EVALUATING PERFORMANCE MANAGEMENT OF COVID-19 REALITY IN THREE EUROPEAN COUNTRIES: A PRAGMATIC CONSTRUCTIVIST STUDY

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Abstract

Purpose: To assess the Covid-19 event in three European countries (Germany, Italy, UK) by investigating the quality of their performance management of it.

Design/methodology/approach: Pragmatic constructivism is employed as a lens through which the performance management of each country can be examined and compared over a period encompassing the first wave of Covid-19.

Findings: Official statistics show that one of the countries has a significantly lower death rate. It developed and operated a more detailed and precise system of performance management. From the perspective of pragmatic constructivism, this system supported efforts to build a functioning reality construction integrating facts, possibilities, values, and communication.

Originality: The evaluation of different national approaches to the performance management of the Covid-19 reality is novel to the literature on management accounting. Pragmatic constructivism is used as a diagnostic tool to pinpoint strengths and weaknesses of the performance management of public sector activities in different countries.

Key words: performance management, Covid-19, effectiveness, pragmatic constructivism

INTRODUCTION

Some countries have been harder hit by Covid-19 than others (Worldometer, 2020; Johns Hopkins, 2020). This paper is an analysis of three European countries which exhibit such variation. It aims to explore how different national approaches to the performance management of the Covid-19 event has influenced its impact on their country.

Those with political power have the authority and responsibility on the virus. However, decisions to use scarce resource on Covid-19, involve depriving other public services. Managing the Covid-19 reality requires systems of performance management to gain knowledge of the disease and identify trade-offs. The grasp our leaders have on the reality of the disease depends on the quality of information available to them. In order to manage the Covid-19 reality effectively, they have to have details of the virus' impact represented to them. Thus, relevant information availability will influence the efficacy of each country's response. However, in a new pandemic, details about the nature of the new disease are initially unknown and, therefore, countries need to develop information systems to enable purposeful action. To understand variation in countries' response, it is important to examine the quality of the performance management systems applied in their management of Covid-19.

The societal structure in which politicians and health professionals interact is central in the performance management of Covid-19 (Yu, 2020). Promoted by the New Public Management (NPM) movement, an intermediate layer of administrators has emerged to manage health services and support negotiations between politicians and health leaders. These connectivity

systems differ nationally and form the top tier of health care management. They represent the essence of the operational political management system. Accordingly, it becomes relevant to analyse the quality of the performance management system in countries with different NPM approaches.

To address this research issue, the philosophy of pragmatic constructivism (PC) (Nørreklit *et al*., 2010; H. Nørreklit, 2017; L. Nørreklit, 2017) is employed as a lens to assess and compare the performance management of each country. PC is used to outline how people can relate to their reality in a way that will support successful action and, thus, it can be used to identify why actions result in differing levels of success (its nature and application in this study are explained in the next section of the paper). Within accounting this application has been wide ranging e.g. developing a practice paradigm (Nørreklit *et al*., 2010), investigating the automation of management accounting (Korhonen *et al*., 2020), designing an accounting educational programme (Jacobsen *et al.*, 2019) and studying corporate social reporting (Lueg *et al.*, 2016). It has also been used frequently within the area of performance measurement (Mitchell *et al*., 2013; Jakobsen, 2017; Mauro *et al.*, 2019; Guven-Uslu and Seal, 2019; Kure *et al.*, 2020; Nørreklit and Trenca, 2020), and this study adds to that research. Some further relevant accounting studies on Covid-19, not based on PC, have recently been published. Parker (2021) has shown how control interventions have initiated changes within organisations and in the underlying management agendas of efficacy, costing and social accounting. Yu (2020) addresses the problems of performance measurement (death toll) created by government attempts to reduce transparency and criticism of their handling of the crisis. Ahmed *et al.* (2021) reveal how UK testing performance evolved slowly and its strategic role was acknowledged very gradually. These studies focus on the development and impact of Covid-19 measurement and management and this study adds to that knowledge. However, through its application of PC, it also extends this prior research by comparing performance across countries and providing an explanation of why different levels of success were achieved. Thus, it is a study which contributes to the analysis of public sector management in a NPM context within different national settings (Kure *et al*., 2020).

The remainder of the paper is structured as follows. First, an overview is provided of the study location and how the philosophy of PC is employed to understand the epistemological challenge of a new pandemic. Second, performance management information provision in each country is reviewed through the PC lens. Finally, some conclusions are presented.

RESEARCH APPROACH

Location

The study explores and analyses the handling of Covid-19 in Germany, Italy and the UK over the first wave of Covid-19. All three are members of G20, are among Europe's largest countries, possess high quality health services, and are broadly comparable culturally and economically (OECD). They are similar in factors contributing towards Covid-19 severe health outcomes such as median age (Germany 46, Italy 47, UK 40), obesity(Germany 22%, Italy 20%, UK 28%) and all three have significant ethnic minorities represented (Chaudhry, 2020; OECD, 2020; Worldometer, 2020; World Population Review, 2020). While one might, therefore, expect the impact of the virus to be similar, as of July 6, 2020 death rates per million from Covid-19 were 108 (Germany), 577 (Italy) and 651 (UK) (Worldometer, 2020). The

countries have different NPM traditions (Dent, 2005). Germany has a Weberian based tradition involving the local professionals 'juridified self-regulation'. Italy is influenced by a political and local 'clientelistic–particularistic' network system of "managerial regulation" and the UK approach is dominated by orientation towards the user market and a political agenda of enforced self-regulation (Dent, 2005). These governance systems are influential in targeting Covid-19 and their differences are, therefore, directly relevant to the explanation of Covid-19 performance disparities. It is notable that countries with a Weberian type of administration such as Germany, Finland and New Zealand have had a better performance in dealing with Covid-19 (Dressler, 2020).

Pragmatic constructivism and the new pandemic

The philosophy of PC is actor based (Nørreklit *et al*., 2010; H. Nørreklit, 2017; L. Nørreklit, 2017). It builds on the idea that human activity (MacMurray, 1957) is organised in the form of "language games" in which communication and action are integrated (Wittgenstein, 1953; Habermass 1981). PC uniquely extends the ideas of Wittgenstein and Habermas by recognizing that "language games" and communicative action (in this case to achieve a positive handling of the virus) need to comprise four dimensions in the actor-world relationship, each of which must be developed and integrated with the others. Complementary to communicative action, it considers integration (as per Aristotle and the critical philosophy Kant-Habermas) of contemporary empiricism, rationalism and value (Popper 1959; von Wright 1963, 1984) on a pragmatic action-actor (MacMurray, 1957; Habermas, 1981) oriented basis.

First, there are the values pursued by the actors which provide the basis for selecting from action possibilities. Political leaders have to balance political and economic values with those of health. These trade-offs can be problematic (Abbasi, 2020) and prioritising is often a challenge because of uncertainty involved. Extensive preparations for worst case scenarios may lead to costly unused health capacity while if capacity proves inadequate the political, social and economic "cost" may be heavy.

Second, actors need adequate factual knowledge of the world in which to act successfully. Beliefs and prejudices are inadequate. If patient healthcare is assumed as a value, its attainment is dependent on facts such as the adequacy of health service capacity. If facts are erroneous, then action possibilities will be speculative or illusory and values will not be met. If sufficient factual knowledge is not available, then it should be obtained. Factual knowledge about the world is based on observation and evidence. The world is not made of facts. It consists of relations, people, dispositions and forces, but not of facts. The term fact signals the perception of the world that has a high credibility because it is based on good evidence. Thus, 'facts' are not absolute but defeasible i.e. "fact" is not an absolute concept. A person has the right to call something a fact if, and only if, it satisfies criteria for sufficient evidence. If future evidence should prove the claim to be wrong, then it loses its factual status. According to its new status it has never been a fact." (L. Nørreklit 2017, p.38).

In situations where knowledge of causal mechanisms is deficient, then knowledge of factual possibilities to influence the spread and treatment of the disease will be lacking. It is essential that knowledge-gathering is organized by scientific actors addressing open questions in search of causal mechanisms relating to the nature and impact of the virus. It is important that knowledge gathering is open and not restricted to verifying preconceived beliefs. Knowledge of previous pandemics is available but a new virus may differ significantly in its virulence,

means of infecting and the capacity to treat it. Given this uncertainty, it is all too easy to use "language games" that lead to false assumptions based on prior experience. If a systematic knowledge gathering system does not exist, it must be established. The more information gathering is determined by prejudice (e.g. that it just is another flu), the less effective it becomes. There are no short cuts to good factual knowledge.

Third, it is essential to recognize possibilities for action. Without possibilities, action will not occur. Thus, it is necessary that our knowledge gathering systems produce knowledge about factual possibilities for action that encompass the values of the actors involved. Possibilities are theoretical constructs about abilities, dispositions, tendencies, forces and other not directly observable phenomena of change. Possibilities are uncovered by cognitive activities based on relevant facts. Data is needed to determine, through a process of conceptualisation, factual possibilities for action relevant to the values to be pursued. Factual knowledge is a relation between the actor and world based on empirical evidence as a mediating factor while action possibilities take the form of conceptualized relational constructs. Theoretical possibilities are conceptually related to specialised fields and, in practice, they are combined with a factual basis to constitute the factual possibilities for action.

In a new pandemic, action possibilities to counter the spread of the disease and treat the infected are required. There is also a need for research on the virus to reduce knowledge gaps and generate protection and cures. Action advice may change and although this may make actors appear confused, it may mean that they are actually quick, effective learners. Quantitative information (e.g. "R" and "K" ratios) can help to assess whether action is needed to inhibit the virus' spread or enhance hospital provision. Scientific facts may suggest alternative action strategies. For example, a strategy involving suppression of the virus may be used. This involves lockdowns, social distancing, testing and tracing. This can buy time to gain knowledge and develop treatments. Increasing factual knowledge leads to a range of more appropriate action possibilities as conceptions of the virus are revised and improved.

Fourth, there is actor communication as they develop their ideas together and let others know of their endeavours and what is expected of them. Leaders have to consult with advisers, agree policies and communicate with the public. Communication failure will compromise action.

When actors engage with a pandemic through their "language games", they create constructions of their reality based on these four dimensions. These constructions integrate the four dimensions if they are to function well. At the stage of planning there may be little precise knowledge about the virus. From a PC perspective, actors will pro-actively create constructions according to what is considered true and what is unknown (L. Nørreklit, 2017). Planning is put to test in its application. If the plan works in practice, i.e., the expected results are realised in action, the claims on which it is based are pragmatically true. The final test of a planned performance is its pragmatic truth, i.e. the outcome. The validity of planning involves checking the expectations inherent in it against the outcomes. In a situation such as the pandemic, where uncertainty means there is no specific outcome objective of the plan, performance can only be estimated by comparing outcomes in comparable countries. Learning involves comparison of the 'pro-active truth' of dimensional integration made at the planning stage and the 'pragmatic truth' of integration made at the realisation stage. Focusing on the difference between these truths assists in learning how to improve performance through better knowledge and integration.

Aims and Data Organisation

The aim of this study is to assess the success of the performance management actions of three large European countries in respect of to Covid-19. This aim is achieved by employing the functional dimensionality of PC as a lens to perceive and comparatively analyse the responsive actions of each country to the virus. Covid-19 was novel and proved to be highly dynamic in its effects. Its nature and impact, therefore, provided the potential to require changeable performance management responses to it. Consequently, its experience is represented by four sequential time phases, each of which could involve different performance management action.

Thus, the analytical structure adopted takes the form of a matrix formed by the four PC dimensions (facts, possibilities, values and communication) and their integration against the four time phases of the Covid-19 experience (planning, anticipation, lockdown and loosening up). This framework allows the empirical data on Covid-19 response actions to be sifted in a way which exposes the factors which influenced when and how the level of the success of these actions was determined. The matrix is used in Table 1 to summarise the findings and to provide the analytical approach used in the data analysis which follows. PC, as a model of how actors should relate to their reality in order to generate successful action, provides the standard against which Covid-19 responses can be judged and compared as to their success over time.

The ultimate indicator of a country's performance (and success) is taken to be the mortality rate. This is used because its containment is a primary aim of responsive action and it is a result not only of clinical treatment but also of preventative measures. Hence, it provides an overall performance indicator for each country. As there were no specific indication of expected mortality rates at the planning stage, it is not possible to compare actual deaths with expectations. Performance, therefore, has to be based on the comparative actual death rates in each country. The countries chosen for the study show significantly different performance with respect to the levels of mortality experienced.

The analysis which follows is based on official data published by governments and health institutions. Further background information was obtained from websites of national and international institutions and broadcasters and from prior publications on Covid-19.

PERFORMANCE MANAGEMENT OF THE FIRST WAVE OF COVID-19 IN THE THREE COUNTRIES

Planning for pandemics

The countries had engaged in international pandemic planning organised by the World Health Organization and the European Centre for Disease Prevention and Control. Their plans formulated objectives (values) and medical action possibilities. In addition, lines of communication and responsibilities were specified. There were differences in respect of objectives and the status of their health institutions.

The German pandemic plan was prepared by the Robert Koch Institute (RKI) in 2017 based on detailed analysis of prior flu experiences. It is the federal government agency responsible for disease control and prevention. The objectives (values) of the pandemic plan were to protect

and care for the health of the population and to maintain essential public services. It states that if a strategy of protection fails then a strategy of containment will be implemented to provide time for understanding the virus, identifying those at risk and specifying the best means of protection. Finally, the RKI operated an advanced knowledge system for detecting, preventing and combating infectious diseases (factual possibilities). It has a long history of cooperating and coordinating (communication) with authorities at both federal and regional level including local health laboratories which can produce diagnostic tests (factual possibility). The objectives of the plan are health related and grounded in factual possibilities by recognising available hospital resources and an integrated nationwide laboratory system for testing and tracing that enables the communication of factual knowledge about the nature and spread of the disease. Thus, the plan reflects ongoing gathering of factual knowledge and integrates values with communication and factual possibilities.

The Italian plan was prepared by the National Centre for Disease Prevention (CCM) in 2006 (IT Ministry of Health, 2016). CCM is an entity supported by the Ministry of Health. It is chaired by the Minister of Health and includes representatives of Regional Governments, managers of top-level central health authorities and scientific experts. It is a coordinating and guiding link between the Ministry of Health and Regional Governments to detect and prevent infectious diseases. The objectives of the plan (values) include health societal and economic values. Ministry of Health, CCM, National Health Institution (research institution) and other health institutions at the national level collaborate and coordinate their activities in order to manage health policies and prevent disease. Actions to monitor and prevent infectious diseases are taken at the regional level and then communicated to the national level. The multiplicity of actors involved makes the relationships blurred, the responsibilities fragmented, communication problematic and the system highly complex.

The Italian plan combines health and economic values with no indication of trade-offs. The plan outlines actions to protect the health of the population but is weak on factual hospital possibilities. The communication setup is complex and not geared to fast gathering of factual information or identifying action possibilities in response to a pandemic. No well-integrated structure is visible.

The UK had an Influenza Pandemic Preparedness Strategy (2011) developed by the Department of Health. Its objectives (values) were to minimise the potential impact of a pandemic on health, society and the economy. The plan was sympathetic to the action possibility of “herd immunity” i.e. to let the pandemic run through the population with some delaying measures (Public Health England, 2014)). The plan identifies the need for increased surveillance within the UK to detect the virus, but a national surveillance institution tasked with collecting and communicating data did not exist. In 2018, a Biological Security Strategy claimed the UK was, “globally renowned for our preparedness planning”. It also promised a UK response plan for major international diseases (possibility). This plan has not emerged (H.M. Government, 2018) (no facts). Moreover, only 4 years before the Covid-19 outbreak, the UK government had to be compelled by the Information Commissioners Office to release a report (Operation Cygnus) on deficiencies in pandemic preparedness (Iacobucci, 2020).

The UK plan is uncertain on whether its aim was to project health or economic values. By recognising the possibility of a herd immunity strategy, the plan did not need a demanding setup concerning information gathering on relevant factual possibilities and communication. To adhere to a belief that herd immunity is achievable without unacceptable damage and without a supportive factual knowledge base disregards the need for integration. It makes

action a high risk strategy. There is evidence that an overly optimistic view of capabilities constrained the development of good factual knowledge. As a result, action possibilities soundly founded in factual knowledge were not produced.

Table 1 (columns 2) provides a summary of the four dimensions and their integration for this planning stage. It shows the German plan was focused on health values only while the Italian and UK plans also include economic values. For the fact dimension, all three countries possessed advanced health care systems that provided the possibility of treating a limited numbers of patients with Covid-19. In addition, Germany was the only country which had an advanced surveillance system. This system created action possibilities to produce knowledge to handle the uncertainty of the new epidemic as well as to communicate between decentralized laboratory units and expert centres. Such possibilities were out of reach for communication and action in the UK and, to a certain extent, in Italy.

TABLE 1 ABOUT HERE

The double values, health and economy, in Italy and the UK weakened integration of the dimensions. The UK's strategy, in particular, was "laissez-faire" compared to that of the other two countries. Indeed it appeared "the government was going to let the disease rip through the community" (Freedman, 2020, p.50; Gye, 2020). Their plans reflect a negative trade-off between health and economy. They consider the reaction to the disease as an economic cost that had to have an unspecified limit. There is an implied intention to cope with the disease without significant costs. However, there is a disregard that there may be positive correlations between health and economy and this lack of factual intelligence constrained the development of realistic action possibilities. These planning differences represent a source of performance variation.

The Covid-19 Outbreak

The first cases were found in each country in late January (Johns Hopkins, 2020). Although their politicians and scientific advisers rated the risk as low at this time, they followed different epistemological paths in generating action guidance.

In Germany, a national testing protocol was established and the world's first diagnostic test was created (Deutshes Zentrum für Infektionsforschung, 2020). By late January, laboratories throughout the country were ready for testing. Researchers analysed the first case in Germany to understand the transmission logic (Böhmer, *et al*., 2020). Information on transmission rates and incubation periods were later developed. The Robert Koch Institute (RKI) (2020a) organised nationwide testing, tracing and isolation procedures to cut infection chains (Our World In Data, 2020). Surveillance systems were augmented to monitor spread and identify where action was required. At the end of February, the emergence of the first epicentre led to a local lockdown and public communication on protection from the virus was undertaken. On 16 March, Chancellor Merkel (Die Bundeskanzlerin, 2020) responded to growing infections by authorising more extensive lockdowns across the country. Intelligence gathered about the virulence of Covid-19 suggested it could challenge hospital capacity. Intensified observation, investigation and estimation enhanced factual knowledge of the disease. This led to the development of fact based action possibilities. Health values remained dominant while

effective communications were used to contain the virus and secure health values. This integrated preparation limited the virus spread.

In Italy, a state of emergency was declared on 31 January (IT Government website, 2020). Thermal testing was introduced at airports and flights with China were suspended. Politicians claimed that the situation was under control and emphasised the quality of the country's health care system. Three weeks later native cases appeared in Northern Italy, medical staff were infected and deaths grew. As things worsened, quarantining and monitoring were introduced and lockdowns started in designated "red zones "and on 9 March all Italy was declared a "red zone". Systems to show facts and possibilities in respect of Covid-19 spread and hospital capacities were not available. Communication to co-ordinate action between local and federal levels and between various organizations were ineffective (Pisano *et al*., 2020). However, it was communication of facts on gross hospital overcrowding that led to the realisation that the seriousness of Covid-19 had been underestimated.

The Italian system displayed insufficient integration of factual possibilities for treatment, testing, tracking and observing the virus spread to accomplish its health aim. The poor communicative setup combined with erroneous beliefs about the disease made it difficult to find ways to cope with the situation. The outcome was an overwhelmed hospital system and rising death rates.

In the UK, this period was characterised by the relative inaction of the political leadership (Conn and Lewis, 2020; Freedman, 2020, pp.49,50,52). In early March, The Prime Minister was focused on other issues (Freedman, 2020, p.40) and his 12 March announcement about Covid "conveyed no sense of urgency" (Freedman, 2020, p.49). Until late March borders were open, crowd events continued and people mixed freely. Politicians acted with some complacency and continued to emphasise the strength of the health service, the insignificant impact of prior viruses and the prior success of flu management. This inaction was compounded by the favour with which politicians and scientists viewed the "herd immunity" strategy (Freedman, 2020, pp.49,50) although it was not known at this time if infection created subsequent immunity. Two events communicated the factual danger of Covid-19 in a way that initiated action. First, was the observation of parts of the Italian health service being overwhelmed. Second, was quantitative modelling which suggested hospital admissions could reach levels beyond the capacity of the health service. A national lockdown began on 23 March to slow the spread. The facts about the seriousness of Covid-19 had been underestimated and much preparation time was lost.

The dangers of poor integration due to the absence of factual knowledge were apparent. Instead of a mindset searching for creditable knowledge, erroneous beliefs were communicated until the information of the Italian disaster became known and hasty calculations demonstrated that UK hospitals might not be able to cope. Events, as opposed to conscious fact ascertainment drove dangerously delayed action.

During the outbreak (see Table 1, column 3), Germany maintained its focus on health values while Italy began to pay less attention to economic values and the UK began to consider, more seriously, health values. Regarding facts, the health care systems in Italy and UK became short of capacity and their possibilities for patient respitory treatment collapsed and other illness treatments were curtailed. Germany operated within capacity, but was concerned about the levels of Covid-19 demand and the pressure it placed on other treatments. Germany committed considerably more resources to provide more detailed facts about the virus and its enhanced

knowledge system improved the action possibilities in monitoring, controlling and communicating. Thus, Germany was able to create tighter integration between the PC dimensions. As a surveillance system did not exist in the UK and was inoperative in Italy their action possibilities to monitor were not place and their communication was distorted. These two countries lack of integration of the PC dimensions meant timely action was not taken.

The three countries acted, with varying degrees of promptness and success, to suppress the virus. The integrated German set-up enabled it to control the spread by a much speedier lockdown than that of Italy or the UK. In Germany lockdown happened when there were 0.14 deaths per million while in Italy and UK respectively the deaths were 7.28 per million and 4.93 per million (Worldometer, 2020).The need for speed in acting was recognised as a fact which was influential in keeping the death toll relatively low.

Lockdown period

As the Covid-19 wave increased, the countries entered lockdown in March. Behaviour was restricted to reduce virus spread, hospital capacities were increased and advanced measures developed to make control more precise and effective.

Restrictions and capacity

Restrictions meant substantial gatherings were prohibited and public events and all non-essential organisations were closed. (Freedman, p.47; Die Bundesregierung, 2020a,b; IT Government website, 2020). Non-essential travel bans, working from home, stay at home advice, mask use, self-isolation and quarantining were all instituted and advice on hygiene and distancing was communicated. In the UK and Italy meeting others and leaving home was restricted, while in Germany, where the virus impact was less, the restrictions did not prohibit going out with a friend or another household member.

Action was taken to expand hospital capacity. Shortage of protective gear was experienced. In Germany support from the army was used to increase hospital accommodation (Bundeswehr, 2000). All non-urgent medical treatments were postponed and incentives for more intensive care beds was put in place. In Italy, hospitals were reorganised to prioritise Covid-19 cases and create more intensive care facilities (IT Ministry of Health, 2020). New hospitals were commissioned. Medical staff were reassigned and provided with online training. In the UK, several new hospitals emerged and arrangements made to prioritise Covid-19 cases at the expense of other treatments. For instance, old people were transferred out of hospitals to care homes without being tested for infections. This resulted in a high proportion of deaths in care homes. Purchasing delays created problems in accessing equipment and protective gear.

Surveillance systems

All three countries established two sets of measurements. The first related to the factual possibilities of hospital capacities (e.g. bed availability, intensive care places, ventilator numbers and protective equipment availability). The second tracked facts and possibilities around Covid-19 progress (e.g. daily infections, the R statistic, daily deaths, excess deaths, hospital admissions testing numbers and percentages traced).

In Germany, it was made compulsory to regularly report bed availability and intensive care unused capacity (Deutsche Interdiszilpinäre Vereinigung für Intensiv- und Noffallmedizin, 2020). This helped in speedily identifying locations under pressure and in co-ordinating resources nationwide. Targets were set to expand hospitals and test and trace capacities. The RKI produced the measures on Covid-19 progress in a reflective and criteria-based way and national standardisation made them comparable across the country (Robert Koch Institute, 2020a,b). The 4 day R statistic was susceptible to short term volatility and was supplemented with a 7 day measure. While these measures focus on the average transmissions by an infected person, they do not reflect anomalies such as super spreaders. Measurement supported modelling which was organised by the RKI. Simulations became more reliable over time as a database of information about the nature and dynamics of the disease was generated. A reflective learning process was facilitated through measurement. Governmental decision-making in communicative interaction with experts and regional politicians liaised closely with the RKI to obtain information. Although there was political and economic pressure, the R Statistic was influential. Strong advocacy of it being kept below 1 was made by leading virologist Christian Drosten (Der Tagesspiegel, 2020). In May, a traffic light warning system was set up which reflected regional R statistic targets, cases per 100,000 and used hospital capacity. Restrictions were imposed when measures deteriorated. These measures supported the system with increasingly precise information of the factual possibilities needed for integration. The over-riding characteristic of the system was to generate factual knowledge for action. This reduced the need to act on unfounded beliefs. The information was communicated to decision makers and, thus, enabled action possibilities to become more precise and effective in achieving values.

Italy set targets to increase intensive care beds and test and trace capacity (IT Ministry of Health, 2020). Progress was made on introducing an integrated national measurement system to observe Covid-19 spread and help manage the crisis on a regional basis (IT Ministry of Health, 2020; National Health Institution, 2020; Civil Protection Department, 2020; National Centre for the Prevention and Control of Disease, 2020). However, standardisation of the measurements across regions remained problematic. Numbers were ambiguous and their interpretation fraught with difficulty. For example, positive cases had to be backed by confirmed tests, but this under-estimated the number of positive cases. Falling Covid-19 numbers and financial pressures pushed the government to act. The rate of change was determined by improvement in the Covid-19 spread (stable reductions), health system adequacy (absence of signs of overloading) and health response capability (e.g. testing capability). Local level measures in these areas were benchmarked and compared to threshold targets so that events could be monitored and guide response. The Italian system developed more reliable factual information. Initially, the Italian system was based on beliefs that proved be invalid, but during the lockdown the system became more reliable. However, the communication setup suffered from uncertainties that weakened integration and complicated the attainment of intended values.

In the UK, official measures were reported daily and comprised testing times (Gov UK Tests), infection rates (Gov UK Cases), hospitalisations (Gov UK Healthcare), and deaths (Gov UK Deaths). In the rush to obtain protective equipment, quality was sacrificed for volume and many pieces of equipment purchased proved unusable. Measurement of the virus' spread was also problematic (Anonymous, 2020; Grant, 2020; Ridley and Davis, 2020). Different research groups computed the R statistic differently and in some regions different methods produced results where the R was above and below the critical level of 1. Infection rates were understated because many experiencing symptoms did not contact their doctor. Death rates were estimated

in three different ways with wide divergence. Test volumes included tests sent out but not undertaken so that volume targets would appear to have been met. The test statistics were criticised by the Chairman of The UK Statistics Authority (Norgrove, 2020). He suggested they did not meet the purposes of understanding the pandemic, helping to manage the test programme and showing how well the programme was being managed. He concluded that, "The aim seems to be to show the largest possible number of tests, even at the expense of understanding." Many measurements were, thus, of dubious reliability (Freedman, 2020, p.60) and subject to manipulation by those communicating them. Falls in infections and deaths heralded the start of removing restrictions (Cabinet Office, 2020). Financial pressure to open the economy was great given the huge cost of lockdown. The government's slogan "stay home" was changed to "stay alert". Along with moves towards loosing up, test and trace was re-emphasised. Targets were set for testing and tracing activity. The UK system continued to have problems with integration due to the continued difficulty in establishing reliable facts. This made projected possibilities speculative and communication was dominated by politics, which complicated the achievement of intended health values.

During the lockdown (see Table 1, column 4), politicians prioritised health over economic values although this focus was clearer in Germany and Italy. Factually, lockdown action reduced virus spread, death rate and shortage of health capacity which, together with initiatives to expand hospital capacity, extended treatment possibilities. However, lockdown brought its own undesirable consequences for health values as other serious illness treatments were postponed, mental illness was exacerbated, and, in particular in the UK, the neglect of care homes made them virus hot spots. Germany's more agile approach to lockdown integrated the facts and possibilities to adapt treatment capacities with less negative effects on other health issues.

The German surveillance system was also more focused on fact determination and action possibilities. Communication was more effective and, thus, integration of the PC dimensions enabled action based on informed belief. In Italy, information on facts and possibilities became more reliable due to improved integration as a database of information about the nature and dynamics of the disease was generated and communication became more transparent. Integration in the UK proved to be enduringly poor due to inadequacies in information on facts and possibilities caused by measurement limitations and political influence on measurement communication. These problems severely affected performance.

Period of loosening up

The impact of lockdown on personal freedoms and the economy created pressure for their alleviation. Consequently, as measures showed the effects of the pandemic lessening moves were made to remove lockdowns in the countries.

Loosening up was based on a phased approach with politicians deciding when the conditions for a move to a new phase were possible. The first loosening up was in Germany 20 April (non-essential shops), in Italy 4 May (freedom of movements) and in the UK (29 May). However, the degree of loosening up differed across the three countries in shop opening, social grouping size and travel restrictions. The threat of a second wave was recognised and some working from home was encouraged, physical distancing and hygiene measures continued and voluntary apps were introduced to help in track and trace. Finally, as hospital capacity reserved for Covid-19 patients fell, other patient treatments were increased.

Factual measures on performance measures differed. Germany used R-factors to guide loosening decisions and outlined rules for the level of restrictions on a traffic-light system (new infections per 100,000 inhabitants within seven days, R-factor, Covid-19 intensive bed occupancy rate). Some small areas experienced renewed periods of lockdown in June. Accordingly, the integrated knowledge system in Germany enabled the country to tightly control loosening up lockdown. In Italy, reopening was based on an assessment of a minimum quality standard for epidemiological surveillance including the following criteria: transmission stability, health services not overloaded, readiness activity, ability to promptly test all the suspicious cases and possibility of guaranteeing adequate resources for contact-tracing, isolation and quarantine. Thus, Italy focused strongly on validating its newly established knowledge. UK established a five level "alert system" to guide the degree of lock down/opening up.

The countries paid more attention to economic values as lockdowns were eased. (see Table 1, column 5) Spare treatment capacity improved the possibilities for treatment. Opening up policies accommodated social and economic values but remained cautious to avoid the risk of the hospital capacity overload. In the UK and Italy fact determination capability was finally established, making more reliable reporting possible. However, communication remained unclear in Italy and poor in the UK. The German surveillance setup (fact ascertainment) became more advanced and this further enhanced action possibilities and communication. The three countries improved integration, due to their better developed surveillance systems.

CONCLUSION

This study used the philosophy of PC as an investigative framework for the Covid-19 experience in three large European countries. The intelligent performance management of public sector activity is challenging as measurement systems (as in the case of Covid-19) are uncertain and partial in scope. They are, therefore, unlikely to capture the full complexity of situational reality. Thus, it is important to develop conceptual frameworks to help meet this challenge. This study shows that PC can help in identifying criteria which can help in developing performance management quality.

PC provided the means to pinpoint how different approaches to management impacted on the level of success enjoyed by each country in dealing with Covid-19. The results indicate that where the performance management system facilitates effectiveness in developing, integrating and applying the four dimensions of PC, a relatively higher level of action success in safeguarding the population is attained.

Table 1 illustrates, in summary form how the study was conducted. It explicitly links the theory framework to the empirics. The vertical axis shows the elements of PC used in analysis and the horizontal axis shows the time phases that comprised the first wave of Covid-19. The result is 60 cells which locate the strengths and weaknesses of each country's performance management of the virus. It emphasises the more consistent German response over the PC dimensions and most of the pandemic phases. It thus locates in space and timing, the sources of superior performance.

In Germany, a singularity of values until the loosening up phase ensured goal clarity. Prompt prioritisation of factual knowledge acquisition from the outset enabled the generation of action possibilities that were founded in the reality of the pandemic. They were first, to recognise the

potential severity of the Covid-19, to organise nationwide test and tracing and to establish isolation procedures. A strong learning process driven by scientific enquiry was evident. A strong communication network involving scientist, politicians and the public was in place and functioned well. A strong integration of the PC dimensions was achieved and this provided the basis for action success by narrowing the gap between pro-active and pragmatic truth.

Table 1 also illustrates the contrast between Germany and the other two countries. In the latter countries there was initial unreadiness and complacency and a tardiness to act. Their values were pluralistic and under great uncertainty this complicated action choice. It was only by the experience of the virus that its seriousness was recognised and then their systems of generating factual knowledge and appropriate action possibilities improved somewhat. Communication channels functioned poorly and consequently the integrated basis for successful action was absent for most of the period.

The analysis possible from Table 1 indicates when (horizontal axis) performance management differences occurred and how (vertical axis) they occurred. However, it does not explain why they occurred. National health performance systems operate within structures of organisation and governance. These structures merit further investigation to ascertain the extent to which they may have a role in facilitating or constraining the PC dimensional approach to successful action. It is apparent that each country has its own markedly different traditions in the NPM of healthcare (Dent, 2005; Dressler, 2020). German healthcare is organised on the principle of juridified self-regulation. This means that the federal state defines the overall framework for medical care and its responsibilities. Regional autonomy for resources and action possibilities are high and medical doctors have work autonomy and self-regulate. Conflicts of interest between units are handled by interactive communication and negotiation where various actors' views are brought to the table. This means professional values and observation of detailed facts and action possibilities can be clearly communicated to politicians and public to ensure dimensional integration. In Italy the implementation of NPM is influenced by a political and local 'clientelistic-particularistic' network involving a multiplicity of actors (Pisano *et al*., 2020). The approach can be characterised as one of 'insecure command and control' which makes communication and action co-ordination difficult. Factual information and action possibilities cannot be quickly produced and communicated. In the UK, healthcare operates as a quasi-market with a political and managerial agenda for efficiency improvement and strong controls on capacity. Central control at arm's length involve guidelines, results measurement, standards and reviews. This managerial system (Dent, 2005) lacks good medical based communication channels and this starve political leaders of factual information and the ability to promptly generate sound action possibilities. The system was not set-up to develop needed knowledge and initial guidance followed beliefs about preparedness and the low severity of the virus impact.

The study's findings contribute to the existing literature on PC and on accounting and the pandemic. It demonstrates a novel use of PC as a lens to explain the relative success (or failure) of action responses. In this case, the assessment of performance management responses at governmental level is achieved through comparative analysis based on the framework provided by PC. It also explains the derivation of the action control responses that Parker (2020) found to be the source of organizational and managerial policy changes. Additionally, it supplements Yu's (2020) use of citizen testimony to hold public sector management accountable for their Covid-19 responses as it provides another analytical tool to judge their actions. Finally, it

generates evidence on the reasons for the tardiness found by Ahmed *et al*. (2021) in the introduction of testing for Covid-19 in the UK.

Further research could extend the PC approach to the study of subsequent waves of Covid-19, to the experiences of other countries to the learning mechanisms about Covid-19 and to the development of treatments (as opposed to restrictions) for the virus. The influence of healthcare governing structures on performance may also be illuminated by using the PC lens.

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	Plan, a priori setup			Outbreak			Lockdown			Loosening up		
Country	**Germany**	**Italy**	**UK**	**Germany**	**Italy**	**UK**	**Germany**	**Italy**	**UK**	**Germany**	**Italy**	**UK**
Values												
Health	Yes	Yes	Secondary	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Economy	No	Yes	Yes	No	Secondary	Yes	No	No	No	Some	Some	Some
Facts												
Health care system	Yes	Yes	Yes	Yes	Shortage	Shortage	Yes	Shortage	Shortage	Yes	Yes	Yes
Surveillance system	Yes	Some	No	Developing	No	No	Detailed	Developing	Developing	Advanced	Established	Established
Possibilities												
Treatment illness	Available	Available	Available	Threaten	Collapse	Collapse	Adapting	Extending	Extending	Operating	Operating	Operating
Produce knowledge	Ready	Abstract	No	Operating	Inoperative	Unready	Advancing	Materialized	Ambiguous	Refining	Operating	Operating?
Communication												
Coordination	Yes	Unclear	No	Yes	No	No	Yes	Partly	Poor	Yes	Partly	Poor
Integration	Yes	Incomplete	No	Yes	No	No	Yes	Partial	Poor	Yes / detailed	Yes / broadly	Yes / uncertain

Table 1. A comparative summary of the four dimensions and their integration during the four phases of the first wave of COVID-19