, among others. Table 1 summarises the data sources for this research study.

3.3 | Data analysis

We adopted an inductive approach informed by grounded theory techniques (Glaser & Strauss, 1967) for data analysis. We iterated between our data and existing theory during data collection and analysis to guide future data collection and provide insight into emerging themes in our data (Charmaz, 2006; Glaser & Strauss, 1967). We performed our analysis in two stages.

TABLE 1 Data sources

Course #	Timing	Data collection	Participants (method)	Data gathered
Training #1	May 2019	Seven-day training	Ten officers (observation, informal interaction)	Field notes on training content, methods, participant engagement
	July to August 2019	Post-training interviews	Six officers (four phone, two in-person)	Interview notes and transcripts
	September 2019, January 2020, March 2020	P.A.T.H. login data	Ten officers (login date)	Last login date for P.A.T.H.
Training #2	July 2019	Pre-training interviews	Six officers (three phone, three email)	Interview notes, transcripts, or email responses
	July 2019	Five-day training	Fourteen officers (observation, informal interaction)	Field notes on training content, methods, participant engagement
	September to December 2019	Post-training interviews	Four officers (three phone, one email)	Interview notes, transcripts, or email responses
	September 2019, January 2020, March 2020	P.A.T.H. login data	Fourteen officers (login date)	Last login date for P.A.T.H
Training #3	September to October 2019	Pre-training interviews	Nine officers (phone)	Interview notes and transcription
	October 2019	Seven-day training course	Twenty-one officers (observation, informal interaction)	Field notes on training content, methods, participant engagement
	December 2019 to January 2020	Post-training interviews	Thirteen officers (phone)	Interview notes and transcription
	January 2020, March 2020	P.A.T.H. login data	Twenty-one officers	Last login date for P.A.T.H
Additional data	May to October 2019	Interviews with DeliverFund staff and technology partners and prior participants	Sixteen interviews with 11 people (in person, phone)	Interview notes and transcripts
	April 2017 to October 2019	Training course evaluations	Seventy-one officers	Anonymised course evaluations for all officers attending DeliverFund training over a 3-year period
	May to October 2019	Training documents	Three sets of training documents	Documentation provided to training participants during training courses in May, July, and October 2019
	April 2019 to Mar 2020	Press articles	Articles published in popular press, on DeliverFund's website, or LinkedIn pages	Collection of articles, press releases, and podcasts, related to DeliverFund

In the first stage, we used a grounded theory coding scheme of open, axial, and selective coding (Corbin & Strauss, 1990). We used the qualitative analysis software MAXQDA to code interviews, field notes, and other qualitative data sources. During open coding, we created descriptive codes of concepts emerging from our data (Glaser & Strauss, 1967). We combined similar open codes to develop first-order codes (Charmaz, 2006; Strauss & Corbin, 2007).

Next, we performed axial coding (Corbin & Strauss, 1990) to develop theoretical codes by combining common themes and abstracting first-order codes into sub-categories. We compared our emerging theoretical codes with extant literature and found similarities consistent with the literature on conservation of resources theory and technology stressors (Harris et al., 2015; Hobfoll, 1989). As part of this process, we examined our themes and major findings in relation to conservation of resources theory. For example, we found that the categories of *data visualisation*, *information sharing*, and *investigative efficiency* aligned with the concept of information technology as 'resource enhancing' in conservation of resources theory. The theoretical categories that emerged from the iterations between our data and the literature during axial coding include limited resource caravan passageways, supportive resource caravan passageways, perceptions of information technology as resource depleting, and perceptions of information technology as resource enhancing.

Finally, we performed selective coding by further abstracting our theoretical codes into aggregated theoretical dimensions (Corbin & Strauss, 1990), which are 'organizational factors affecting new information technology use' and 'perceptions of technology affecting new information technology use'. Figure 1 shows the results of our open coding, axial coding, and selective coding.

In the second stage of data analysis, we placed our aggregated theoretical dimensions on an *x*- and *y*-axis to create a 2 × 2 representation of organisational factors affecting new information technology use (resource caravan passageways) and perceptions of information technology. This resulted in four quadrants representing the following
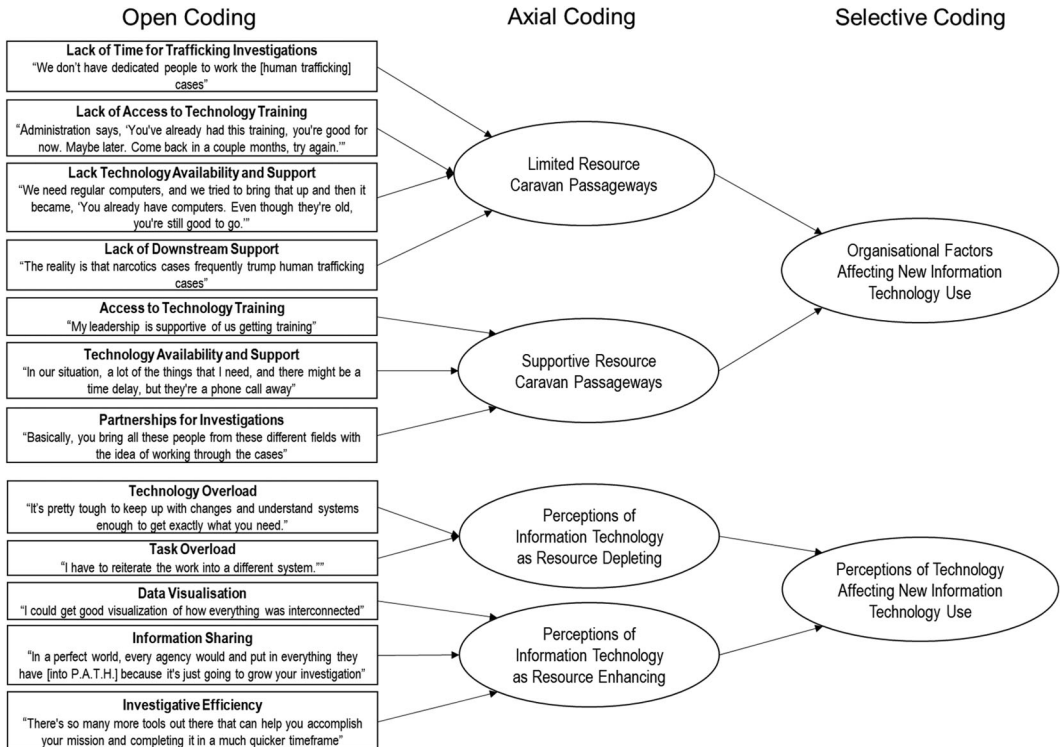

FIGURE 1 Coding for stage 1 of data analysis

combinations of resources: limited resource caravan passageways and perceptions of information technology as resource enhancing; supportive resource caravan passageways and perceptions of information technology as resource enhancing; supportive resource caravan passageways and perceptions of information technology as resource depleting; and limited resource caravan passageways and perceptions of information technology as resource depleting. Next, we mapped each participant to a quadrant based on our interviews, observations, and P.A.T.H. usage logs. Multiple data sources allowed us to triangulate our data and further validate our findings (Corbin & Strauss, 1990). This second stage of data analysis provided insight into our participants' characteristics, use patterns, and resource outcomes. Each quadrant represents a user type that emerged from our analysis, which we labelled as 'innovators', 'power users', 'domain experts', and 'resource defenders'. Using conservation of resources theory as a sensitising lens, we integrated theoretical concepts with emergent findings (Walsham, 1995). As an example, we found that the conservation of resources theory provided insight into the resource outcome of each user type (i.e., stalled resources, gain cycle, devalued resources, and loss spiral). Throughout our analysis, we discussed our findings with key participants to clarify our understanding of the role of resources in affecting P.A.T.H. use. The result of our analysis was the Resources Model of Information Technology Use, which integrates our findings with the conservation of resources theory. After we developed our model, a third author reviewed the findings and offered insights based on his knowledge of the subject matter.

4 | FINDINGS

Through our engagement with officers during and after training, we noted large variations in the environmental conditions that support or limit the use of new information technology to pursue domestic sex trafficking investigations. We discovered that environmental conditions, or resource caravan passageways, influenced officers' use of P.A.T.H. post-training. We also noted that some officers quickly found value in P.A.T.H. during training, while others were more dismissive of the new information technology as a resource. This section explains our findings related to resource caravan passageways, individual's perceptions of new information technology, and the interaction of resource caravan passageways and individual's perceptions about new information technology on user types, use patterns, and resource outcomes.

4.1 | Resource caravan passageways

The officers attending DeliverFund's training were from agencies with varying levels of organisational resources available to support human trafficking investigations. Many officers work in local law enforcement agencies with severe personnel and funding shortages in relation to the needs of the community. Other agencies have limited funds and personnel but have found ways to cope with their current resource levels.

4.1.1 | Limited resource caravan passageways

Lack of time to pursue trafficking investigations. Most officers attending training investigate multiple types of cases (e.g., narcotics, homicides, property crimes, among others) in addition to trafficking cases. Some officers describe human trafficking investigations as 'collateral duty', falling outside their primary investigative domain. If officers must devote much of their time investigating non-trafficking cases, the agency has fewer available resources to expend to counter human trafficking. Agencies with personnel shortages are likely only to investigate trafficking cases when a victim asks for help, which rarely occurs, or when a family member of a trafficking victim alerts officers of the situation. Officers from agencies with few resources to devote to sex trafficking investigations have little to no reason to use P.A.T.H. post-training. As one officer shared:

> I'm still assigned criminal [cases], and [human trafficking] is a collateral duty for me. I tend to work on mostly homicides, and those take up a lot of time.

Some participants sought to become experts in human trafficking and wanted to use P.A.T.H. post-training to conduct more human trafficking investigations within their agency. The agency's inability to allow the participant to devote time towards conducting trafficking investigations limited how much the participant could use P.A.T.H. after returning to their agency.

Lack of access to technology training. Several participants expressed difficulty obtaining training for new or existing information technologies. Although our study participants attended DeliverFund's training course, gaining access to training was difficult for some officers. During our research study, DeliverFund offered training at no cost to the law enforcement agency. The only costs to the agency for training were the travel expenses and time away from work. Funding and support for training for some officers is scarce, as explained by the following officer:

> I talked to my direct boss and boss's boss and asked my agency to see if they would send me [to DeliverFund's training]. They said, "No, there's no funds for outside agency training." So I slowly, chopped down what they would have to pay for. I just took one thing away, one thing away, and they kept denying it. Finally, I was like, "Okay, look. I will drive my own vehicle. I'll pay for my hotel. I'll pay for everything. Can I just have the admin leave?" They still said, "No." So I just took leave. I took my own leave to come down. For me, it was worth it.

Some officers described creative ways to offset the agency's lack of resources to obtain technology or skills-based training. Some applied for grants or competed for agency or governmental resources to fund training opportunities. Others identified local, free training, or sought out webinars to avoid requesting financial support for lodging, food, and travel. Officers struggling to access training began DeliverFund's training program with a lower level of resources as they needed to expend their personal resources to access training opportunities.

Lack of technology availability or support. Some officers discussed challenges associated with obtaining necessary information technology for human trafficking investigations. For sex trafficking cases, officers frequently need computers to access and store sensitive material. Sometimes, the local government's information technology department installed filters on internet activity, making it nearly impossible to perform sex trafficking investigations online. One officer explained:

> We need regular computers. We tried to bring that up, and then it became, "Well, you guys already have computers. Even though they're old, you're still good to go." Our justification was that we have to access those websites that IT is going to block for obvious reasons. That's where [traffickers and victims] are. That's where we need to be looking. Of course, it was still met with pushback.

Some software required for criminal investigations can be cost-prohibitive for local law enforcement agencies. One common workaround is for a local agency to enable only certain individuals, who typically have an analytical or forensic role within the agency, access to software with expensive licence fees. Having a limited number of personnel with access to specialised software frequently creates a bottleneck for investigations. Since traffickers often move victims to different cities (and jurisdictions), long wait times to obtain or store evidence can be problematic for trafficking cases due to the time-sensitive nature of finding a victim. One officer shared:

> When I first came to this division and we would get a phone or something, we used to have to take it to a lab. Then, you would wait around for 6 months to get it back.

To avoid this resource constraint, DeliverFund created P.A.T.H. as a Software as a Service (SaaS) to limit the infrastructure costs incurred by a local agency to support the software. Furthermore, DeliverFund offered participants free, temporary licences for P.A.T.H. for 6-to 12-months as long as the officer continued to log into P.A.T.H. post-training. DeliverFund expected that the officer's agency would learn the value provided by P.A.T.H. during the trial period and would request funds to pay for the licensing costs in subsequent years. Agencies that purchase licences to P.A.T.H. receive the software at DeliverFund's cost. Unfortunately, the temporary nature of P.A.T.H. licences creates an opportunity for actual or perceived resource loss. While a few participants were able to garner local support to obtain P.A.T.H. licences at the conclusion of the trial period, many officers knew that their local agency did not have the funds to purchase access to P.A.T.H. after the trial period ended. As a result, many of these officers did not invest time and energy into learning and using P.A.T.H. as a resource since the agency would not be able to provide financial support for the resource in future years.

Lack of downstream support. Although an officer gathers and documents evidence against traffickers and makes arrests, a prosecutor determines if criminal charges will be filed against the alleged trafficker. Officers in our study noted that sometimes, despite obtaining digital evidence of human trafficking, the prosecutor chose not to prosecute the case. Several participants described their experiences associated with expending resources to investigate a trafficking case, but the prosecutor would not file charges against the alleged trafficker if the victim would not testify in court. As one officer lamented:

> I had one girl who was being trafficked. I had the text messages, I had everything, but I didn't have an outcry. I didn't have a victim. I didn't have fraud, force or coercion even though clearly this is what's going on… It's just one of those where if you don't have an outcry, you don't have a victim. It's hard to let them leave, but at the same time, you know what's going on.

Several officers also believed that narcotics or other types of cases take precedent over human trafficking investigations within their local agency or prosecutors' agencies. One officer shared a story about a local district attorney who indicated that sex trafficking was not an issue in their locale. To illustrate the pervasiveness of trafficking in their region, the officer showed the prosecutor dozens of online advertisements, many of which appeared to be minors. Using resources to convince others that human trafficking is problematic within the local community can deplete an officer's available resources.

4.1.2 | Supportive resource caravan passageways

Access to technology training. Officers from agencies with cultures that value using information technology for investigations could readily obtain training to enhance their technology skills. Some DeliverFund attendees were departmental supervisors who advocated for training for themselves and their subordinates. Other officers discussed how their supervisor quickly approved training opportunities that the officers deemed necessary and useful. As resource gains tend to beget resource gains, officers attending multiple training courses would often identify different types and levels of resource gains that occurred from attending a range of training programs.

Participants also identified networking opportunities as a secondary motivation for attending training courses. One officer explained the value of networking at training:

> I think there's a ton of value in networking. We had a lot of commonalities, but just talking to people from the federal side, or the big city side, or the smaller town side, just kind of comparing notes in a way and even being able to have a connection, I think that was helpful. Just the networking part of it and then really comparing notes like, "Hey, what are you doing?" Or being able to even pass on some of the information that we've found that is helpful.

During training, many officers would spend breaks, lunches, and downtime discussing cases, sharing strategies for obtaining search warrants or subpoenas, and asking others outside of their agency for best practices related to investigations. Trainees were willing to help one another during technical exercises and openly shared experiences and best practices. The ability to attend training offers participants additional resource gains beyond learning a new information technology.

Technology availability and support. Another caravan resource passageway identified by participants was the availability of information technology (both software and hardware) within their agency. However, only a small number of participants acknowledged that they had access to the technology and support they need for trafficking investigations. One agent shared:

> There are things we would certainly want. In our situation, a lot of the things that I need, and there might be a time delay, but they're a phone call away. I have intelligence analysts. We have a legal advisor. I have a computer specialist. I have people that can do things that I'll never be able to do. It's just a phone call away to get them coming to us. So like I said, there'd be a time delay, but we're pretty much up to speed technology-wise.

Officers benefitting from higher levels of access to technology often worked in larger agencies, human trafficking task force units, or special divisions at the state or federal level. Some officers described how the available information technology within their department or agency improved their quality of work and investigational outcomes.

Partnerships for trafficking investigations. Working with non-law enforcement partners for trafficking investigations was a valued resource identified by some participants. Officers from trafficking task force units tend to work closely with non-governmental or governmental partners, such as non-profit organisations, social workers, and counsellors, to support victims. Other officers explained that they collaborate with other agencies within the criminal justice system and work with local agencies that support victims during the course of their sex trafficking investigations.

> A lot times they'll include the [district attorney's] office, investigators, counseling, child protective services. There's probably a couple others. But basically you bring all these people from these different fields, bring them all together with the idea of working through the cases. Each person's got their own aspect that they're bringing to it. It gives them a chance to say, "Okay, I need this victim brought in for a forensic interview. I don't do forensic interviews, but there are some specific people that do." So the forensic interviewer will come in. And then after the forensic interview, they may say, "Hey let's go and refer them to counseling because they've been through some stuff," and counseling's right there with it. So it just kind of falls in line together.

These officers were able to leverage available resources from not only their own agency, but also from other governmental and non-profit agencies. As these multiple organisations pooled their available resources, this created supportive resource caravan passageways to provide further support for officers working in human trafficking investigations.

4.2 | Perceptions of new information technology (i.e., P.A.T.H)

The largest technology-oriented component of DeliverFund's training is teaching officers how to use P.A.T.H. to support human trafficking investigations. Some officers perceived P.A.T.H. as a new resource for domestic sex trafficking investigations and were willing to expend time, energy, and cognitive resources during and after training to learn

and use P.A.T.H. Other officers could identify P.A.T.H.'s benefits but were unwilling to invest the necessary resources to learn or use P.A.T.H. during or after training.

4.2.1 | Perception of P.A.T.H. as resource depleting

Technology overload. Many domestic sex trafficking investigations have online components, and officers must be familiar with multiple websites and technologies used by traffickers. A common theme among many officers is the mental energy and time required to stay current with the large number of websites and information technologies required to conduct sex trafficking investigations. One officer shared the following feelings of technology overload when learning about varied online resources to support human trafficking investigations during DeliverFund training:

> You're going through 12 different websites, and you just get told about it. I tried to save [a new website] in my favorites. Then I went back and looked, and I'm asking, "What is this one for? What do I do in this one?" Obviously I don't have time to sit here and try to mess with it, so I'm just going to go on. I've never used that website, and it could possibly be of help to me. I just get impatient, too. I've got other stuff to be doing. I'm just going to move on.

Some officers expressed how learning about new information technologies during training highlighted their inexperience with technology. Many officers spoke about how 'younger' officers could adapt and learn new technology more easily. For example, one officer expressed difficulty in keeping up with all of the new information technologies required for human trafficking investigations and other forms of online investigations, such as social media and communication apps:

> I could do this for 10 years and not know all of this. In 10 years, new apps and new devices will be used. It's pretty tough to keep up with changes and understand systems enough to get exactly what you need.

During DeliverFund training, officers learned how to use up to 20 new or existing information technologies. For officers who perceived their information technology knowledge as lacking, the volume of information technologies taught during training leads to the avoidance of using any new information technology (including P.A.T.H.) that did not offer immediate (actual or perceived) resource gains.

Task overload. The primary reason officers did not use P.A.T.H. after training was the perception that P.A.T.H. duplicated their investigation efforts. Each law enforcement agency has one or more case management systems that are mandatory to use for recording evidence and information related to criminal cases. P.A.T.H. is a separate information system with different processes and requires information to be entered differently than other case management systems. One officer discussed his work process and its perceived incompatibility with P.A.T.H.:

> Right now, it's all on pen and paper on my case file folder. It's nothing real digital. When I ID something, it's great to touch it, it's great to highlight it, it's great to put a sticky note right there. With the digital, I wrote it down, now I've got to enter it in or vice versa. If I enter it on the computer, and then I forget to write it down, it's like, "Oh crap. I know I have this link. Is it on the computer or is it in my notes?" I guess changing over to digital would be a hurdle because… I would need to retrain myself to do it a different way.

P.A.T.H. is not a required part of the work process and is perceived by many officers as a duplication of work. For these officers, P.A.T.H.'s benefits as a resource do not outweigh the loss associated with expending time and effort to enter data into a new and different information system.

4.2.2 | Perceptions of P.A.T.H. as resource enhancing

Data visualisation. Many officers described P.A.T.H. as a useful data visualisation tool given the complexity of human trafficking investigations. Typically, there are multiple victims and traffickers in an investigation. P.A.T.H. shows these person-to-person relationships and relationships among known phone numbers, social media accounts, online advertisements, financial accounts, or any other identifying information discovered during an investigation. P.A.T.H. offers a means to visualise these relationships during an investigation. As one officer explained,

> [P.A.T.H.'s] visual aid can really assist in showing the structure. Look, this is somebody that is connected to all these things and where all these connections go back to. Hopefully, you would be able to demonstrate that there is, at the center all this, the trafficker. He is in control of, perhaps whatever financial account you've identified. He's in control of the email that's posted the ads. Here's all these phone lines and they all come back to him.

In criminal investigations, officers present their evidence to supervisors and prosecutors to determine if the case will move forward. For most cases, which are often less complex than trafficking investigations, case information is stored digitally in a case management system. These systems store the major facts regarding an investigation. However, P.A.T.H. allows users to store data about a human trafficking case and visually represent relationships among the different data sources and persons of interest (see Appendix A for more information). One officer explained the communicative benefits of P.A.T.H.:

> This diagram really helps support visual representation of the entire case because, oftentimes, they think it's just one female and one trafficker, when in reality it's one trafficker and seven juveniles. This is the way it looks and how it's mapped. I can talk about the case in its entirety instead of just a tiny portion of it.

Many officers identified P.A.T.H.'s visualisation capabilities as a substantial benefit of using this software. The ability to communicate their evidence and case more effectively to stakeholders was a strong reason to use this new information technology.

Information sharing across jurisdictional boundaries. Many domestic sex traffickers move victims across jurisdictions (i.e., cities, counties, states) regularly. The transient nature of sex trafficking makes it difficult to identify and locate victims and traffickers. When an officer enters data into P.A.T.H. that is consistent with another case within the system—regardless of the jurisdiction—P.A.T.H. will alert the user about the overlapping data among different cases. The officer can reach out to other officers investigating the same victim or trafficker to gain additional information to support their respective investigations. Sharing case information across jurisdictions prevents investigative redundancies when multiple agencies are investigating the same trafficker or victim.

One interviewee recounted a time when P.A.T.H. helped identify a person of interest in another jurisdiction. An officer working in Miami, Florida during the Super Bowl in 2020 recognised indicators of possible trafficking activity in online escort advertisements. When the officer entered this data into P.A.T.H., the system notified the officer about a person of interest who was previously arrested 2 years earlier in Houston, Texas. The alleged trafficker absconded after the arrest. The officer coupled this data from P.A.T.H. with additional evidence

collected using online tools and investigative techniques to identify additional victims associated with the trafficker. The officers located and arrested the trafficker, who was sent to Houston to face the original criminal charges.

The transient nature of domestic sex trafficking creates many challenges for officers investigating these cases. Since each jurisdiction maintains its own information systems, databases, and investigative files, it can be difficult to identify if a person identified in an investigation in one city and state is related to an investigation in a different city and state. The ability of P.A.T.H. to identify data overlaps across jurisdictions creates new opportunities for officers to learn from others' investigative work.

Investigative efficiency. P.A.T.H automates the identification, categorisation, and extraction of data points from social media accounts during an investigation. One officer described how she was able to gather more information more quickly for a case:

> [P.A.T.H.] searches everything for me in one little location. I can just put in a username and it can try to search for it. If it's there, then great, and then you can build off of that. I think most crimes are going to the internet. Everybody's got a username, and if I can use that along with [other databases], then I can build a profile super quick.

Prior to using P.A.T.H., officers expend significant cognitive energy moving from one social media site to another utilising different search methods required to sift through posts and accounts. Automating social media and online searches related to potential traffickers, victims, and known associates lessens the resource needs of an officer by reducing the time and effort required to conduct a human trafficking investigation.

## 4.3 | Impact of available resources on new information technology use

At the conclusion of training, most officers rated P.A.T.H.'s effectiveness for the investigation of human trafficking cases as 'Excellent' or 'Good' (88%), yet only a subset of these individuals used P.A.T.H. post-training. Simply viewing P.A.T.H. as an effective tool or resource for human trafficking investigations was insufficient for many officers to continue to use P.A.T.H. post-training. Some officers appeared to have sufficient resources to devote time and effort to learn and use P.A.T.H. during training; however, other officers struggled to maintain their current resource level during training and failed to invest resources to learn the new information technology.

As we further analysed our findings, we discovered an interaction between caravan resource passageways at the organisational level and the individual's perceptions of new information technology as a resource. We show this interaction in Figure 2 with the perception of information technology as a resource on the *y*-axis (low = depleting; high = enhancing) and organisational resource caravan passageways on the *x*-axis (low = limited; high = supportive). To elucidate the impact of perceived resource interactions on information technology use, we developed the Resources Model of Information Technology Use presented in Figure 2. Based on our analysis of the organisational resources available to officers and their perceptions of the new information technology, we identified four user types: innovators, power users, domain experts, and resource defenders. These user types differed in characteristics, use patterns, and resource outcomes.

4.3.1 | Innovators

Innovators perceive P.A.T.H. as an enhancing resource but also perceive the organisation's resource caravan passageways as limited. These users are quick learners of technology and appreciate the resource gains provided by new information technology or new uses of existing technology for trafficking investigations. Innovators typically
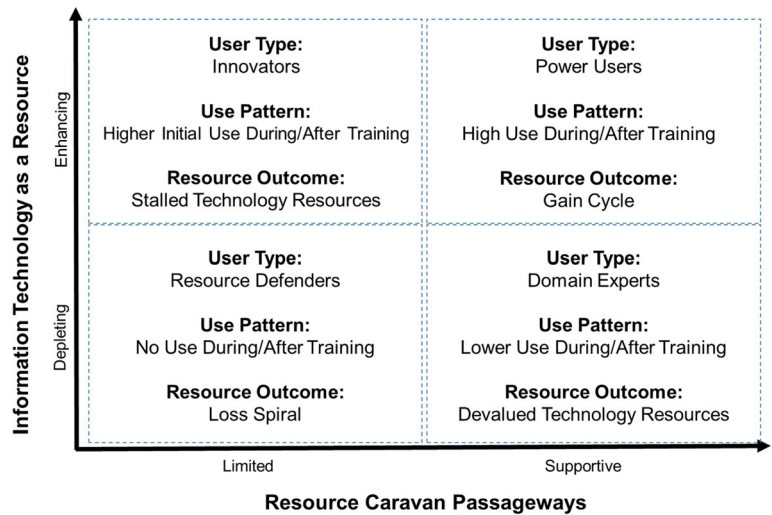
use technology extensively to conduct different types of investigations and pursue a range of technology-oriented training. Some innovators described themselves as forensic or data geeks. One officer confessed, 'I think, deep down, I might be a data nerd'.

However, innovators lack sufficient organisational resources to benefit from technology resources for trafficking investigations. Most innovators had few organisational resources to support the investigation of trafficking cases. Many officers worked in organisations with limited personnel, which reduced their ability to pursue trafficking investigations. Innovators in agencies with little available technology were adept at working around these resource constraints, given their enjoyment and aptitude for information technology. Nevertheless, innovators were unable to overcome their organisation's lack of resources to purchase licences for P.A.T.H. after the trial period.

During training, innovators were engaged during the technical portion of the course. These individuals used P.A.T.H. to build complex and detailed visualisations of potential victims and traffickers using the techniques taught during training. Upon returning to their organisation, however, the heavy use and enthusiasm for the new information technology quickly waned as the reality of insufficient organisational resources emerged. Usage logs reveal that innovators did not use P.A.T.H. for more than 60 days post-training.

The resource outcome for innovators is stalled technology resource use. Stalled resources occur when an individual discontinues using a resource because of an inability to reach one's goals or because the individual chooses a different set of goals. If innovators are unable to pursue trafficking investigations, they do not need to use P.A.T.H. If the organisation cannot purchase the licence for P.A.T.H. in the next budget year, there is little need to continue to invest effort in using this technology. Although innovators are excited about the resource gains that new information technology can provide, their organisation's limited resources dampen the potential for resource gain and limit continued use of the technology.

4.3.2 | Power users

Power users perceive P.A.T.H. as resource enhancing and have supportive resource caravan passageways within their organisation. Like innovators, power users are energised by the use of technology and look for opportunities to use new information technologies for resource gain. The difference between power users and innovators is that power users have organisational resources unavailable to innovators.

The higher level of organisational resources enabled power users to use P.A.T.H. well after training ended. Power users often have full-time roles devoted to investigating human trafficking. These officers volunteered or

asked to participate in DeliverFund training, and their agency supported this goal. Power users also tend to work in organisations with financial resources to support technology and training.

During training, power users were highly interested in learning about P.A.T.H. and the other technologies presented. These users exhibited high levels of engagement with P.A.T.H. during and after training and continued to log into P.A.T.H. throughout our data collection period. Some power users encouraged other officers to attend DeliverFund training and use P.A.T.H.

The resource outcome for power users is a gain cycle, enabling the officer to continue to improve their level of resources. Because those with resources can more easily acquire additional resources, power users can leverage their existing information technology and organisational resources to obtain individual and organisational long-term benefits from the officer's use of P.A.T.H.

4.3.3 | Domain experts

Domain experts perceive P.A.T.H. as resource depleting but have supportive resource caravan passageways. This user group relies upon 'good ole' fashion police work' (i.e., physical investigations and evidence) instead of leveraging information technology to investigate cases and gather evidence. Domain experts consider information technology as helpful, but not essential, for their job. Many domain experts lacked confidence in their ability to use information technology as a resource.

Domain experts have sufficient organisational resources to support the use of information technology but do not necessarily use these resources themselves. Many domain experts have extensive law enforcement experience, are experts in interviewing witnesses and perpetrators, and are strong investigators for other types of crimes. Domain users would frequently delegate the use of information technology for investigative work to colleagues they perceived as more technologically-savvy.

During training, domain experts were less engaged with learning and using new information technology. Many domain users tried to learn new information technology, such as P.A.T.H., but struggled to learn and use the system. Many domain users failed to understand or embrace alternative approaches to investigating cases beyond a more traditional approach. Domain users often stated that tactical training and victim advocate training were the most practical sessions during the course. In training, several domain experts stated that they were unlikely to use the information technology portion of the training in their day-to-day work—although they perceived P.A.T.H. as useful for human trafficking investigations. The usage logs post-training were consistent with the domain users' prediction of their future use.

The resource outcome for domain experts is technology resource devaluation. These users believe their investigation strategies are successful and have little motivation to invest resources to acquire new information technology as a resource. While domain experts devalue information technology resources for their personal use, many domain experts appreciate the resource gains others receive by using information technology. Although domain users have high levels of organisational resources, it does not alter the users' perceptions of new information technology as an individual resource as they seek to maintain their individual and organisational resource levels.

4.3.4 | Resource defenders

Resource defenders tend to arrive at training with the perceptions that new information technology is likely to be resource depleting and are from an organisation with limited resource caravan passageways. These individuals have a similar perception of information technology as a resource as domain experts. These individuals tend to have less confidence in their ability to use technology and defer the use of technology for investigative purposes to other colleagues when possible.

The level of organisational resources is also low for resource defenders. Although the organisation may have sufficient financial resources to enable the officer to attend training, many resource defenders attended training at a supervisor's request. Other resource defenders signed up for training with good intentions to learn more about human trafficking investigations and new information technology; however, these officers experienced distractions during training that limited their ability to devote resources to learn new skills.

During training, some resource defenders expressed their struggle to keep up with new social media sites or new online advertising websites. Other resource defenders were new to sex trafficking and online investigations. Most resource defenders sought to learn as much as possible, but these officers lacked efficacy in using new information technology during and after training. Several resource defenders lacked a social network of officers conducting sex trafficking investigations, and distractions that occurred during training prevented their ability to acquire the resource of social support during lunch, breaks, or downtime. Thus, there was little to no opportunity for resource gains during training.

The resource outcome for resource defenders is a loss cycle. Upon arriving at training, the individual's resources are depleted. Investing time, energy, and cognitive effort during training requires an investment of resources that is not possible for this group. Rather, resource defenders must invest what few resources they have available to conserve and protect the remaining resources they possess. While some resource defenders acknowledged the potential for resource gains by using technology, the severe organisational resource constraints and perception of information technology as resource depleting prevented any investment in using P.A.T.H. during or after training.

5 | DISCUSSION

5.1 | Theoretical implications

These findings reveal insights on new information technology use by theorising our findings using a conservation of resources lens. Our work extends conservation of resources theory by identifying how users perceive new information technology as either resource enhancing or resource depleting. While prior research has identified how new information technology can be a stressor (Chen et al., 2009; Harris et al., 2015; Ward & Steptoe-Warren, 2014), this research explains how new information technology may be resource enhancing. In addition, we identify resource caravan passageways at the organisational level that facilitate new information technology use. We extend current theorising related to conservation of resources theory by explaining how the interaction between an individual's perceptions about new information technology and available organisational resources influence technology use patterns and resource outcomes. Without a sufficient level of resources made available by new information technology and the organisation, new information technology use falters. Our study explains how individuals may devalue or stall their use of new information technology to address organisational resource losses and avoid resource depletion. We also demonstrate the nature of resource loss spirals and gain cycles that develop when perceptions of information technology as a resource and organisational resource caravan passageways are low or high, respectively.

Our findings extend our understanding and encourage alternative rationales to explain information technology use behaviours. Many existing IS theories identify similar determinants of system use, such as performance expectancy (Venkatesh et al., 2003), perceived usefulness (Davis, 1989), control beliefs (Robert Jr & Sykes, 2017), facilitating conditions (Venkatesh et al., 2003), and service quality (Delone & McLean, 2003), among others. In our context, simply perceiving a new information technology as a potential resource was insufficient to achieve use. We found that most officers perceived P.A.T.H. as a useful information technology to support human trafficking at the conclusion of training, but perceived usefulness was insufficient to ensure that use would occur post-training. New information technology use occurred most consistently and continuously when the individual perceived the new information technology as resource enhancing and when the individual had sufficient organisational resources to support use of the new information technology. While some existing research explains IS use by considering the

level of infrastructure or technical support as a predictor of information technology use, our findings related to organisational resources were not related to technical support or infrastructure for the specific technology (i.e., P.A. T.H.). Officers frequently discussed how much value P.A.T.H. may offer to their investigations during training, but several officers were unable to use P.A.T.H. for investigations due to the limited nature of the available resource caravan passageways at the organisational level. Thus, a conservation of resources view of information technology use sheds light on the intention-behaviour gap in IS research in which users intend to use a new technology but fail to do so.

In considering the Resources Model of Information Technology Use, we acknowledge it is unlikely that every individual within an organisation will become a power user, particularly in resource-constrained environments. Regardless of whether the organisation has a social mission or a profit mission, we do not propose that all individuals must be power users of information technologies within a firm. A contribution of the Resources Model of Information Technology Use is an alternative perspective to understand why some individuals are more likely to use information technology as compared to others. Our model also has the potential to explain why individuals may shift their use patterns over time based on their level of available resources.

Finally, our research contributes to IS research by examining information technology use in the context of law enforcement. This context provides insight into technology use in highly resource-constrained and non-profit environments that have been largely overlooked in IS research (Silva & Hirschheim, 2007). We must continue to understand the unique context of non-profit and government agencies in using and deploying information technology to serve the public as these organisations have significant resource constraints, political challenges, and information technology governance structures that impact information technology adoption and use. This research incorporates how information technologies are used (or not used) for social good in government and non-profit organisations.

5.2 | Practical implications

Organisations with a mission to make the world a better place (e.g., social entrepreneurs, non-profits, and government agencies) often work in highly resource-constrained environments. The individuals in these settings are attuned to the fluctuations in available resources, which are rarely sufficient to meet the organisation's overarching goals. For these organisations, resource caravan passageways create a strong influence on how individuals will use new information technologies introduced to support organisational and/or societal goals. As such, managers in these resource-constrained environments should monitor the organisation's resource levels among their employees. Looking for opportunities to stop loss spirals, lessen the threat of the loss of resources, or increase levels of perceived resources can create opportunities for employees to use available resources to engage in positive interventions, such as the introduction of new information technologies.

In our context of law enforcement agencies working to protect and serve the public and individual officers seeking to detect and disrupt sex trafficking activity, no organisation or individual will have an excess of resources to accomplish their goals. Organisations must develop resource caravan passageways to support their officers, even if resources are less than ideal. Many interventions to replenish depleted resources do not require major investments of time and effort. For example, providing networking opportunities can replenish resources for many law enforcement officers (Lambert & Steinke, 2015). Business trips, including attending training activities such as those offered by DeliverFund, can limit one's need to protect limited resources. Yet, we observed individuals who were unable to gain positive benefits from training. When individuals spent time during training or breaks to work on investigations at their home office rather than being present in the moment, these individuals missed an opportunity to replenish their resources. Those in supervisory roles in resource-constrained organisations must look for creative and beneficial ways to avoid resource deficits and loss spirals among employees.

There are important lessons learned for those working in non-profits or for social entrepreneurs seeking to encourage the use of new information technology for social good. In community settings, prior research has noted

that new interventions are less likely to be embraced if individuals are in a loss spiral or a defensive position needing to conserve resources (Hobfoll & Jackson, 1991). Threats to current resource levels 'can serve to increase risk aversion, to amplify resistance to change, and to limit action' (Alvaro et al., 2010, p. 3). For individuals experiencing (or expecting to experience) resource losses, the individual must believe that the loss of resources has stopped before there can be potential for resource gain (Hobfoll & Lilly, 1993). The individual will not perceive the new information technology as a resource gain if they are conserving or losing resources.

Those introducing new information technologies to make the world a better place must identify the resource levels of those participating in training programs or interventions. DeliverFund and similar organisations can identify individuals' resource levels before and during training to provide customised training opportunities. Power users and innovators can absorb and use information technology interventions more quickly than domain experts or resource defenders such that adding additional, more challenging exercises for power users and innovators will accommodate their learning. Innovators should be introduced to free (or very low-cost) information technologies if financial constraints exist at the organisational level. Resource defenders need an opportunity to replenish their resources during training to stop their current levels of resource loss. For attendees who value social support as a resource, expanding social networks and interacting with others during training can replenish one's resources. Partnering domain users, who lack confidence in learning new information technologies, with innovators or power users during training can offer social support and an alternative perspective about the resource potential of a new information technology. This partnering strategy also provides innovators and power users the opportunity to solidify what they have learned about technology by modelling its use for other officers. Sharing results of successful investigations conducted by power users with P.A.T.H. pre- and post-training can increase the credibility of P.A.T.H. as a resource for domain experts or for organisations sceptical about spending their limited resources on P.A.T.H. for officers within their agency. DeliverFund is already incorporating these lessons learned within their future training sessions.

5.3 | Limitations and future research

This research uses a qualitative, interpretivist approach (Walsham, 1995) to examine how individuals respond to new information technology using conservation of resources theory. We do not have objective information on the level and type of organisational resources available to officers because we relied on the officers' perceptions of the level and types of organisational resources available (or unavailable) to them. Since conservation of resources theory recognises that the threat of resource loss can be as important as actual resource loss (Hobfoll, 1989), our analysis approach is consistent with the original theory. Yet, our decision to rely on users' perceptions of resources creates scenarios in which officers from the same agency may have different perceptions of organisational resources. Future research using conservation of resources theory to study information technology use may seek to identify both actual and perceived resources within an organisation. Examining the gap between actual and perceived resources may offer new and different insights for interventions that lessen the threat of resource loss when a new information system is introduced to users.

In this study, we focused on two broad categories of resources: technology and organisational. Furthermore, we only focused on the elements of technology and organisational resources that emerged as themes within our analysis and were salient among those we interviewed. Many other types of resources are present, and in different environments, the level and type of available resources may differ. Future research should consider other types of resources that affect the use of new information systems. While prior research has considered how a new information system can negatively impact work-family conflict (Harris et al., 2015) or work-life balance (Ward & Steptoe-Warren, 2014), other resources are likely to affect the use or non-use of new information systems. Future research might also consider how users' changing perceptions of resource loss and gains over time affect the use of information technology.

6 | CONCLUSION

This study examines a traditional IS research problem: 'Why are individuals not using a new information system?' We approach this problem in a different context than many IS studies. Traditionally, organisations want employees to use an information system to increase productivity or improve profitability. However, in this circumstance, a non-profit, DeliverFund, seeks to encourage the use of an information system to serve a social good: to disrupt domestic sex trafficking within the United States. Increasing numbers of non-profits, researchers, and social entrepreneurs are developing information technologies to address the problem of human trafficking or other societal ills. Many of these information technologies receive little use, even though users perceived these technologies as being useful in addressing societal problems. Thus, IS scholars should examine why various information technologies are used, or not used, in the context of performing social good.

The primary contribution of this study is the consideration of the role of resources in information technology use. We find that the level and type of resources available to an individual affects the use of a new information technology. Through our analysis, we create the Resources Model of Information Technology Use to explain how the use of a new information technology is affected by one's perceptions of the technology as a resource and the availability of resource caravan passageways within the organisation that support information technology use. Although we conducted this study in the context of law enforcement officers who investigate domestic sex trafficking, our model and its outcomes are generalisable to other resource-constrained organisations that are introducing new information technologies.

ENDNOTES

[1] Moving forward, we use the term 'officer' to refer to any type of law enforcement officer, such as a detective, investigator, agent, analyst, among other roles within law enforcement.

[2] Some sex workers are not victims of trafficking.

[3] The purchase and sale of sex is criminalised within the states and territories of the United States. The exception is selected counties in the state of Nevada, which allows for the purchase and sale of sex through legalised brothels registered with the state.

[4] This description explains the simplest escort services business model scenario. In many cases, a trafficker has multiple victims. Sometimes, victims are 'promoted' by the trafficker to groom, recruit, and sell the services of new victims, a scenario that converts victims into traffickers themselves.

DATA AVAILABILITY STATEMENT

Research data are not shared due to ethical and privacy reasons.

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APPENDIX A: RESEARCH CONTEXT

Sex trafficking via escort services in the United States

The escort services model is the most widely reported business model for sex trafficking in the United States (Polaris Project, 2019). In the escort services business model for sex trafficking, the primary actors are the trafficker (sometimes referred to as a 'pimp'), the victim, and the buyer (sometimes referred to as a 'john'). Traffickers often use social media to groom and recruit victims (Sarker, 2015) through their web presence on Facebook, Instagram, LinkedIn, or other social media sites. Traffickers may target victims who are experiencing challenging home situations or are seeking fame, money, independence, or a fresh start. After luring victims with false promises, the victim must perform sex acts to earn a certain amount of money per day or face physical, emotional, and/or psychological abuse by the trafficker (Nichols & Heil, 2015). A sex trafficker can earn up to $200 000 per year per victim in the United States (Heil & Nichols, 2014).

In the typical escort services business model, sex workers[2] or traffickers post online advertisements for sexual services.[3] These online advertisements include photographs of the sex worker, along with descriptions of services, service rates, and contact phone numbers to set up a 'date'. Buyers visit online advertisement websites to search for a potential 'date'. The buyer will often use text messaging to chat with the 'date' to arrange details, such as the location, the time, the services to be offered, and the cost of the service. The sex worker or the buyer will travel to a designated location, services are performed, and a financial transaction occurs.[4]

Countering domestic sex trafficking in the United States

The risk of prosecution and prison time for traffickers is low, although federal and state laws exist for the prosecution of sex trafficking (Heil & Nichols, 2014; Schauer & Wheaton, 2006). Significant challenges limit the prosecution

of human traffickers due to difficulties in identifying if trafficking activity is taking place, refusal of victims to testify against their trafficker, or unwillingness of prosecutors to press charges if the case is difficult to win in court (Heil & Nichols, 2014; Nichols & Heil, 2015). The trafficker's risk increases as officers and prosecutors in the criminal justice system identify, arrest, and prosecute traffickers. As the potential for arrest and punishment rises, both tangible and intangible costs increase, which can lessen the desire for a trafficker to participate in the industry of sex trafficking.

Traditionally, officers conduct reactive investigations (i.e., after a crime has occurred, the crime is reported, and police investigate). In this scenario, officers typically rely on physical evidence and witness testimony for their investigation. In most traditional investigations, witnesses are willing to testify in court. Sex trafficking cases, however, have different characteristics than other types of investigations. Much of the criminal activity may occur online, and victims rarely report their victimisation to law enforcement. Many victims feel an emotional attachment toward their trafficker or are threatened by their trafficker through intimidation or violence (Deshpande & Nour, 2013), lessening the victim's willingness to report their victimisation or provide witness testimony in court.

Some law enforcement agencies and non-profits, such as DeliverFund, encourage officers to use different investigative tools and techniques to counter sex trafficking in the United States. One approach is the use of proactive methods to identify traffickers and victims. Intelligence-led policing for human trafficking occurs when officers investigate a victim or trafficker before a victim reports the crime to the police. For these types of investigations, the officer's investigation must exploit both digital and physical evidence. Several information technologies support officers as they pursue domestic sex trafficking investigations proactively. For example, Spotlight scrapes photographs from online advertisements from escort websites and alerts local law enforcement if a missing or exploited child appears in a photograph (Mzezewa, 2017). Other information technologies, such as XIX, apply artificial intelligence techniques to examine photographs from online advertisements posted on escort services websites to determine if the individual in the photograph may be a victim of human trafficking (Captain, 2019).

Law enforcement officers also leverage search engines, social media, and law enforcement databases as part of their digital sex trafficking investigations. As sex workers' identities (who may be victims) are not provided in online advertisements, officers must use a range of information technologies, such as databases, online search tools, and other means to identify the identity of a potential victim and their trafficker. Using search engines and examining social media in the context of a law enforcement investigation differs from how most users engage with these technologies. Officers must learn advanced search techniques—often not required among casual users of search engines
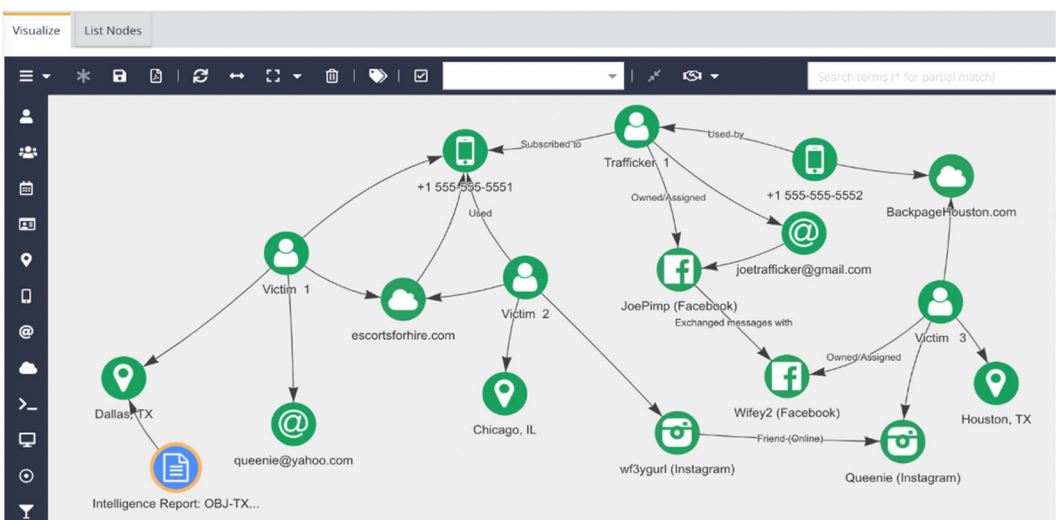

FIGURE A1 Screenshot of P.A.T.H. and sample investigation [Colour figure can be viewed at wileyonlinelibrary.com]

and social media—to use these well-established technologies as part of their investigation. Officers may also gather physical evidence in their investigation of a victim or trafficker.

Other information technologies, such as P.A.T.H., support investigations of sex trafficking victims and traffickers by enabling the recording and communication of investigation results to other parties within the criminal justice system. Since it is a Software as a Service (SaaS), P.A.T.H. allows officers and agencies to use the technology with no infrastructure costs to the local agency. After logging into the system, officers enter information about victims, traffickers, online advertisement URLs, phone numbers, social media sites, websites, and other data as nodes for a case. URLs and social media posts entered into P.A.T.H. are timestamped, which is useful when issuing subpoenas to request specific data related to a case. P.A.T.H. integrates with an artificial intelligence-based information technology to scrape public data from multiple social media sites, saving time for the officer conducting the investigation. P.A.T. H. also visualises the complexities of domestic sex trafficking cases, which often involve multiple victims with many connections among the victims and traffickers (e.g., phone numbers, email addresses, social media sites, and locations). If a data node within a case matches data from a different case, an orange halo appears around the node (e.g., see the orange halo around 'Intelligence Report OBJ-TX…' in the lower left corner of Figure A1). An officer can contact the agency with overlapping data to identify additional information that may support the officer's investigation. As officers enter more data into P.A.T.H., more opportunities become available to identify links across human trafficking investigations, supporting officers' efforts to disrupt these illicit networks. Figure A1 demonstrates some of these features, such as the ability to identify potential overlaps across investigations and the ability to visualise the range of evidence and data associated with domestic sex trafficking investigations.

APPENDIX B: INTERVIEW PROTOCOLS

Pre-training interview protocol

Several officers participated in a brief interview prior to attending DeliverFund training. Table B1 summarises the protocol used for pre-training interviews.

TABLE B1 Pre-training interview protocol

Topic area	Questions
Background	• Please tell us about your background in law enforcement. • How did you get involved with human trafficking investigations?
Human trafficking investigation experience	• How much time and effort are you currently spending on human trafficking investigations? • How are human trafficking investigations different from other types of investigations?
Information technology background	• What is the role of technology in your current (or prior) role? • How does your use of technology differ for human trafficking cases as opposed to other types of cases? • What technologies do you use to investigate or manage cases?
Training	• Why did you choose to participate in this DeliverFund training course? • What are you expecting from the DeliverFund training?

Post-training interview protocol

Most DeliverFund training participants agreed to participate in a formal interview three to 6 months after the training course. We used the prompts in Table B2. to initiate conversations with training participants to understand their context, what they learned from training, and their resource levels. We asked additional probing questions as needed to gain additional insights from participants.

TABLE B2 Post-training interview protocol

Topic area	Questions
Human trafficking investigations	• Walk us through a recent human trafficking case. How did you learn about the case, how did you investigate the case, what technology did you use, and what was the outcome? • Walk us through an atypical human trafficking case. How did you learn about the case, how did you investigate the case, what technology did you use, and what was the outcome? • What is your goal (or your organisation's goal) when pursuing a human trafficking investigation?
Resource availability	• What percentage of time do you work on human trafficking investigations? • If you could pursue human trafficking investigations on a full-time basis, how would your process change? • Where do your investigation priorities originate? • Do you feel you are prepared to conduct human trafficking investigations using technology? Why or why not? • What technology do you need to do your job more effectively? • How supportive is your leadership regarding using technology for investigations and other work purposes?
Training impacts	• Did DeliverFund's training change how you conduct human trafficking investigations? If so, how? • What insights or technologies do you continue to use from DeliverFund's training? • Are you using P.A.T.H.? Why or why not? • What is your primary obstacle or barrier to using P.A.T.H.? • What was your biggest lesson learned from DeliverFund training?