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## **Collaborative Public Service Provision Archetypes in Healthcare Emergencies: A Case of COVID-19 Administration in Sri Lanka**

### **Abstract**

**Purpose** – This paper examines how the properties and patterns of a collaborative ‘networked hierarchy’ incident command system (ICS) archetype can provide incident command centres with extra capabilities to manage public service delivery during COVID-19.

**Design/Methodology/Approach** – The paper illustrates the case of Sri Lanka’s COVID-19 administration during its ‘first wave’ (from 15 February to 1 September 2020). Primary data were collected through in-depth interviews with government officials who were directly involved in the administration of the COVID-19 outbreak. Secondary data gathered through publicly available documents and quotes in the media. The data were analysed and interpreted by using narrative analysis and archetype theory respectively.

**Findings** – The findings highlight how Sri Lanka’s public sector responses to COVID-19 has followed a collaborative ‘networked hierarchy’ ICS archetype. More specifically, the government changed its normative ICS ‘properties’ by incorporating a diverse group of intergovernmental agencies such as the police, the military, the health service and administrative services by articulating new patterns of collaborative working, namely, organisational values, beliefs and ideas that fit with the Sri Lankan public service context.

**Originality/Value** – In responding to high magnitude healthcare emergencies, the flexibility of a collaborative networked ICS hierarchy enables different balances of organisational properties to be incorporated, such as hierarchy and horizontal networking and ‘patterns’ in public service provision.

**Keywords** - Incident command system; archetype theory; collaborative public service provision; COVID-19; networked hierarchy.

**Paper type** – Research paper

## 1. Introduction

The paper examines the usefulness and challenges of incorporating a collaborative networked hierarchy incident command system (ICS) archetype to manage public service delivery during COVID-19. An ICS is a formal public service delivery mechanism that disaster management professionals use to manage and control almost any type of emergency such as large-scale building or bush fires, landslides, tsunamis, earthquakes, hazardous material spills and epidemics. Reflected in the form of a unified command and control system, an ICS ensures a highly centralised coordination and command between inter and intra-organizational responses (Buck *et al.*, 2006; Moynihan, 2009) with the aim of creating a close alignment across goals, projects and tasks. According to Buck *et al.* (2006, 14), “An ICS is an effective set of principles for coordinating the activities of well-trained and integrated communities of first responder organizations in emergencies and in some but not all aspects of disaster response where social and cultural emergence is at a minimum”.

By contrast, advocates of the collaborative disaster response model highlight the merits of decentralised public service provision, supported by the organisational values and beliefs of a networked hierarchy based on cooperation, flexibility and cohesion among frontline multi-stakeholders; these will include government agencies, emergency and relief services and voluntary organisations (Drabek, 2003; Comfort, 2007; Jayasinghe *et al.*, 2020). Networked hierarchy models are generally developed through an iterative practice that involves replicating the initial ‘scale-free’ cluster of the network according to certain rules and cohesion (Ravasz & Barabási, 2003). While these two public service provision models adopted in emergency management situations have distinct features, they share common underlying characteristics, such as central coordination leading to collaboration and commanders’ ability to control frontline units in responding to emergencies (Drabek, 2003; Buck *et al.*, 2006; Groenendaal *et*

*al.*, 2013). However, the debate between researchers and practitioners over the appropriate use of ICS and collaborative emergency response models for public-service provision during disasters remains inconclusive (see Buck *et al.*, 2006; Moynihan, 2009; Groenendaal *et al.*, 2013; Jensen & Thompson, 2016; Jayasinghe *et al.*, 2020).

Ever increasing and unforeseen healthcare emergencies, such as Dengue, HIV, Ebola and COVID-19 continue to present policymakers and governments with the dilemma of having to decide the most effective public service provision archetypes to minimise impact (Andrew *et al.*, 2020; Georgalakis, 2020; Grossi *et al.*, 2020; O’Flynn, 2020; Robinson, 2020). Despite the varied results in different countries having stimulated debate about how responses to the threat of infectious diseases such as COVID 19 can best be coordinated, the field remains nascent in understanding which specific organisational arrangement will perform best (Lloyd-Smith, 2020; O’Flynn, 2020). Due to the aggressive and mysterious nature of the disease and the enormous difficulty in coordinating multiple bureaucratic institutions within a short time span, traditional ways of responding to pandemics (e.g. flattening the curve) have been contentious (Kim, 2020; Lancet, 2020; Lloyd-Smith, 2020; O’Flynn, 2020).

Public administration scholars emphasise two main public issues as being of utmost importance for COVID-19 management (Robinson & Wehde, 2020). First, the role of public administrators in response to extreme events and the subsequent dynamics of networks (see Zhang *et al.*, 2018), and second, trust and public communications (see Wang & Kapucu, 2008). In a crisis such as that of COVID-19, the public administration plays a critical role in governments’ immediate response and is also crucial for future recovery and the rebuilding process. Many public administration scholars have highlighted the use of collective institutional action and the importance of collective bargaining during the COVID-19 crisis (Fay & Ghadmi, 2020;

Wilson *et al.*, 2020). Others emphasize the use of collaborative governance and the balancing of governance capacity and legitimacy of public functions as mechanisms to fight against the pandemic (Christenson & Laegreid, 2020; Maher *et al.*, 2020; Upadhaya *et al.*, 2020). Further studies have pointed to the important role of public managers during COVID-19, particularly because of their responsibilities for managing hybrid coordination, multiple stakeholders, political leaders and collaborative networks (Fay & Ghadimi, 2020; Hu *et al.*, 2020; Moloney & Moloney, 2020; Van der Wal, 2020).

Research suggests that routine responses such as planning, command and control and communications, are unlikely to perform in ‘low-probability, high-impact’ healthcare emergencies such as COVID-19 (Lloyd-Smith, 2020). On the other hand, flexibility, empowerment, loose control, informal coordination and collaboration tend to support organisational resilience in effectively managing and recovering from unexpected and changing healthcare emergencies (Faraj & Xiao 2006). For instance, the evolving nature of COVID-19 require alternative solutions instead of predetermined operational procedures (Lloyd-Smith, 2020). Effectively responding and recovering from this pandemic requires a proactive approach that integrates healthcare systems and supportive public institutions (e.g. Georgalakis, 2020; Lloyd-Smith, 2020). For example, the South Korean response to COVID-19 has substantially supported the use of advanced technologies to trace contacts and treat patients (Kim, 2020). However, the public administration literature is yet to address the use and impact of ICS archetypes in managing the public service provision challenges of healthcare emergencies such as COVID-19.

Similarly, accounting scholars discuss the importance of networking, coordination, non-hierarchical interaction and cooperation between public service firms, directly through

contracts and/or based on trust, to determine the flexible access of resources (Mouritsen & Thrane, 2006; Johansson et al., 2016). However, none of these studies have specifically analysed the importance of properties and patterns of ICS archetypes in managing the public service challenges of the COVID-19 pandemic. Contributing to this inconclusive debate within public sector emergency management literature, drawing on archetype theory (Greenwood & Hinings, 1993), the current study aims to address the research question: *How do the properties and patterns of a collaborative ICS networked hierarchy archetype provide extra capabilities for incident command centres to manage public service delivery during COVID-19?* The study contributes to the extant literature in three specific perspectives. First, contributing to the public administration and public service provision literature, the study proposes that collaborative ICS networked hierarchies are more likely to enable public administrative responses to high magnitude emergencies in contrast to unified control and command systems. Second, extending the role of public accounting in the context of emergency responses, the current study suggests that the proactive integration of properties and patterns of ICS archetypes supports intergovernmental coordination of public service provision during emergencies. Third, extending the relevance of archetype theory in understanding emergency responses, the study reveals that ‘values, beliefs and ideas’ play a critical role in strengthening multi-stakeholder collaborations in public sector service provision.

This case provides evidence of how a collaborative ICS ‘networked hierarchy’ was adopted in Sri Lanka’s disaster response during the first wave of COVID-19. The Sri Lankan response has produced relatively effective outcomes, particularly in terms of the number of deaths and infected people (12 deaths and 201 cases as of 1<sup>st</sup> September 2020, John Hopkins University, 2020). For instance, in their monthly selection of case studies released on 9<sup>th</sup> September, the World Health Organisation (WHO) said: *“Sri Lanka has successfully controlled the COVID-19*

*epidemic in the country through its past investments to build a robust and resilient health system”* (Daily Mirror, 11<sup>th</sup> September 2020). In the South Asian region, Sri Lanka is well recognised for its low cost and high-quality public healthcare system (Upadhaya *et al.*, 2020). The efficiency of this public healthcare system in Sri Lanka has been proven in the effective containment of COVID-19. However, little attention has been paid to the underlying assumptions and proactive initiatives that have helped contain COVID-19 to a minimum level.

The remainder of the paper is structured as follows. In section two, we introduce the theoretical framework – archetype theory. Section three presents the research methods, followed by case study findings in section four. The last section discusses the study and draws some conclusions.

## **2. Theoretical Framework: *archetype theory***

Archetype theory is a branch of institutional theories that analyses how change takes place at organisational, inter-organisational or community levels (Brock 2006; Liguori & Steccolini, 2011). An archetype consists of properties that contain a set of management systems and structures and overall patterns that consist of values, beliefs and ideas that together provide an interpretive schema of those ‘properties’ (Greenwood & Hinings, 1993; Kirkpatrick & Ackroyd, 2003). The exponents of archetype theory maintain that it offers suitable conceptual tools to examine organisations and their change or ‘frame-braking’ processes, including strides, linearity and consequences of change at macro and micro levels simultaneously (Amis *et al.*, 2004; Liguori, 2012; Liguori & Steccolini, 2011). Thus, what an archetype is, and becomes, depends on the process and pace of change that formed and transformed it into a specific archetype (Liguori, 2012). Systems and structures are not limited to specific objects and mechanisms that form an archetype, also called an ‘organisational frame’, because they include intentions, values, preferences and meanings that have shaped the emergence of a particular

archetype and its continuous existence (Greenwood & Hinings, 1993). When investigating archetype processes, it is necessary to include the beliefs, values and ideas that represent the systems and structures that form the archetype using a holistic approach (Brock, 2006). Greenwood and Hinings (1993, p. 1052) state that “organizational structures and management systems are best understood by analysis of the overall patterns (which are a function of cultural elements, i.e., values, beliefs and ideas) rather than narrowly drawn sets of organizational properties (systems, structures and practices)”.

In practice, incremental changes take place when people or organisations modify their systems and structures in ways that confirm and reinforce the existing archetype(s). In the contrary scenario, if the change becomes radical, then a new archetype will emerge (Greenwood & Hinings, 1993). According to Amis *et al.* (2004), this radical organisational change process can be reflected in terms of three dimensions: pace, sequence and linearity. The ‘pace’ refers to the speed and comprehensiveness of change; ‘sequence’ refers to the order in which key structural elements have changed; and ‘linearity’ refers to the trajectory of the change process (Amis *et al.*, 2004; Liguori & Steccolini, 2011). The pace can be evolutionary, i.e., gradual and evolving or revolutionary i.e., fast, radical and fundamentally affecting all parts of the organisation (Greenwood & Hinings, 1996). The sequence of change can either be peripheral, i.e., not directly attempting to change high impact structures and systems of the archetype until later (if ever) or central, i.e. first setting priorities on changing central structures and systems that have important and functional roles in the organisation (Greenwood & Hinings, 1996). Abbott (2001) suggests examining the sequence of past events before analysing change that is taking place or has just taken place. The linearity refers to change from one archetype to another. It is based on or motivated by reorientation (moving from one archetype into another), inertia (when the archetype remains the same), discontinuity (abrogating existing archetypes), or unresolved



excursion i.e., when the period of transition from one archetype into another never ends (Hinings & Greenwood, 1988).

The study uses these conceptions of archetype theory to analyse the characteristics and ‘changes’ in ICS during the period of COVID-19 responses in Sri Lanka. It helps to interpret the reasons, possibilities and context specificity of ‘transformative changes’ as materialised in the properties and patterns of their initial ICS. This study views the national ICS as a public service provision archetype (Greenwood & Hinings, 1993), representing either unified command and control or collaborative features. It identifies a collaborative ICS in terms of its broader meaning, as an organisation with a networked hierarchy, consisting of both a set of networked structure, command and control properties and also the patterns of cooperative and flexible work relationships between roles.

### **3. Research Methods**

Due to the exploratory nature of the research proposition, a case study method provided a suitable approach to examine the broader views and experience of different stakeholder groups in responding to the COVID-19 pandemic (Yin, 2002). The study focuses on Sri Lanka’s responses during the first wave of the pandemic from 15 February to 1 September 2020. We conducted fifteen in-depth interviews with key stakeholders, including senior government officials who were directly involved at the National Operation Centre for the Prevention of COVID-19 Outbreak: representatives of police, medical professionals (the Director General of Health Services, the Provincial Director of Health Services, epidemiologists, a respiratory physician, public health midwives, public health inspectors) military personnel (national and regional level coordinators), experts in disaster management (an assistant director and a director at the Disaster Management Centre in Sri Lanka) and senior administrative officials

(divisional secretariats, and public officers in villages). These participants were involved in either national or regional level COVID-19 response operations in various capacities. Prior to conducting the interviews, formal ethical approval was obtained from the first author’s university ethics committee. Interviews were conducted in compliance with these human research ethical guidelines. Each interview lasted around 30 to 40 minutes. Table 1 provides the demographic profile of interview participants.

Table 1: Demographic profile of study participants

<b>Position</b>	<b>Representation</b>	<b>Interview duration</b>
Director General of Health Services	National level	33 minutes
Representative of Police at the NOCPCO	National level	30 minutes
Assistant Director – Disaster Management Centre	National level	25 minutes
Provincial Director of Health Services	Provincial level	40 minutes
Provincial Epidemiologist	Provincial level	37 minutes
Respiratory Physician	Regional hospital	42 minutes
Medical Doctor 1	Regional hospital	44 minutes
Medical Doctor 2	Regional hospital	35 minutes
Medical Doctor 3	Regional hospital	30 minutes
Public Health Officer	Regional level	33 minutes
Public Health – Midwives	Regional level	35 minutes
Divisional Secretary	Regional level	25 minutes
Village Public Officer	Village level	45 minutes

We asked open-ended questions covering broad areas, including respondents’ responsibility and involvement in COVID-19 responses; institutional environment and support; inter-organisational coordination; and difficulties encountered during operations. In compliance with social distancing and COVID-19 healthcare guidelines, all interviews were conducted online or via telephone. To complement interview data, we collected various secondary data through both publicly available sources and government agency sources, including government publications, policy documents, newspaper articles and digital resources such as videos and websites. Table 2 provides the details of key documents used in the study.

**Table 2:** Secondary documents used in the study

<b>Nature of documents</b>	<b>Year</b>	<b>Details</b>	<b>No of Pages</b>
Newspaper and Web Articles	2020	Various topics by media, the organisation and the government	120 pages
Sri Lanka Disaster Management Act No. 13 of 2005	2005	Parliament of the Democratic Socialist Republic of Sri Lanka	20 pages
Towards a Safer Sri Lanka - A Road Map for Disaster Risk Management	2005	Disaster Management Centre Ministry of Disaster Management Government of Sri Lanka, United Nations Development Programme	121 pages
Sri Lanka National Disaster Management Plan 2013 - 2017	2014	Disaster Management Centre Ministry of Disaster Management	88 pages
National Policy on Disaster Management	2013	Ministry of Disaster Management, Sri Lanka	11 pages
Coronavirus Related Official Policy Documents	2020	Ministry of Health and Indigenous Medical Services, Sri Lanka	55 pages
Provisional Clinical Practice Guidelines on COVID-19 suspected and confirmed patients	2020	Epidemiology Unit, Ministry of Health, Sri Lanka	102 pages
Hospital preparedness for COVID-19 – A practical manual	2020	Ministry of Health and Indigenous Medical Services, Sri Lanka	65 pages
COVID-19 Exit Strategy Sri Lanka	2020	Government Medical Officers' Association	24 pages

We employed a narrative analysis to interpret both interview and secondary data (Llewellyn, 1999) by referring to conceptual themes identified from collaborative public service provision and ICS literature. In particular, as Llewellyn (1999, p. 221) argues, “narratives can show how strategizing in organizations leads to action and how actions produce consequences in the form of organizational events”. In turn, narrative analysis helps understand organisational change agendas as reflected through its members’ deeper insights and interests (Llewellyn, 1999).

Guided by prior literature, the interview transcripts and secondary data sources were organised into six different but inter-connected themes (see the Section 4 Study Findings). The analysis and interpretations focused on the change processes of the public service provision ICS

archetype that occurred during the emergency management process, including the strides, linearity and consequences of rapid change that occurred at macro and micro levels (Greenwood & Hinings, 1993; Liguori & Steccolini, 2011). During the research design, data collection and analysis, the authors regularly discussed the conceptual and empirical alignment of the coding process (Denzin, 1989). After several discussions, several overlapping codes were finalised. Authors' interdisciplinary research expertise (disaster management, public health, governance, and accountability) substantially helped to minimize the de-contextualization of the interview transcripts and maintain the consistency of the analytical process (Llewellyn, 1999).

#### **4. Study Findings**

##### *4.1. Addressing coordination complexities through a collaborative 'networked hierarchy'*

As the leading national agency, the Disaster Management Centre, established under the Sri Lanka Disaster Management Act No. 13 of 2005, has proposed a national disaster management archetype. As depicted in Figure 1, the properties of the Disaster Management Centre archetype consist of normative governance and accountability structures (both hierarchical and horizontal) for governmental and non-governmental agencies to handle all forms of disasters in Sri Lanka.

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INSERT FIGURE 1 ABOUT HERE  
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Bypassing the Disaster Management Centre's proposed archetype for national disaster response (Figure 1), the Sri Lankan government established a National Operation Centre for the Prevention of COVID-19 Outbreak (NOCPCO) with the aim of centralizing, expediting

and implementing all necessary preventive and containment measures against the transmission of COVID -19 (Figure 2).

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INSERT FIGURE 2 ABOUT HERE  
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While the properties of the Disaster Management Centre’s proposed archetype (Figure 1) recognizes most of the relevant actors, it does not reflect a systematically institutionalised ICS for disaster responses. Properties of this proposed archetype are also largely confined to emergency operations at a very high level, showing relationships between government departments and other disaster management agencies. Additionally, the Disaster Management Centre’s proposed archetype depicts only limited links of a clear networked hierarchy for peripheral (regional level) coordination and collaboration, under the command of a nationally centred ICS. Instead, the Disaster Management Centre’s proposed archetype simply included some general guidelines for national and regional level coordination, in the form of information- sharing, facilitation (as a communication hub) and institutional collaboration. A senior officer at the Disaster Management Centre commented that:

“At the regional level, the role of the representatives of the Disaster Management Centre was not uniform among provinces or districts. As they are under the purview of District Secretariats, they had to do what the District Secretariat instructed”.

Also, under this archetype, the Disaster Management Centre had not been given the required regulatory power to execute disaster management activities at the regional level. The Disaster Management Centre official continued:

“...the general governance system of the country is not simple and clearly defined, implementation of an ICS across this complex system would be impracticable. As an example, according to the constitution Divisional Secretariats have no authority, except coordinating, as Provincial Councils and Local Government Authorities are implemented. But Divisional Secretariats are involved in almost every activity in the regional level. It may damage the line of command of an ICS”.

Apparently, the patterns of the Disaster Management Centre's proposed archetype were largely reflected by the centralization and reduction of the opportunities to express context specific ideas and explore alternative solutions at the provincial council and local government level. Such a value system suppresses the local officials' experiences and wisdom about local disaster issues and their learning orientation in relation to local disaster risks. Similarly, too much formalization via rules and procedures on paper creates a coercive mechanism that suffocates the openness with which local disaster management professionals can freely contribute new ideas and engage in locally recognised risk reduction methods and behaviours. Thus, the coercion through disaster management regulations brought about by centralization and the rigidity embedded in a formalized ICS structure not only restrains the generation of locally produced innovative ideas, but also inhibits the processes through which innovative disaster risk reduction outcomes are produced. The hierarchical organization of the Disaster Management Centre's proposed archetype also tends to self-reinforce the existing power structure of the public administration system in Sri Lanka, which intensifies the barriers between divisions and hinders cross-institutional and cross-functional collaboration during disaster situations such as COVID-19.

These weaknesses led the Sri Lankan government to proactively establish a completely new and ad-hoc ICS archetype to manage COVID-19 emergency responses. Under the new archetype, the Sri Lankan President appointed the Chief of Defence Staff and Commander of the Army as the head of the NOCPCO. Other main stakeholders included the Director General of Health Services, representatives of supportive institutions including the national Disaster Management Centre, Sri Lankan Police and a team of experts. While the political leadership of the NOCPCO was held by the President and the Minister of Health, technical leadership was given to the Army Commander. A representative of the Sri Lanka Police shared his experience in the NOCPCO:

“It was not an issue to work with the Army Commander. He didn’t interfere in the work of the police and allowed me to deliver actions related to me”.

While the Disaster Management Centre was also considered a key stakeholder of this newly emerged ICS archetype, it has not been delegated sufficient legal authority and capacity to engage in national level operations. An assistant director of the Disaster Management Centre commented that:

“The centre [Disaster Management Centre] has not enough manpower. Specifically, expertise personnel to be involved, and some legislative barriers also matter in this situation. The Disaster Management Centre should have enough legitimate power to participate in this kind of disaster, and the centre must be ruled under the President, otherwise the centre cannot lead disaster management”.

In addition to NOCPCO, a Presidential Task Force for Essential Services (Task Force) was established to direct, coordinate and monitor the continuity of the services and for the sustenance of overall community life. The Task Force was headed by the President’s special envoy with the objective of controlling the pandemic and restoring the livelihood of the public. The Task Force comprised of provincial governors, ministry secretaries, commanders of the armed forces, the Inspector General of Police, heads of departments, heads of corporations and authorities, district and divisional secretaries. The mandate assigned to the Task Force was much wider in scope and ranges from ensuring relief measures to reaching people in need.

However, the roles, responsibilities and authority of NOCPCO members were not delegated in written form. It was revealed that most of the operations and activities were processed through a working culture of personal level communication, mutual understanding and trust among members. Although there was no clear delegation of authority in the NOCPCO, there was no conflict of interest among stakeholders. The Director General of Health Services recounted that the technical decisions they took were not interfered with by other members of NOCPCO. He commented that:

“I worked with the Minister of Health very closely and took decisions, others didn’t interfere”.

This new networked hierarchy archetype was built around the political economic visions and ideas of government leaders, and technical expertise and logistics of the military leadership. As the military is equipped with the necessary training, experience and logistics to command and control disasters, their involvement brought much needed technical expertise into this newly emerged ICS archetype. The structural and system changes from the Disaster Management Centre's emergency operations plan to the new archetype happened at both levels: the central structures, i.e. the new NOCPCO committee, as well as the peripheries, i.e. military presence in the regional mechanisms (see Greenwood & Hinings, 1996; Abbott, 2001). Through this new networked hierarchy, the military forces were given the power and authority to implement emergency responses, with the assistance of health services, and existing administrative services such as public health instructors and public officials at the regional level. Moreover, in this newly formed networked ICS hierarchy, although the bureaucratic properties pertained to a holistic organizational design, an empowering climate was created due to the significant involvement of provincial and local level staff engaging in COVID-19 practices such as information sharing, local members' suggestions, self-management teams, cross-functional teams and work rotations. This tended to create a collaborative and constructive working culture in which to manage the diverse types of organisational entities and resource personnel involved in COVID-19 management exercises; it generated innovative risk reduction ideas from the bottom-up at both national provincial/local levels. In addition, this networked ICS hierarchy was intended to create a pattern of information sharing and to convey the values of managerial flexibility and interdependent cooperation among government officers and other stakeholders, at national and local levels.



## *4.2. Experience and reflections of the newly formed networked hierarchy for COVID-19 management*

### *4.2.1. Integrated responses through diverse interorganisational actors*

In a holistic approach, Sri Lanka's COVID-19 response system focuses on four lines of operations: military, police and intelligence; medical and healthcare; psychological care; and economic and community well-being. First, the military, police and intelligence contributed to identifying index cases of clusters, vulnerable communities, possible contacts and to preventing the spread through human mobility. The Army commander, the Director General of Health Services and the representative of the police were responsible for providing updated information to the public. Additionally, the Health Education Bureau provided important health messages to the public. Collection of community level information, analysis and interpretation was done by the Epidemiology Unit. Importantly, the intelligence arm of the army played a vital role in providing information about patients and contacts, which was shared with the Epidemiology Unit. Finally, the Epidemiology Unit analysed the data and produced information necessary for the control activities.

Second, Medical and Health Care focused on early detection, isolation and treatment. Additionally, contact tracing was enabled through primary healthcare staff and taking public health preventive measures to prevent the spread. The process also involved quarantining exposed persons. Quarantine of suspected patients was arranged in compliance with the Quarantine Act. The legal authority of the quarantine law lies with the Director General of Health Services of Sri Lanka. As this was the first time in recent history that the quarantine law was applied, the police department also had a challenging duty. A representative of the police noted that:

“One of my responsibilities was to implement the law and make recommendations to the committee to implement law and make the community aware of what actions were being taken by the Police”.

Importantly, all health activities were delivered through the existing health care structures. At the operational level, hospital directors, regional directors and provincial directors of health services were responsible for implementation. This strategy was based on a Detection, Isolation and Tracing model. Sri Lanka's century-old Quarantine Act has provisions to enable the Director General of Health Services or delegates to quarantine people suspected of being diseased:

“It shall be lawful for the proper authority to cause any person diseased, or suspected to be diseased, in any house or place to be removed to some public hospital or other place provided for the purpose for such period as the proper authority shall direct” (Ministry of Health, 2020).

Third, the focus of psychological care has been the cognitive domain (knowledge and intellectual capacity) of the community, and has consisted of providing the right information about COVID-19 in the country and in the world. This includes the measures taken by the government to prevent the disease spreading, encouraging people to abide by medical and health instructions and adhering to law and order. A medical researcher who is affiliated to the Infectious Diseases Hospital in Sri Lanka commented how such collaborative approaches have helped inter-institutional research efforts in responding to COVID:

“Today, I am supporting the collection of COVID-19 samples and facilitating the research between several Institutions. As a young medical professional, I am proud to be on the frontlines of Sri Lanka's COVID-19 response. This virus has an impact on all our lives, regardless of any religion or creed. To defeat it, we all need to work together” (United Nations, Sri Lanka's Covid 19 Responses, 2020).

Finally, the health of the community and the economy was maintained by looking after the immediate well-being of the population, by providing them with uninterrupted food supplies and medicines. Attention was given to ensuring essential services and administrative functions, to supporting the livelihoods of lockdown affected people, and proposing mid and long-term economic strategies against a possible global economic recession as a result of the pandemic. The vertical general administrative channel of the country, which consists of district secretaries, divisional secretaries and public officials in villages, was used to distribute welfare facilities. Beneficiaries at the community level were identified by a six-member committee,

comprising five public officials and a political representative at the community level. For instance, the government distributed welfare packages of 5,000 Sri Lankan Rupees per month per family, and financial subsidies for mortgage instalments and monthly bills. However, as reported by local newspapers, trade union actions were taken by various public officers' associations in response to inconsistencies in welfare distribution procedures:

“Given the confusion over the matter as well as frustration over several other developments, unions representing Grama Niladharis [village level public officers], Economic Development Officers and Agricultural Research Officers decided to step away from duties related to distribution of the Rs 5000 allowance last week. This decision was reversed after late night discussions with Government authorities” (Sunday Times, 26 April 2020).

#### *4.2.2. Proactive responses: timely thinking and swift actions by interorganisational actors*

The health authorities took immediate action to follow the World Health Organisation guidelines and informed the government of the necessary urgent actions. Sri Lanka's first confirmed COVID-19 case was reported on 27 January 2020. On the same day, the Ministry of Health instructed the establishment of a quarantine unit at Sri Lanka's main international airport as a means of screening and detecting overseas passengers travelling with symptoms. With immediate effect, the Ministry of Health formed a National Action Committee of 22 medical professionals representing various areas of expertise. The Department of Immigration and Emigration informed all overseas employees, especially workers from China, to limit their movements to the workplace and residence. The first patient was immediately sent into quarantine at the National Institute of Infection Diseases and returned home after fully recovering on 19 February 2020. On 11 March 2020, the government decided to suspend all on-arrival tourist visas. All schools and higher education institutions were closed on 12 March 2020. With the increased demand for facemasks, the drug control authority imposed a maximum retail price. The Director General of Health Services commented on how this early planning helped to manage the spread of the virus.

“We have managed this [containment of pandemic] because we planned in advance” (The Hindu, 24 May 2020).

At the very beginning of the pandemic, the President instructed the state intelligence service and health authorities to forecast the development of the disease in the world and to assess possible impacts in the region and within the country. The military forces were instructed to be ready to establish and handle quarantine centres and the police to be prepared for law enforcement during any emergency. On 4 April 2020, Sri Lanka's Government Medical Officer's Association proposed a COVID-19 exit strategic plan to the President of Sri Lanka (Government Medical Officers' Association, 2020). The plan consisted of various national level procedures to be implemented in line with World Health Organisation recommendations. As per the strategic guidelines, the government took firm action to trace potential COVID-19 patients (and contacts of the patients) with the support of the military intelligence services, telecommunication providers, police, public health inspectors, field midwives, public field assistants and the community.

In the operations and planning process, the Disaster Management Centre played a key role related to information sharing at the national level. According to the Disaster Management Act, the Disaster Management Centre is responsible for managing the information hub during an emergency. The Disaster Management Centre's call centre acted as the communication hub in the COVID-19 management process. As stated by an official from the Disaster Management Centre:

“As the Disaster Management Act describes, the Disaster Management Centre did a fairly satisfactory job. However, it was not surfaced in the public domain”.

At the same time, the Disaster Management Centre official was critical of inter-agency coordination and collaboration in terms of information sharing at the national level:

“Further, inter-agency coordination and collaboration at the central level was also very poor. Though the Disaster Management Act clearly describes the necessary protocols, the information sharing did not happen accordingly”.

#### *4.2.3. Context-specific interorganisational collaboration and coordination*

Despite several limitations, contact tracing, immediate testing and self-isolation have been proactively used during the response stage in Sri Lanka. The tracing was operationalized at four levels, covering both contacts and places visited by patients (Government Medical Officers' Association, 2020). For instance, once a confirmed patient was found at the first level, all possible direct contacts of the patient were located, followed by quarantine at home or in an institution for 14 days and testing for COVID-19 antigen by Polymerase Chain Reaction (PCR) testing (Government Medical Officers' Association, 2020). Then at the second level, contacts of the direct contacts were traced and told to self-isolate. Thereafter, the third and the fourth levels were also traced and self-isolated. If anyone at the first level tested positive, the person's direct contacts were tested. Further, if anyone at a quarantine centre developed the disease, the quarantine period of all the direct contacts of the patient was extended for another 14 days.

All quarantined and self-isolated people were closely monitored by public health field staff. Contact tracing was efficiently done by the intelligence arm of the army and the well-organized nationwide public health network. If a cluster of cases was observed in the community, the whole area where patients' contacts were known was locked down. The government also set up a 24hr mobile telephone line to contact any person with evidence related to potential COVID-19 patients. The defence secretary highlighted the rigorousness of the tracing process:

“They [COVID-19 patients] cannot just escape as our intelligence agencies are fully alerted to identify them and direct them to law enforcement authorities” (News First, 18 April 2020).

According to the Director General of Health Services, instead of the commonly used slogan ‘*test – test- test*’, Sri Lankan health authorities followed an algorithm to conduct the appropriate number of tests, by targeting the most potential contacts. The key focus of the testing mechanism was to identify vulnerable groups, such as those residing in high-risk populations,

slums, street beggars, drug addicts and autorickshaw drivers. The Director General of Health Services clarified the effectiveness and relevance of the basis of testing:

“When tests among these highly vulnerable people showed a positive rate as low as 3 %, then how can we justify arbitrarily testing more people? So, we incrementally increased testing” (The Hindu, 24 May 2020).

Furthermore, testing was expanded by carrying out sentinel surveillance in 20 selected tertiary care hospitals, by testing at least 10 patients attending the out-patients department of each hospital per day (Ministry of Health, 2020). At the community level, control activities, including contact tracing, isolation and disinfection, were carried out by medical officers of health of the area and subordinates such as public health inspectors and family health midwives (Government Medical Officers’ Association; Ministry of Health, 2020). PCR tests were conducted in selected hospitals where infrastructure facilities were available. Suspected patients were kept in tertiary care hospitals till the PCR test results were released. Therefore, Sri Lanka used targeted PCR testing instead of repeated PCR testing or the Test-Test-Test approach.

#### *4.2.4. Strengthening interorganisational networks through professional expertise*

The Medical Supply Division of the Ministry of Health was responsible for all medical logistics. The division provided personal protective equipment, PCR facilities, Intensive Care Units and radiology equipment and other necessary supplies to the required healthcare institutions. Some national universities and technical institutions supported the health sector by repairing medical equipment such as ventilators, patient monitors, and producing personal protective equipment and communication systems, which were used in patient management. Furthermore, many essential medical supplies, including personal protective equipment and expensive equipment, were donated by various organizations and the general public. Epidemiological strategies such as prevention of community spread were suggested by the

Epidemiology Unit of the Ministry of Health. The Medical Research Institute and the National Institute of Infectious Diseases were the main investigation and treatment centres of COVID-19, respectively. Some infrastructure development of hospitals where there were suspected or confirmed COVID-19 patients was managed by hospital funds, donations or with the help of the Armed Forces.

Sri Lanka's military forces were involved in various activities like expanding the infrastructure. This involvement started with the facilitation of a quarantine centre for students and families recently returned from Wuhan, China at the Sri Lanka Military Academy. The military continues to facilitate 45 quarantine centres in various military bases all across the country (NOCPCO, 2020). More specifically, while the logistical operations of quarantine centres were managed by Sri Lanka's army, healthcare management was coordinated by the Medical Officer of Health of the area and the nearest tertiary care hospital (Newsfirst, 18 April 2020). Additionally, the NOCPCO identified some specific places as quarantine centres where oversees returnees and high-risk people in COVID-19 clusters were separately quarantined.

#### *4.2.5. Unintended interorganisational conflicts in the peripheral structure*

In this new archetype, another mechanism was delegated through the Task Force at regional levels. In each province, there was a steering committee headed by the Governor. Other members of that committee were the Provincial Director, district directors of health services and technical experts, Secretaries of provincial ministries, district secretaries, and military and police representatives.

This mechanism was not uniform in all the provinces, however. Regional epidemiologists, a member of the steering committee and the liaison person with the Epidemiology Unit were epidemiological focal points at district and provincial levels. The regional epidemiologists

coordinated all the activities related to contact tracing, isolation, preventive and control planning and treatment. Additionally, the regional epidemiologists liaised with the Ministry of Health to share information.

Due to the new working pattern of relying on mutual understanding rather than delegated responsibility, there were some disputes between the health sector and the military forces in sharing information at the regional level. One of the provincial directors of health stated:

“It seems to me that the army don’t give some information, especially related to the contacts of infected military personnel to the area MOH [Medical Officer of Health]. Sometimes it delays and discourages activities of the public health officers. However, according to the Act, the Provincial Director of Health Services and delegates are the authority to take preventive, control, and quarantine activities. The army have no such authority to do so.”

The regional epidemiologist also raised concerns about military involvement in the selection process of contacts:

“I am worrying about the selection of contacts. Are all the contacts who are sent to quarantine centres really exposed? Who decided it? Is that scientific? Sometimes, I have observed that participation of health staff in this process was minimum”.

The Provincial Director of Health Services was responsible for delivering COVID-19 information at the regional level. While information sharing between the army and the health sector was quite satisfactory at the beginning of the outbreak, the Provincial Director noted that it deteriorated in later stages:

“At this moment, I really have no clear idea about how many are being quarantined and where they are. This would be dangerous at a time if the next case wave starts.”

However, the Director General of Health Services explained why the direct involvement of military forces had been an essential mechanism in effectively containing the spread of the virus:

“We don’t have the capacity to build or prepare quarantine centres that fast. We have about 50 now, mostly run by the Army. A few are run by the Navy and Air Force. But for their support, we couldn’t have managed this” (The Hindu, 24 May 2020).



## 5. Discussion and Conclusions

The current study has examined the appropriateness of using ICS models for the provision of public services during emergency situations. It analysed the instalment of a makeshift, context specific networked hierarchy ICS as a public service provision archetype to manage COVID-19 in Sri Lanka. The study's findings lead us to offer the following discussion and conclusions.

### *5.1. The 'pattern-breakers' that enact the change from normative ICS to networked hierarchy 'archetype'*

During the COVID-19 pandemic, several changes were observed in both the properties and patterns of ICS archetypes in Sri Lanka. The Sri Lankan government made a 'revolutionary change' (Greenwood & Hinings, 1993; Abbott, 2001) from the Disaster Management Centre proposed archetype (2005) toward the existing ICS, by forming a networked hierarchy under military command and administration. This change has been quite radical and fast, fundamentally affecting all levels of the existing Disaster Management Centre's proposed archetype, and its sequence of change impacted on both the central level public administration and also the peripheral one. Sri Lanka responded proactively to the outbreak with immediate effect, supported by these newly formed institutional arrangements involving regional level teams consisting of doctors, public health inspectors (PHIs), police, military officers and administrative service staff. Under this newly formed ICS archetype, strict lockdown measures, nationwide contact tracing, compulsory testing, and quarantine mechanisms substantially reduced the transmission of COVID-19 and resulted in a very small number of deaths in comparison to countries with similar population densities.

These changes reflected a ‘pattern-breaking’ shift from the existing Disaster Management Centre proposed ICS to a networked hierarchy archetype. While the existing archetype established more of a normatively integrated collaborative working philosophy through the National Disaster Management Act of 2005, this new archetype brought an innovative and flexible hybrid working culture to the disaster management actors. Thus, in this new archetype, the bureaucracy operated as a moderating factor in forming the teamworking cultures at central and peripheral levels and promoted creative and innovative COVID-19 responses and reactions in diverse local contexts. The bureaucratic structure (managing public services from the ‘top-down’) and high-involvement peripheral system (motivating service delivery ideas from the ‘bottom-up’) of this networked hierarchy complemented each other to influence COVID-19 service provision. In addition, the study also found a positive interaction effect between bottom-up, high-involvement peripheral systems and actors of COVID-19 management, e.g., regional hospitals, PHIs and ‘outside-in’ social networks and organisations such as community groups and temples, at different stages of COVID-19 responses.

### *5.2. Reasons for the effectiveness of a makeshift collaborative networked hierarchy in public service delivery during COVID-19*

The new archetype brought the leadership, creativity and flexibility into response-team compositions and offered the space to accommodate various context-specific actors. Sri Lanka’s human capital strength in terms of the number of military and healthcare personnel played a key role in the containment of the virus. While the political leadership of the country played a critical role by taking appropriate actions at the right time, the military forces and health driven collaborative intergovernmental agencies and health professionals have provided a consistent and holistic approach by linking the central government and local government (peripheral) decision-making (Abbott, 2001). Sri Lanka’s military forces’ victory in the civil

war in 2009 and their handling of recurring disasters such as flooding has created a positive impression and generated a culture of public trust in the military's ability and capacity to handle humanitarian crises (e.g., Gibson-Fall, 2021). It has provided legitimacy for the active role and participation of the military in this new ICS archetype. This represents a unique underlying factor in the social context of Sri Lanka that impacted the patterns and structuring of the ICS archetypes and ultimately, the provision of extra capabilities for incident command centres.

While the military involvement in COVID-19 responses has been an emerging global trend, excessive military involvement in civil apparatuses has been widely criticised. Gibson-Fall (2021) categorises military responses to COVID-19 under three emerging trends: (i) Minimal technical military support; (ii) Blended civil-military responses; and (iii) Military-led responses. Sri Lanka's military involvement in civil healthcare responses has been categorised as "military led responses", meaning that the military has taken over the healthcare leadership (Gibson-Fall, 2021). Highlighting Sri Lanka's militarised approach to pandemic responses, Gibson-Fall (2021) emphasises that "the pandemic further encroaches military presence into domestic civilian affairs. This is particularly worrying in settings where the military leads responses amid disenfranchised minority groups, like in the Sri Lankan North-East Tamil region". It should be noted that, while the military has an important role to play during high-magnitude healthcare emergencies, the limits of such interventions must be clearly drawn to safeguard citizenship rights, independence, professionalism, and dignity within the civic apparatuses. Failure to do so will result in long-term unintended societal implications such as the militarisation of healthcare as a normative practice.

### *5.3. Patterns included in the newly formed networked hierarchy ICS archetype*

The networked hierarchy archetype adopted in the Sri Lankan context thus demonstrated the ‘broader patterns’ of political equality, discipline and accountability to the public, because of its multiple political governance characteristics: socialist (focus on public welfare), military capitalist (discipline and accountable leadership) and also liberal capitalist (democratic principles and regulations). In particular, because of the integration of military discipline into the formal public service delivery and health services, Sri Lanka’s networked hierarchy archetype has provided much needed values of energy, efficiency and control in the management of COVID-19. From the public administration perspective, it is evident that several Sri Lankan government agencies (e.g. hospitals, laboratories, public health professionals, universities and research institutions, medical colleges, military, police, education) have established collaborative and intergovernmental working patterns between both central and local government (peripheral) levels.

Although the bureaucratic structure of the new archetype has specifically conveyed a ‘top-down’ philosophy to COVID-19 response teams and the public, in practice the higher involvement of provincial and local government level staff generated a ‘bottom-up’ thinking culture, complementing each other in determining proactive COVID-19 responses at a local level. For example, the establishment of regional teams as an implementation body changed the traditional administrative culture of organizational bureaucracy by bringing together government employees such as doctors, PHIs and military staff from different levels and functions, to tackle COVID-19 responses in an unconventional pattern. While the bureaucratic structures of the new networked hierarchy provided formal directions for collective efforts, its delegation of authority to lower level COVID-19 management staff encouraged their individual devotion, creative actions and voluntary commitment.

#### 5.4. Contributions to public service management literature and policy

This study's findings contribute to the literature on public service provisions in emergency situations, i.e. COVID-19 (Wang & Kapucu, 2008; Moynihan, 2009; Nowell & Steelman, 2015; Fay & Ghadimi, 2020; Henderson & Charbonneau, 2016; Alon-Barkat, 2020; Christenson & Laegreid, 2020; Fay & Ghadimi, 2020; Grossi *et al.*, 2020; Hu *et al.*, 2020; Moloney & Moloney, 2020; Upadhaya *et al.*, 2020; Robinson & Wehde, 2020; Van der Wal, 2020). It also contributes to the accounting literature on networking and coordination between public service delivery firms (Mouritsen & Thrane, 2006; Johansson *et al.*, 2016). None of these studies analyse the importance of ICS in managing public service challenges during high magnitude healthcare emergencies. Our paper extends this literature by revealing the manner in which a makeshift, context-specific ICS can become archetypical in the provision of public services, during high magnitude healthcare emergencies such as COVID-19.

While previous studies on context specificity (Tsai & Chi, 2012) have focused on relatively 'unsuccessful' cases of emergency management in Taiwan, Japan and the United States, the current study illustrates a case of context-specific ICS archetype, integrating the political and military leadership with administrative and professional services. The military presence was publicly 'legitimised' in this archetype because of its historically evolved image and trust, rather than its regulatory power (Gibson-Fall, 2021). However, it should be noted that the desirability of military deployment in a civil society may work differently in other countries and conditions or even in Sri Lanka under a different political leadership, even though it has been possible in the current Sri Lankan context. It requires several conditions, such as public trust and mutual respect and understanding between two leaderships (political and military) in their respective duties, responsibilities and work boundaries, to make such a deployment possible and overcome the possible 'dangers' and 'disenfranchisements' of the civic apparatuses of democratic administration and management. However, it is still possible

to adopt non-militarized networked hierarchies, if one of the participating actors, such as the National Disaster Management Agency, can be empowered to drive the collaborative work teams at central and peripheral levels.

Overall, these findings indicate the importance of considering diverse economic and political factors of specific societies that shape how people handle disasters, instead of relying heavily on internationally developed, one-size-fits-all type public service provision ICS archetypes. Furthermore, by using archetype theory in its analysis, the study contributes theoretically to previous archetype studies in public service management (Amis *et al.*, 2004; Liguori, 2012a, 2012b; Liguori & Steccolini, 2011), as none of these studies analyse the changes/evolutions of ICS archetypes in public service delivery emergency situations.

### *5.5. Practical implications*

This study also has important public service provision policy implications from different perspectives. Based on the ideas of Emerson, Nabatchi and Balogh (2012), there are several limitations to Sri Lanka's approach, where the role of important government stakeholders may not have been considered as useful to accomplish public service provision ICS archetype goals. For example, the absence of expertise from disaster management specialists during the COVID-19 public service provision activities is significant. While other successful countries such as New Zealand seem to have adopted collaborative models in their disaster response, under the expert guidance of disaster specialists (Department of the Prime Minister and Cabinet - NZ, 2019), Sri Lanka's evidence reveals a somewhat opposite approach. As a way forward, the Sri Lankan government should re-consider institutionalising a formal structure and 'evolutionary' ICS archetype with a strong 'networked hierarchy', to prepare for long term recovery from COVID-19 and to face future emergencies (Greenwood & Hinings, 1993; Liguori & Steccolini, 2011). Our findings also suggest that in addition to the positives learned

from the current COVID-19 crisis, i.e., the critical importance of the military forces' role, the new context-specific public service provision archetype should be based on collaborative disaster response principles (see Moynihan, 2009; Lloyd-Smith, 2020) and technically guided by disaster management specialists.

#### *5.6. Directions for future research*

First, this study is based on the government's responses to a pandemic during the first wave; the collaborative approaches and government policy priorities have changed in their subsequent developments (e.g., the second wave). For instance, the emerging evidence in Sri Lanka shows that the newly formed collaborative network ICS has not resulted in the intended outcomes during the second wave. While the reasons behind the failure of the collaborative network ICS during the second wave are unclear, the media has often reported less coordination and communication among committee members, tension among military and health experts, and changes of national priorities as contributing to the unintended consequences in the second wave. However, future studies are warranted to explore these changes among and between different waves of the pandemic, with a particular emphasis on the second wave and the vaccination stage. Second, the pandemic is not an isolated local outbreak. To capture the government preparedness and responses comprehensively, future studies could focus on international comparative studies. Third, the critical role of non-healthcare professional and institutional involvement has been significant during the COVID-19 pandemic. Future studies may focus on institutional, policy and structural implications related to non-healthcare professionals in responding to future pandemics.

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