Stability or instability of multi-level governance in crisis policy making? From the emergency management perspective to the robustness perspective.

Crises and disasters are a constituent part of our lives and have increased in number and impact. The most broadly accepted approach to emergency management involves the use of Incident Management Systems (IMS). This approach posits that a stable system, based on emergency management plans with a clear multi-level governance configuration, is a necessary precondition for effective emergency responses.

However, increasing turbulence has brought to the fore the importance of robustness in crisis policy making, that is, the ability to adapt institutions and processes and to innovate solutions in relation to contingencies and unexpected challenges in order to preserve key social functions. From this perspective, the priority in emergency situations is less on following emergency plans within fixed multi-level governance configurations, and more on changing solutions and inter-governmental relations in reaction to single contingencies.

The aim of this paper is to test the robustness perspective by presenting the findings of a comparative research on three highly effective and rapid management processes of the COVID-19 emergency in Denmark, Italy and Spain. The analysis shows that the multi-level governance systems were effectively changed and adapted during the emergency management processes to deal with contingent problems, and that these adaptations, despite producing instability, were fundamental in increasing the effectiveness and rapidity of the policy processes. Moreover, the paper shows that something similar to the pragmatist approach was behind the ability of emergency managers to intervene with targeted changes and adaptations whenever there was an absence of clear prescription in emergency management plans.

Introduction

Over the last few decades, various nations and their governments have increasingly been challenged by crises and disasters, many of which have been unforseen and disruptive and have involved extraordinary threats to lives or life-supporting systems and prevented the fulfilment of certain essential functions of society (Quarantelli, 2000; Perry, 2007; Penta *et al.*, 2021). Thus, the attention

paid to emergency policies has increased, and many scholars have contributed by studying and analysing such critical situations.

The literature on emergency management has so far been dominated by the aim to identify universally replicable guidelines in order to help emergency managers deal with crises and disasters through detailed and updated All-Hazard emergency management plans that offer common principles, standardised operative procedures and clear configurations of multi-level governance, so that public officers and managers can align their actions easily and effectively (Arendt and Alesh, 2015; Fischbacher-Smith and Fischbacher-Smith, 2016; Robinson *et al.,* 2016; Vasavada, 2016; Sylves, 2020).

However, some scholars have recently spoken about about the phenomenon of turbulence. The concept of turbulence, which comes from the physics domain, is used in social science disciplines to define processes and situations that change and transform continuously, and it has also been identified as a feature that can increasingly characterise both crises and disasters. Turbulent crises are not only sudden, dramatic and complex events, but are also ever-changing and full of unpredictable evolutions which can have inconsistent and ambiguous effects (Ansell & Trondal, 2018; Ansell, Sørensen and Torfing, 2023). Turbulence has brought to light a new perspective on emergency management that challenges the mainstream approach: the robustness perspective[1]. According to the literature on emergency policies, robust policy processes are those that rapidly put in place temporary adaptations and innovations to preserve the key social functions of the community as much as possible (Capano and Woo, 2017; 2018). Hence, a robust Incident Management System (IMS) should be able to change structures, organisations, procedures and governance configurations during the operative processes in order to deal with contingent situations. Therefore, to a certain extent, the robustness perspective means accepting, or even promoting, the *instability* of an IMS, rather than its stability and

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[1] See, for instance, the contributions in the 2023 Special issue of Public Administration on 'Robust politics and governance in turbulent times', 101:1.

predictability, to allow the core functions to be preserved. This appears to be an obvious challenge to the consolidated approach that still dominates emergency management literature, and it could raise a number of issues: does turbulence really lead policy makers to disregard emergency plans and change multi-level governance configurations in reaction to contingent problems? how do policy makers manage to break the mould when they are under pressure and stress? do changes in an IMS really help to speed up response processes and effectively address contingent problems?

This paper is aimed at addressing these issues by presenting the findings of an exploratory multi-case analysis (Stewart 2012), conducted on three national response processes to the COVID-19 emergency. According to Steward (2012, 74-75), an exploratory multi-cases analysis "start[s] from a position or perspective that has been drawn from the literature" and asks "What are the mechanisms through which this phenomenon is taking place?". In this case, we started from the theory of robustness in policy making and from the idea that robust governance during turbulent crises is constituted by the ability to respond adaptively or innovatively. Our aim was to detect mechanisms pertaining to multi-level governance that could enable adaptation and innovation amidst turbulence. National responses to COVID-19 provided an excellent setting for such an analysis. With almost five million deaths[2], the COVID-19 emergency has been widely recognised as one of the most devastating crises of the last few decades and is certainly a clear example of turbulent crisis (Ansell, Sørensen and Torfing, 2021; 2023). Our research is part of a European project that is aimed at identifying and explaining what conditions and strategies can lead to robust crisis governance in turbulent conditions, and it has involved applying a heuristic method that was developed by Torfing, Sørensen and Nielsen (2024). This paper offers the results of a comparative analysis of three rapid and effective emergency response processes adopted in three European countries from among the nine considered in our project: Denmark, Italy and Spain. These countries differed in terms of several contextual conditions, but they were also characterised by similar Incident Management Systems (see the methodological

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[2] World Health Organization: https://data.who.int/dashboards/covid19/deaths?n=o.

section). Overall, the aim of this exploratory research was to analyse the hypothesis that it was not the stability of the Incidence Management Systems of these countries but rather their adaptive instability that helped to speed up and improve the effectiveness of their crisis management procedures. Moreover, we also tried to understand whether some common strategies had led policy makers to embrace these innovations and adaptations, despite a lack of guidelines that indicated what needed to be changed and how to do so. The paper also shows that, in each case, the instability of the IMS was crucial, public-private partnerships were a fundamental ingredient, and practical knowledge and feedback loops played a key role as action strategies.

The article is structured as follows. The first section introduces the theoretical framework, while Section 2 outlines the design and methodology of the research. Sections 3, 4 and 5 explain how specific contingent changes in the multi-level governance systems allowed the three response processes to be sped up and their effectiveness to be improved. Section 6 highlights the two common cognitive-relational strategies that emergency managers put in place to decide how to react to unexpected problems during the response processes. The findings are summarised in the Conclusions.

1.   Incident Management Systems, multi-level governance and the robustness issue

The inherent complexity of emergency response policies has led scholars and practitioners to address the issue of how an IMS can be made more effective to deal with disasters and crises. In this respect, the mainstay of emergency management literature has dealt with the setting-up of clear multi-level governance systems through detailed emergency management plans that inform operators about how to act in relation to other government levels (Arendt and Alesh, 2015; Sylves, 2020).

The relevant literature distinguishes between bottom-up and top-down, multi-level governance systems. According to bottom-up models, planning, organising and implementing rescue operations, and all the other response policies, are the responsibility of local and regional governments, in collaboration with other public and private organisations (Schneider, 2011). Interventions by a

national or federal government are possible in the bottom-up model, but only to provide aid and assistance *through*, not in place of lower-level governments, and following a request from lower-level governments. In practice, when local communities are stricken by natural or human disasters, local governments need to respond and take charge of the relief procedures and reconstruction, in cooperation with private for-profit and non-profit organisations, while upper-level governments are expected to act as the main connecting hubs between local governments and to provide them with additional aid, if explicitly requested (Waugh, 2000; Schneider, 2011; O'Donovan, 2019; Sylves, 2020). The central State takes control of both strategic choices and operative processes in top-down multilevel governance systems, often in collaboration with private organisations and private actors. Top-down models also usually involve the mobilisation of special corps, such as national guards and/or the army, which tend to apply a command-and-control approach that is centred on a 'military-style' organisational culture (Somers and Svara, 2009; Kapuku and Boin, 2016; O'Donovan, 2019). Lower-level governments only intervene within such an inter-governmental relation system to complement and facilitate the operations of the central level (Britton, 2007; Schneider, 2011).

The debate on emergency management systems has systematically presented the two models as alternative ways of structuring multi-level governance in emergency situations, and the bottom-up model has been considered better at generating fast and effective response processes (Schneider, 2011). Indeed, most emergency management plans offer policy makers guidelines to explain the functioning of this model and how to apply it to any type of disaster or crisis, in a clear 'All-Hazards planning'approach (Clarke, 1999; Waugh, 2000; Sylves, 2020).

However, the advent of turbulent crises in the last few years has challenged the idea that a stable and fixed IMS can successfully be used to deal with such complex situations (Boin, Lodge and Luesink, 2020; Bynander and Nohrstedt, 2020; Christensen and Laegreid, 2020; Parker *et al.,* 2020; Zhang and Tang, 2021). Turbulent crises, which are characterised by unpredictable and frequent changes (Boin and Lodge, 2016), have in fact led some scholars to consider emergency management

from a new perspective and to consider 'robustness' as being more and more important (Ansell, Sørensen and Torfing, 2021; 2023; Ravazzi, 2023; 2024).

Robust emergency policies are those response policies that change structures and processes (*innovation*) by adapting them in response to contingent problems and situations (*flexibility*) in order to preserve the key social functions of the community as much as possible (*effectiveness*) in a short time (*rapidity*) (Capano and Woo, 2017; 2018; Ansell, Sørensen and Torfing, 2021; 2023). This perspective suggests that fixed multi-level governance systems and ready-to-use standard procedures might be inadequate for turbulent crises (Lai, 2018; Christensen and Laegreid, 2020; Lee, Yeo and Na, 2020). The contrasting findings of some recent studies that have analysed the performance of the bottom-up, multi-level governance systems adopted during the COVID-19 emergency offer some support of this hypothesis: in some cases, the bottom-up, multi-level governance system seemed to foster effective and rapid response processes; in other cases, the researchers argued that it hindered effectiveness and rapidity of the responses (Migone, 2020; Cheng, Li and Zhang, 2021; Nelson, 2021; Kuhlmann and Franzke, 2022; Toshkov, Carroll and Yesilkagit, 2022; Carroll *et al.,* 2023). The contradictory findings of these studies may depend on the fact that the researchers' perspective was predominantly static, i.e. they did not analyse multi-level governance systems while they unfolded during response policies, and they considered the starting configuration as a constant condition.

2.   Design and methodology of the research

The research focused on three highly robust response processes to the COVID-19 emergency that presented significant differences in terms of degree of turbulence and contextual conditions: processes that occurred during different waves of the pandemic, in national contexts characterised by different economic conditions and different administrative capacities of public organisations, and processes that required the sudden and rapid activation of health policy actors who were used to working in different organisational models. The selection of these three processes, although

disregarding the goal of representativeness, was aimed at balancing the need for variety with typicality, as all the processes began with bottom-up Incident Management Systems. Additionally, this choice was made in consideration of our access to information and the cooperation of emergency management organisations to ensure comprehensive research in the field (Stake 2006).

As far as the variety of contextual conditions is concerned, Italy was the country that was hit first, and the most, during the first wave of the infection (*high first wave*). Indeed, it was affected far more than Denmark, which constantly experienced a low-medium spread of the infection (*steady low-medium*), but also more than Spain, which was hit more in the second wave (*high second wave*), when the general situation was very different from the chaos of the first months[3]. As Table 1 shows, the three countries also differed in terms of the strength of their economies and healthcare systems, which, consequently, affected the financial resources needed to tackle the pandemic. Moreover, they also differed in terms of indexes and indicators pertaining to the characteristics and performance of public administrations: the share of central government in public expenditure (from the most centralised country, Denmark, to the most decentralised one, Spain), the type of government system at the central level, the capacity of the central government to steer policy making while interacting with private actors, the transparency and accountability of public organisations, the professionalism of the civil service, and the capacity of the central government to coordinate and manage the implementation of policies (all aspects for which Denmark ranked the highest, Spain was in the middle, and Italy the lowest). Finally, the healthcare systems of the three countries also partially differed: despite similar competence divisions, healthcare delivery is a regional responsibility in Italy and Spain but a municipal one in Denmark (Toth, 2015; OECD, 2019; Bækkeskov and Triantafillou, 2022; Erkoreka and Hernando-Pérez, 2022; Navarro and Velasco, 2022).

Table 1. The economic and political-administrative conditions of Denmark, Italy and Spain

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[3] https://data.who.int/dashboards/covid19/cases

Table 1 here

The Incident Management Systems that the three countries set up to deal with the emergency were clearly bottom-up systems.

The Danish emergency plans were written, for all the government levels, for a broad spectrum of potential scenarios, and the All-Hazards approach was applied. The multi-level governance of the emergency was based on the autonomous intervention of the five regions and the supplementary role of the national government. The Prime Minister and the permanent governmental Coordination Committee, which consisted of the five most powerful ministers in the government (the Prime Minister, the Deputy Prime Minister/Defense Minister, the Minister of Foreign Affairs, the Minister of Finance, and the Minister of Economic Affairs), acted as key decision makers to supplement regions and municipalities in the emergency management processes and to coordinate the whole system. The five regions also established so-called pandemic commissions, which brought together regional politicians, regional medical and health-care experts and police chiefs (Christensen *et al*., 2021; Triantafillou, 2024).

In Italy, an inner circle, composed of the Prime minister, the Minister of Health, the Minister of Foreign Affairs, the Minister for Regional Affairs, and the head of the Civil Protection Department, was created at the national level to plan first-aid interventions and to decide on strategic policy measures, albeit with the help of specialists and experts. The regions were called upon to detail their All-Hazards emergency plans and to act as the front-line managers of the emergency. A Special Commissioner for Emergency Management (SCEM) and a dedicated staff were also appointed to coordinate the regional governments and to intervene in the case of a regional request to support and complement regional actions with additional funds, goods and personnel (Ravazzi, 2023; 2024).

All-Hazards emergency plans were already available in Spain, at the outbreak of the pandemic, at both the national and regional levels, but the Autonomous Communities were required to adjust them

to better satisfy the features of the health emergency. Regional governments were also required to propose the adoption of policy measures and to present their needs at periodic meetings of the National Inter-territorial Council. The information collected during these meetings allowed the Ministry of Health to decide where and how to intervene to support the Autonomous Communities with additional funds and/or personnel (Erkoreka and Hernando-Perez, 2022).

The selection of the three considered response processes was possible thanks to the exploratory national studies on the COVID-19 policy responses conducted by the partners of the Horizon2020 European project, which involved document studies, literature reviews and 110 qualitative interviews with officials and professionals involved in the response to the COVID-19 pandemic. The exploratory research allowed us to 'to track progress and processes, while acknowledging the richness of context and specificity' (Stewart, 2012, 73). The resulting data were recorded in internal national reports[4]. After a careful analysis of the information collected in these reports, we selected one response process from each country that had emerged as being very rapid and highly effective from among the ones put in place in the period of greatest severity of the emergency: the supply of personal protective equipment (PPE) in Denmark, at the beginning of the spread of the pandemic; the procurement of medicine in Italy, at the peak of the first wave; the roll-out of the vaccination campaign in Spain, at the peak of the second wave.

The global overreliance on Chinese suppliers of personal protective equipment (PPE) caused a supply crunch in the early months of the COVID-19 pandemic in Denmark, which disrupted the pre-existing procurement routines of the national health system. However, Denmark managed the procurement process rapidly and effectively in this situation. Within a short period of six weeks (from the end of February 2020 to the middle of April), Denmark doubled its available national PPE stocks

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[4] The dataset will become available to the public as *The ROBUST National Data Reports* in the ROBUST project repository: https://zenodo.org/communities/robust-crisis-governance

from 3 months of routine supplies being available at any given time to 6 months of supplies or more, while maintaining a high level of quality control (Triantafillou et al., forthcoming).

The medicine procurement process set up in Italy was able to satisfy all the requests of all the regions in just a few weeks, and it managed to increase the importing and distribution of some key medicine by more than 4000%, without lowering the level of attention paid to controls and quality (Pettrachin et al., forthcoming).

Spain was among the leading countries in the EU, in terms of the speed of its vaccine roll-out: within the first three months, Spain had administered more doses of the vaccine per 100 people than most EU countries, according to the European Centre for Disease Prevention and Control (ECDC). By mid-June 2021, the country had already administered over 30 million doses, thereby covering a substantial portion of the adult population within only six months from the start of the campaign. In December 2021, over 85% of the population had been fully vaccinated, and this represented one of the largest percentages in the EU (Pina et al., forthcoming).

We then supplemented the data from the national reports with an analysis of official documents produced by the Ministries of Health and by the health agencies involved in the three processes and through 27 interviews conducted with national managers and public professionals who had overseen the implementation of these policies[5]. The logic of inference that we applied was the same one that characterises case study analyses: our findings aim to be 'generalisable to theoretical propositions and not to populations or universes' (Yin, 2009, 15; Stake, 2006; Stewart, 2012). Given the different economic and political-administrative conditions of the three countries, we believed that if the IMS

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[5] The interviewees were selected using the 'snowball' method. Complete anonymity was ensured to maintain confidentiality. The interviews focused on three main questions: 1) what complex situations, impasses, bottlenecks, and/or problems emerged during the implementation of the selected emergency response process and why? 2) How were the coordination model and/or procedures changed or adapted to address the problem? 3) how did the people involved in the process decide what to do and how to do it, despite the lack of prescriptions?

changes and adaptations had been put in place to increase the rapidity and effectiveness of the responses in all three countries, the obtained empirical evidence would strengthen the plausibility of our hypothesis and the need for an updating of the theory of IMS stability and predictability in emergency response processes.

3. PPE procurement in Denmark

The PPE supply crunch that occurred in early 2020 revealed the existence of a systemic weakness in the considered European health systems (WHO, 2020). European wholesalers, who had little or no native PPE production capacity, mainly relied on manufacturers in China, but since Europe was not alone in its reliance on Chinese manufacturing, the onset of COVID-19 led to an immediate spike in orders to Chinese manufacturers, who were unable to meet the increased demand. Supply shortages, price spikes and export restrictions followed (Webb, Scarpetti and Maier, 2020). This left the Danish regions unable to navigate and compete in the turbulent market situation.

One of the first actions the Danish Coordination Committee made was to change its multi-level governance system in response to the vulnerability of the regions. The first step was taken in late February 2020 and involved the creation of a national mandate for centralised procurement (*top-down model*), in which the Capital Region was to act as the central procurer and the National Operational Staff (NOST) coordinated the five regions, with the help of additional personnel. This reorganisation improved the coordination but did little to bolster the procurement capacity and therefore did not improve the security of the supply chain or procurement effectiveness. Indeed, some interviewees defined the situation as a 'commercial war'.

Another adaptation of the new IMS, which involved creating a procurement task force, emblematically called the National Societal Robustness Supply force (*NSR Forsyning*), was then introduced. The task force included large Danish companies, such as *Maersk* and *Bestseller/Nine United,* that had personnel in China and routine pre-existing contacts with Chinese companies. The

expectation was that these companies would negotiate contracts and perform quality assurance procedures, all of which could ultimately help ensure physical deliveries from Chinese manufacturers. High-level industry representatives were also assigned internal coordinating roles, such as that of the Digital Director of Danish Industry. Together, these actors created a so-called air-bridge to transport PPE from China to Denmark: orders were transmitted by the task force to the private companies in the form of directly awarded tender contracts, without any prior publication (a contract form that the European competition law reserves for unforeseeable circumstances). Company representatives then used their networks to locate supplies in Chinese factories, and they physically visited the factories to verify the individual suppliers' production and exporting capacity and assisted in the quality assurance procedures. In order to make quality assurance possible, representatives of the companies submitted pictures of the products and quality certificates to a task force established at *Rigshospitalet* (the National Hospital in Copenhagen). This further step led to the multi-level governance configuration being partially modified and switched to a *top-down PPP model*. If such products were approved for purchase, private companies negotiated the price and created contracts that were valid for both the Chinese and the Danes, and which the Capital Region then signed. The companies that negotiated the contracts received a 2.5% fee for each signed contract (Heunicke, 2020).

In August 2020, when the procurement process began to work more fluidly and the productive capacity of Asian and European companies had increased significantly, the IMS was re-decentralised to the regions, and a new Supply Security Agency, built on the knowledge that had been acquired from the COVID-19 pandemic, was set up to take over the coordination of the process in place of NOST.

The corrective measures made to the Danish IMS (Tab. 2) were introduced step-by-step, and this revealed that *flexibility* was fundamental to respond to the operative challenges and to the inherent problems of the multi-level governance configurations. Moreover, the change in the IMS from a pure bottom-up model to a top-down model, which was characterised by a strong public-private

partnership, shows that the Danish IMS was not simply readjusted or refined, but substantially *innovated*. In the end, the instability of the Danish IMS was a key factor that helped the rapid and effective procurement process of PPE in Denmark. An interviewee, who was a key actor in this process (but who wished to remain anonymous), explicitly underlined that the changes in the multi-level governance system allowed the procurement of PPE to be sped up and the conditions for less-disruptive waves to be created for the following autumn and winter: "most things we did and most decisions we made were done by force of circumstances, but, in the end, these changes allowed us to have stocks of the necessary size to respond to the crisis and to be prepared to face the following waves".

Table 2. The sequence of changes in the Danish IMS made to deal with the procurement of PPE.
Table 2 here

4. The supply of medicine in Italy

When the necessary medicine began to run out after just a few weeks, substantial imports from abroad were necessary. The medicine procurement system, which involved the regions placing direct orders and the extraordinary expenses then being reimbursed by the SCEM staff, appeared to work relatively smoothly for some weeks. However, when hospitals began to order huge quantities of the same medicine, the SCEM staff and the Procurement Office of the Ministry of Health soon understood that the situation was becoming out of control. The demand for some medicine far exceeded the supply, and some types of medicine required special import authorisations, and this in turn required perfect coordination between the Italian Medicine Agency (IMA) – the national public agency responsible for authorising the marketing and importation of medicine – and the national and regional health departments.

As a first reaction, IMA, in collaboration with the Crisis Unit of the Ministry of Foreign Affairs, contacted the Italian embassies and the trade associations of pharmaceutical companies in various countries to obtain information on their capacity to supply different types of medicine. The regions were required to send detailed data on their shortages, so that IMA could match this information with information provided by the embassies and trade associations and then inform the regions about the exact amounts of medicine that needed to be ordered from the international marketplace (*bottom-up model + central PPP*). According to the information provided by the regions, IMA then conveyed information on the appropriate reimbursement for each region to the SCEM staff. This first change in the IMS helped to improve the matching of the supply and demand but was overall insufficient in reducing inequalities among the regions.

Therefore, the IMA staff introduced further changes. First, it provided new authorisations to allow out-of-market medicine (mostly medicine no longer used in Europe, but which had similar active ingredients to those in use) to be imported when commercially available medicine began to run short, and it communicated the names of the newly available types of medicine to the regions, as valid 'second-best medicine' whenever there were shortages of the first-choice ones. Its 'transducer' role was then strengthened and a *paired-assistance mechanism* was introduced: IMA worked as a direct broker between single pharmaceutical companies and the regions, so that the regions could choose those companies that could in fact supply the needed medicine; IMA also linked those regions that had temporary surpluses of certain types of medicine with regions that were suffering from a temporary shortage of the same medicine, so that the Ministry of Health could help the regions to arrange transport to send some medicine from the former to the latter.

When the situation began to proceed more smoothly, the SCEM staff again took control of the process and the regions went back to procuring medicine autonomously, thus re-establishing the original bottom-up system.

In short, this sequence of IMS changes revealed that the Italian IMS was not simply adjusted but was instead truly *innovated flexibly*, step-by-step, through a trial-and-error process (Tab. 3). These changes allowed a more efficient allocation of the necessary medicine to be obtained, the whole process to be sped up, and a more effective response to the pandemic to be achieved. One of the interviewed IMA managers explicitly stated that the success of this emergency response process depended to a great extent on this mix of governance arrangements: "When the autonomy of the regions was combined with our central steering, direct intervention and mutual assistance, all the regional managers understood that this mix would have produced more fluidity, more homogeneity and a real 'community of practice', as we called it. This allowed us to import huge orders of medicine without waivers and to guarantee standard checks, while many other countries simply resorted to waivering rules and temporary suspension of the checks".

Table 3. The sequence of changes in the Italian IMS made to deal with the necessity of importing medicine.

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5. The setting up of the vaccination campaign in Spain

The setting up of the vaccination campaign in Spain required huge efforts, in part due to the demographic distribution of the country, with around 60% of the municipalities (approximately 5000) hosting only 3% of the population, and in part due to difficulties pertaining to logistics, technology and communication. The 17 Autonomous Communities defined and implemented the operative strategies, according to their health plans, to set up the vaccination campaigns, while the Inter-territorial Council coordinated the Communities through the use of communication and the supply of information. In addition, the Health Alerts and Emergencies Coordination Centre (CCAES) of the Ministry of Health supported the Communities with additional funds and personnel. However, this

bottom-up system soon showed several operative problems: disruptions of the vaccine supply chain, due to unexpected production delays, led to unexpected shortages of doses, which in turn led to several inequalities among the regional territories; the need for stringent cold chain logistics, especially for such mRNA vaccines as Pfizer-BioNTech, created bottlenecks and logistical hurdles; there were incidents where the correct storage conditions were not met, thereby potentially compromising the efficacy of the vaccines; the health services were overloaded, because the regional health services were overwhelmed by the high number of Covid-19 cases and healthcare workers were already fatigued after months of battling the pandemic; several discrepancies emerged in the allocation of resources, in the technological infrastructures for appointment scheduling, in the vaccine registration procedures and in the tracking processes.

In order to speed up the process and solve at least some of the impasses and problems, the most important operative decisions and actions were put into the hands of the central government, which created a central unit to plan and manage the top-down vaccination campaign. This unit was given the authority to make swift decisions, to override standard protocols and to intervene instead of the Autonomous Communities. However, the simple reversal to a *top-down model* proved to be partially ineffective.

As a further corrective measure, the frequency of the meetings of the Inter-territorial Council was intensified to resolve cross-jurisdictional issues, and its role changed from that of pure coordination to the formulation of strategic decisions (the establishment of prioritisation criteria, the formulation of shared guidelines on the vaccination process, the formulation of decisions on the vaccination process in remote areas) and the steering of joint interventions by the national and regional public administrations (the distribution of vaccine doses to hospitals and vaccine centres, the recruitment of additional personnel among retired professionals and volunteers, the vaccination of the population in remote areas). Moreover, representatives of transport and logistics companies and NGOs specialised in health emergencies – such as the Red Cross and Caritas – were also informally included in the

Inter-territorial Council, and they assumed the responsibility of direct operative functions in the logistics and distribution of vaccines. This second change brought the Spanish IMS closer to what can be called a *joint governance model*, in which strategic decisions were formulated jointly by the central government and the regional personnel, who, being supported by NGOs, were put in charge of the operative processes.

The joint model was abandoned when the procurement of vaccines ceased to be problematic and the vaccination campaign proved to proceed smoothly and regularly in all the regions. The initial bottom-up IMS was re-introduced, and the Inter-territorial Council went back to its original coordination function.

These different stages of the evolution process of the Spanish IMS show both a high level of *flexibility* and of *innovation*: the multi-level governance system for the vaccination campaign moved far away from a bottom-up to a top-down model, and it was then again changed drastically to establish a joint governance model (Tab. 4). According to an interviewed general director of a regional health system, the joint governance model produced positive outcomes in just a few weeks and made Spain the top EU country in terms of vaccination rate: "I think this is an example of how consensual decisions and joint multi-level governance actions lead to good results. As far as vaccination is concerned, we agreed on strategies, operative protocols and timetables, which helped us achieve the top results. [...] It was an effort that had rarely been witnessed between the Autonomous Communities and the National Authority."

Table 4. The sequence of changes in the Spanish IMS made to deal with the setting up of the vaccination campaign.

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6. Practical knowledge and feedback loops: how policy makers managed to change the consolidated IMS in the absence of prescriptions.

The interviews also shed light on two common strategies that policy makers seem to have applied when they decided to change governance configurations in the absence of prescriptions in emergency management plans. Organisational psychology scholars have identified various cognitive and behavioural strategies that managers apply in organisationally complex situations (Crossan, 1998). Two strategies seem to have been introduced in particular by the Italian, Spanish and Danish managers in the three analysed processes: the application of so-called 'practical knowledge' and the dynamics known as 'feedback loops'.

When people apply practical knowledge, they address problems by drawing on repertoires of tools and practices that they have experienced in past situations and stored in their procedural, long-term memory and they transform them to fit the present situation (Weiss, 1980; Weick, 1993; Crossan, 1998). Weick (1993) spoke of 'bricolage' as a metaphor for this cognitive strategy: bricoleurs work on their available materials and try to recombine them to make something new. In the Danish case, the national Supplies commission drew its inspiration from the 'call lists' of private companies and organisations that many local emergency management units were already used to having at their disposal to deal with local crises, such as fires or local health emergencies. The NSR staff just changed and adapted this strategy by shifting from simple requests of voluntary personnel or goods to a more complex role of brokerage and direct quality checking. In the medicine supply process in Italy, the IMA staff decided how to modify the established IMS by drawing their inspiration from the methods they had used for the international communities of practice against healthcare fraud and for the Technical Table they had created in 2015 to counteract the laundering of stolen hospital medicine. They basically integrated parts of both methods and modified them slightly to suit the then present emergency. Spanish emergency managers at the central level drew their inspiration for the joint model from a previous scheme of multi-level governance that had been used for the influenza pandemic of

2009 and adapted it to deal with the then present emergency. A joint model, involving local governments, public health entities and healthcare providers, had in fact been set up in 2009 in some Autonomous Communities.

Feedback loops are triggered when people offer and obtain instant feedback on what they have done or are doing, through frequent communications, meetings or calls, so that they are somehow constantly updated on the evolution of a certain situation (Crossan and Sorrenti, 1997; Vera and Crossan, 2004). In the Danish case, procurers from the five regions met the NSR staff every morning, while the private company managers who were in contact with Chinese companies brought the NSR up to date about contracts and PPE stocks every day, and information on the procurement process was constantly shared between central and regional levels. During the Italian medicine importation operations, the IMA staff were in contact with regional spokespeople several times a day to give and receive continuous feedback. In parallel, the IMA staff daily updated the SCEM staff and the Medical Device Directorate of the Ministry of Health on the choices pertaining to the importation of medicine. In the Spanish case, the information about reservations and available doses was updated daily, and the operators were in contact with each other several times a day, while informal contacts with journalists were maintained to communicate only information that was certain and to discredit 'fake news'.

On closer inspection, it emerges that these two cognitive-relational dynamics are the fundamental components of the so-called 'pragmatist approach' (Dewey, 1896), which is a way of responding to problems *in situ* by relying on a mixture of reasoning, skilled intuition and feedback. When policy makers apply such an approach, they experiment with what is concretely available at a given moment, starting from what they can do, and choose a solution that does not seem to be entirely wrong. They then monitor the solution during its implementation and recalibrate it, considering frequent feedback from the context and from the other actors involved in the process (Ansell and Boin, 2019; Boin and Lodge, 2021). Indeed, all three of the analysed processes were characterised by recalibration or trial-

and-error attempts: in Denmark, the NSR redefined the choice of Chinese companies and the contents of purchase contracts several times; in Italy, IMA redefined the import authorisations for specific medicine; in Spain, the national government redefined the prioritisation criteria of the population and of the distribution of vaccines to the territories.

Conclusions

The analysis of these three emergency response processes has highlighted some common traits.

The first trait confirms our initial hypothesis, that is, that the turbulence of the COVID-19 crisis required substantial innovations of the three national Incident Management Systems and several step-by-step adaptations. During the COVID-19 pandemic, the Danish, Italian and Spanish Incident Management Systems operated as bottom-up systems, in accordance with their All-Hazards emergency management plans. However, the emergency plans did not offer clear instructions about how to face setbacks and problems of the bottom-up governance model when faced with unexpected events and/or ever-changing situations. As the robustness theory suggests, in all the considered cases, the emergency managers reacted to this turbulence by changing and adapting the established multi-level governance configurations, although they returned to the usual configurations when the challenges died away or when the situation became less disruptive or less challenging. In the Danish case, the bottom-up IMS was changed, first in favour of a highly centralised configuration of the multi-level governance system, and then an official public-private partnership with large multi-national companies was added. In the Italian case, the IMS was temporarily complemented with a stronger role at the national level and with the introduction of an informal public-private partnership with trade associations of pharmaceutical companies, and it then switched to a model in which the regions were supported by the national government but were also required to sign bilateral agreements concerning the redistribution of medicine, on the basis of their reciprocal needs. In the Spanish case, the bottom-up governance system was initially reversed and then substituted by a joint governance

model that mixed bottom-up and top-down elements together with the involvement of some key NGOs. This instability of the IMS was necessary to react to the stalemates and operative problems, and it was fundamental to speed up the processes and improve their effectiveness. The different adaptive paths of the Incident Management Systems in the three national contexts do not show a general inadequacy of the adopted bottom-up model in favour of the top-down model. Instead, the variety of innovations and adaptations of governance models (Denmark: *bottom-up* → *pure top-down* → *top-down+central PPP* → *bottom-up*; Italy: *bottom-up* → *bottom-up+central PPP* → *bottom-up+central PPP+paired assistance* → *bottom-up*; Spain: *bottom-up* → *pure top-down* → *joint goverance+distributed PPP* → *bottom-up*) shows that the common trait was not simply a temporary re-centralisation of decision-making power and operative processes but rather an adaptive instability to respond to the contingent problems. Our analysis does not allow the contextual factors and the policy-making dynamics that led emergency managers to take certain decisions to be identified. However, it is plausible to assume that several factors may have had an impact on these decisions: the relationships between public and private organisations that have been consolidated over time, the nature of the private and public organisations involved in the operative processes, the degree of territorial inequalities in the health systems, the administrative capacity of the central state apparatus, to name but a few.

The second common trait refers to the official, or informal, setting up of solid public-private partnerships. The involvement of important companies, trade associations and NGOs that could exploit their networks of contacts and make their know-how and personnel available seems to have contributed significantly to the successful management of the response processes in all the considered cases. This empirical evidence is in line with the findings of other empirical research on response policies for major emergencies (Horowitz 2009; Medury 2011; O'Donovan 2019; Sylves 2020).

The third common feature is the deployment, by the emergency managers, of two cognitive-relational strategies, which helped them to decide how to act and how to adapt the governance model

and the operative processes to deal with turbulence when clear instructions were lacking: 'practical knowledge' and 'feedback loops'. The deployment of these strategies seems to suggest that the so-called pragmatist approach may underlie the ability to intervene with targeted changes and adaptations of multi-level governance configurations whenever there is an absence of plans that can predict how to modify a bottom-up IMS in the face of unforeseen events and coordination deficits.

The empirical findings of this research do not allow the question of how to make emergency responses more rapid and effective to be fully and definitely answered, but they contribute to increasing confidence in the hypothesis that applying a robust and pragmatic approach may be a more effective way of acting when dealing with a turbulent crisis than applying a traditional managerial approach, based on IMS stability and strict obedience, to emergency management plans.

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Table 1.

	Denmark	**Italy**	**Spain**
GDP per capita at the market price (EU = 100), 2019	125	96	91
public spending on healthcare as % of the GDP, 2019	6.7	5.9	5.7
share of central government in public expenditures, 2016	75%	60%	47%
type of government system at the central level, 2017	consensual (minority cabinets and grand coalitions)	intermediate (minority cabinets and single-party majorities)	majoritarian (single-party majorities)
capacity of the government to steer policy making through horizontal governance, 2017	high	low	medium
transparency and accountability, 2016	top quintile	bottom quintile	fourth quintile
professionalism of the civil service (EU range between 2,9 and 6,2), 2015	5.8	3.8	4.5
capacity of the central government to coordinate and manage policy implementation, 2016	top quintile	third quintile	second quintile

Sources: Eurostat database (https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table); OECD database (https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2022_5b352bdf-en); Thijs, Hammerschmid and Palaric (2017).

2020	EU-level action	National action	IMS
Jan.	01-09 Alert notification (EWRS) about COVID-19	Regions follow standard procurement protocol	Bottom-up
Feb.	EC and Member States deliver 50+ tons of PPE to China 1st joint European procurement of PPE	Procurement centralized in Capital Region under NOST	Pure top-down
Mar.	PPE exports subjected to Member State authorization RescEU strategic stockpile of medical supplies mandated	Procurement capacity supplemented by NSR	Pure top-down + central PPP
May	RescEU delivers PPE to Member States		
Aug.		Regions resume procurement supported by new agency	Bottom-up
Sep.	Denmark becomes RescEU host alongside other Member States		

Table 2.

Table 3.

2020	EU-level action	National action	IMS
Jan.	01-09 Alert notification (EWRS) about COVID-19	Regions follow standard procurement protocol.	Bottom-up
Mar.	RescEU strategic stockpile of medical suupliest mandated	Procurement coordinated by IMA through embassies	Bottom-up + central PPP
Apr.	VAT wavers for medical supplies imports approved EU guideline for optimizing medicines supply to Member States EU Civil Protection Mechanism mobilizes aid to Italy	Procurement taken over by IMA and Ministry of Health	Bottom-up + central PPP + paired assistance
Jul.	EU procurement of Remdesivir	Regions resume procurement	Bottom-up

Table 4.

2020	EU-level action	National action	IMS
Mar.	Emergency call for coronavirus research, support to CureVac		Bottom-up
Jun.	EU strategy and funds for vaccines development and deployment		
Aug.	EC secures first vaccine contracts		
Dec.	EC approves first vaccines	Autonomous Communities follow standard health plans	
2021			
Jan	EC approves more vaccines	New national vaccines procurement center created	Pure top-down
Feb.	EC secures more vaccine contracts		
Mar.	EC secures delivery of vaccines	Inter-territorial coordination and civil society roles intensified	Joint governance model
Apr.-Jul.	EC accelerates vaccine delivery		
Aug.		Autonomous Communities resume procurement lead	Bottom-up