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Humboldt-Dachroeden, Sarah

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A governance and coordination perspective - Sweden's and Italy's approaches to implementing One Health

Sarah Humboldt-Dachroeden

Department of Social Sciences and Business, Roskilde University, Denmark



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ABSTRACT

The aim of this study is to broaden the understanding of how different institutional and political contexts influence the successful implementation of One Health activities. To do this, a comparative case study of Italy and Sweden, based on qualitative interviews was conducted to get an inside perspective of the structural and operational factors that impacted the implementation of the One Health approach. Concretely, the study draws on thirty-one interviews of experts from Italian and Swedish public health, veterinary, food and environmental institutes that were conducted from 2020 to 2021.

The study identified important differences and similarities across the two countries with respect to governance and coordination practices. The different governance practices demonstrated that the creation and design of government agencies affected the ability to collaborate within and across sectors. Another distinction among the countries was their different approach to One Health-related procedures and meetings. Non-formalised and irregular approaches lead to challenges for collaboration and more fragmented One Health-related outputs. Similar coordination approaches in the two countries showed that institutional and project-specific One Health strategies enabled an inclusive process of designing the One Health activities. Leaders can contribute to implementing One Health projects and networks, by brokering to different sectors, enabling heterophilious collaborations and promoting knowledge translation.

Hence, the comparative analysis provided insights and lessons learned into understanding institutional and government set-ups influencing One Health implementation and can inform about processes and steps that are crucial when planning and designing One Health activities.

1. Introduction

The One Health approach is an approach that is embedded in the sectors of public health, veterinary and environmental sciences, and it acknowledges their interdependencies. It suggests a coordinated as well as collaborative approach to designing programmes, community-based activities and policies with the goal of achieving optimal health outcomes for humans, animals and ecosystems. The approach can be implemented on local, national and international levels, and emphasises the importance of coordination, collaboration as well as communication across sectors (OHHLEP et al., 2022). The One Health approach has been valued as a tool to comprehend the complexity behind health threats like zoonotic diseases, which are diseases that can spread between animals and humans, and antimicrobial resistance, which happens when microbes become resistant to antimicrobial drugs (Zinsstag et al., 2020). The COVID-19 pandemic has reinforced this notion, considering its potential animal origin and ability to spread between humans and animals

like minks or pets (Mushi, 2020; Ruckert et al., 2020). Nevertheless, as highlighted by a systematic literature review, there have been some challenges for implementing the One Health approach in practice (dos S. Ribeiro et al., 2019). Dos S. Ribeiro et al. (2019) list challenges such as the issue of disciplinary silos, the lack of engagement of the environment sector, the lack of funding, and the lack of awareness and commitment of policy-makers.

One Health implementation has been addressed in the academic literature. Studies often focus on specific One Health topics such as arbovirus in Serbia, Tunisia and Georgia; West-Nile virus in Italy; or joint surveillance activities in Australia (Dente et al., 2019; Johnson et al., 2018; Paternoster et al., 2017). The studies have found partly integrated One Health approaches across sectors. But issues of separated data collection and analysis, of communication, and of a lacking uniform understanding of One Health appear in most studies. Similar to dos S. Ribeiro (2019), the studies highlight shortcomings of funding, and of policy-maker's awareness as well as willingness to implement One Health

E-mail address: sarahhd@ruc.dk.

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activities (Johnson et al., 2018; Paternoster et al., 2017). In some non-European countries, there have been more elaborate approaches to explicitly investigate One Health implementation, such as in Nepal, Uganda, or Kenya (Acharya et al., 2019; Buregyeya et al., 2020; Munyua et al., 2019). The studies reported on the countries One Health ambitions, highlighting that they all established One Health-related networks. Among the issues they experienced were coordination and administrative challenges on regional and national levels. Investigating One Health implementation has been limited within a European context. One study has examined One Health practices across Swedish government agencies, which found that formulation of One Health strategies within agencies can clarify practical and procedural issues. The study indicated that support of policy entrepreneurs can facilitate to reach political awareness (Humboldt-Dachroeden, 2021). Altogether, the studies on One Health implementation coincide in issues of lack of funding, communication, and awareness among policy-makers (Acharya et al., 2019; Buregyeya et al., 2020; Dente et al., 2019; dos S. Ribeiro et al., 2019; Humboldt-Dachroeden, 2021; Johnson et al., 2018; Munyua et al., 2019; Paternoster et al., 2017). As these issues are reported frequently, this study investigates the more underlying issues to One Health implementation. Thus, the study contributes to knowledge on the implementation of the One Health approach in a European context, specifically by analysing and comparing governance as well as coordination practices in Sweden and Italy. This allows for a unique comparison of differences and similarities regarding structural and institutional settings.

Specifically, the study examines expert opinions and perceptions who work at Swedish and Italian public health, veterinary, environment and food institutes. The investigation into the two cases aims to broaden the understanding of the different institutional and political contexts in which One Health activities are implemented. It provides lessons learned and gives unique insights into Swedish and Italian coordination and governance practices of the One Health approach within institutions on the human-animal-environment interface.

1.1. Theoretical considerations

To comprehend institutional contexts of public health, veterinary, food and environmental institutes, this study drew on notions of network governance theory. This provided an understanding of the concepts of governance and coordination that were inductively established. Network governance theory refers to a set of theories that address decision-making processes of public policy outcomes (Powell, 1990; Rhodes, 1996).

Governance networks function as space for governments and other actors to make and implement policies (Skelcher et al., 2011). Governance within governments and governmental agencies refers to the government as a system, to processes and procedures that are in place to manage a country's affairs from national to local levels (Verhoest et al., 2012). The system, its processes and procedures impact decision-making and implementation of decisions, it can be challenged by boundaries of silos, in which ministries and government agencies are located (Egeberg et al., 2016). Further, different actors interact within governments and government agencies who have different agendas due to the mandates they receive from the ministry they are under (Rhodes, 1996, 2017).

In the context of this study, coordination describes the process of individuals working together, to guide others and build networks specific to One Health issues within and across government agencies and institutes of different sectors (Hecló, 1978; Rhodes, 2017). To coordinate (One Health) activities across sectors can be challenged by conflicting interests (Hitziger et al., 2018). However, coordination has been found to be crucial for actors to align actions and achieve common goals (Rhodes, 2017). Coordination relies on individuals, their relationships, information exchange, governance structures and their task as well as responsibility distribution (Gulati et al., 2012).

Network governance theory facilitated an understanding of governance that explained structural aspects of governments and governmental agencies, what actors as well as sectors can be involved, and how

the system is built up (Rhodes, 2017; Skelcher et al., 2011). It allowed to examine coordination within and across agencies, by exploring strategies, networks, and their outputs (Hecló, 1978; Rhodes, 2017). Further, theoretical notions of knowledge translation processes were used to investigate underlying structures that facilitate coordination and governance. Coordinating One Health activities means to provide platforms where knowledge translation processes can take place (Hitziger et al., 2018). Knowledge translation is the process of transferring knowledge (e.g. scientific findings and data) between different actors (Liyanaage et al., 2009). These processes are essential when multiple sectors are involved (Hitziger et al., 2018). Interactions of actors within networks can facilitate knowledge translation by setting out structures for coordinating cross-sectoral collaboration (Boyko et al., 2012; Liyanage et al., 2009). However, networks rely on relationships among actors (Gulati et al., 2012). Those relations are often homophilious, meaning that the ties between actors are formed between individuals that are similar to each other (McPherson et al., 2001). For example, actors working on the same topics or within the same institute. Once relations are established and complementary skills are recognised, people tend to persist in collaborating and maintaining relationships (Tasselli et al., 2015). Altogether, the theories and concepts are utilised to comprehend government agencies, their networks, how they govern and coordinate the One Health approach across sectors.

2. Methods

2.1. Case selection

A comparative case study of Swedish and Italian public health, veterinary, food and environmental institutes was conducted. Often, the One Health approach addresses the three sectors of human health, animal health and the environment. This study also included the food sector due to its inextricable link to and dependence on the other sectors (OHHLEP et al., 2022). Food plays a crucial role for the Swedish One Health approach, demonstrated by a stand-alone food agency (Burström & Sagan, 2018). Further, the topic of food is represented in all Swedish and Italian institutes (Burström & Sagan, 2018; ISPRA, 2022b; Naturvårdsverket, 2022; Poscia et al., 2018).

The case study provided a structured approach and enabled a more in-depth study of similarities and differences of operationalising the One Health approach across the two cases (Yin, 2014). Sweden and Italy were purposefully selected cases because both countries demonstrated efforts to implement the One Health approach (e.g. through their surveillance activities of zoonotic diseases, national action plans for antimicrobial resistance or establishment of cross-sector collaborations (Ministry of Health, 2020; SVA, 2022a)). Further, Sweden and Italy are critical cases as they provided relevant information on One Health implementation that can be helpful in other countries contexts. The cases were specifically selected due to their ability to demonstrate institutes and actors efforts of operationalising the One Health approach (Flyvbjerg, 2006). In particular, the cases provided insight into two differently built-up governments in terms of ministries and their respective services. The services that were included in the analysis were the National Veterinary Institute, the Public Health Agency, the Food Agency, and the Environmental Protection Agency in Sweden. The institutes in Italy were the National Public Health Institute, four regional Veterinary Institutes and the Institute for Environmental Protection and Research.

Italy has a centralised public health institute, a centralised environmental institute, and ten regional veterinary institutes that are spread across Italy and have a jurisdictional area for one to three regions (ISPRA, 2022a; Poscia et al., 2018). There are 21 decentralised public health and environmental agencies within Italy's 20 regions (Poscia et al., 2018). One region (Trentino-Alto Adige) is split into two autonomous provinces, making it 21 regional health-related authorities (AGENAS, 2022). There is no food institute. The institutes are mandated by the following ministries: Public health and veterinary institutes are under the Ministry of

Health; and the environmental protection and research institute is under the Ministry of Environment (see Fig. 1).

Sweden has centralised public health, veterinary, food and environmental protection agencies. The regional services within the 21 regions that are responsible for issues of public health, animal health and the environment must abide to national legislations (Burstrom & Sagan, 2018; Swedish Environmental Protection Agency, 2017). The national agencies are mandated by the following ministries: The public health agency is under the Ministry of Health and Social Affairs; the veterinary and food agencies are under the Ministry of Enterprise and Innovation; and the environmental protection agency is under the Ministry of the Environment (see Fig. 1).

Comparing the Swedish and Italian system opened up a vantage point into government set-ups of ministries and services. This revealed implications the set-ups can have on the implementation of the One Health approach. As described, the countries differ from one another in certain operational and structural aspects. The comparison shed light on effects and underlying factors that are favourable or unfavourable to achieve One Health implementation and outcomes.

2.2. Interviews with Swedish and Italian experts

Qualitative expert interviews were conducted from March 2020 to October 2021 to gather structural and context-specific information of One Health practices within and across institutes (Bogner et al., 2009). To identify relevant interviewees, a purposive sampling strategy was employed to choose a representative sample of experts from public health, veterinary, food and environmental institutes (Oliver C. Robinson, 2014). Some interviewees were part of the One Health European Joint Programme (OHEJP). The OHEJP is a European Union-funded project performing several One Health-related research projects (OHEJP, 2020). Locating interviewees who are in the OHEJP consortium ensured that interviewees had knowledge about the One Health approach. Additionally, the snowballing sampling strategy was used to reach experts from environmental and regional veterinary institutes. Before approaching interviewees, they were screened in terms of their expertise of One Health topics (e.g. via their research fields and outputs). Experts who did not seem to have worked with One Health were not considered as interviewees. While subjective and potentially excluding

relevant interviewees, this screening ensured that the participants had knowledge about and worked with the One Health approach. In total, thirty-one interviews were conducted, see Appendix A. Each interviewee was assigned a number that links them to their background and work area when quoted in the result section. The limited number of interviewees from the Swedish food agency and the Swedish as well as Italian environmental institutes were due to the lack of contacts and responses of experts from those institutes.

2.3. Data collection method and analysis

The COREQ checklist for reporting qualitative research (see Appendix B) was used to report the findings (Tong et al., 2007). An interview guide was constructed (see Appendix C), which was reviewed by a social science and a veterinary expert. Five pilot tests were conducted with a PhD student as well as experts from the Danish National Food Institute and Public Health Institute. This enhanced the validity of the interview guide by clarifying and improving coherence of the questions. Informed consent was obtained, and interviews were held face-to-face, as well as on-line via Microsoft Teams or Skype for Business. For the face-to-face interviews, audio, and for the online interviews audio and video were recorded. The semi-structured interviews with the participants lasted between 40 and 70 min. Verbatim transcription was used, which means that grammar and syntax were lightly edited, and filling words removed. The thematic content analysis was inductively conducted via the NVivo software (NVivo Pro, version 12). It resulted in the formulation of six themes. The themes (1) 'Structural aspects and institutional politics in Italy' and (2) 'Structural aspects and institutional politics in Sweden' pertained to the set-up of governments and their services as well as the governance of One Health-related activities. In the following, this will be presented under the heading 'Governance'. The themes (3) 'One Health-related strategies within and across sectors' and (4) 'One Health-related networks' demonstrated coordinated efforts of operationalising the One Health approach. This will be addressed under the heading 'Coordination' in the result section. The themes (5) 'Impressions of current pandemic' and (6) 'Experiences within One Health projects' were also deduced from the codes. The former theme emerged through the often exemplified COVID-19 pandemic as well as related surveillance activities, and the latter referred to responsibilities, experiences and tasks

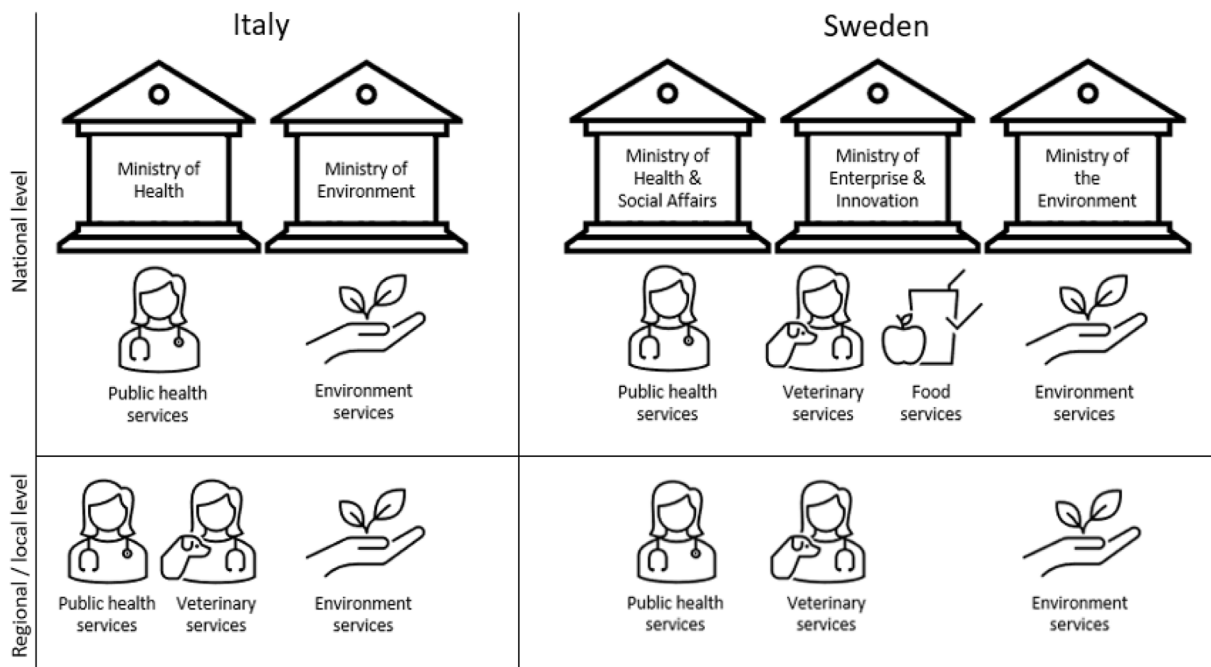


Fig. 1. Italy's and Sweden's distribution of national, regional and local One Health-related services under the ministries.

of interviewees. The themes were frequently mentioned by interviewees. This generated a pattern that highlighted structures and set-ups in Italian and Swedish public health, veterinary, environment and food institutes. It elucidated their strategies, networks and outputs. A limitation of the thematic content analysis is the subjectivity of perception and selection of themes (Guest et al., 2012). To minimise the thematic content analysis limitation of subjective perception and selection of themes, the themes were reviewed to ensure consistent and appropriate categorisation of the codes.

3. Results

The interviews indicated a general enthusiasm of the One Health approach among the Swedish and Italian interviewees. However, there are challenges and differences in the implementation and operationalisation of One Health activities. The focus was on the experts' experiences of national and institutional One Health practices to reveal unique insights into aspects that allow or inhibit the implementation of the One Health approach. The analysis of the interviews revealed issues that were categorised under the two following headings 'Governance' and 'Coordination'. Governance elucidates the structural aspects of governments and governmental agencies, while coordination refers to subjective perspectives of coordination within the agencies. This aided to explain the differences and similarities within Swedish and Italian institutes, as well as to contextualise the countries One Health approaches.

3.1. Governance

In the following are the experts' reflection on government structures and governance. First, Italian expert experiences of One Health governance within government institutes are described, followed by Swedish expert experiences. Fig. 2 illustrates the interviewees statements of which institutes are involved in One Health activities and how they operationalise One Health via their collaboration efforts and outputs.

3.1.1. Italy

The Italian public health institute is structured in many departments including a veterinary department and an environment department. One interviewee described the departments "going from environment, food safety, to infectious diseases to all communicable diseases to many, many other fields that seldom are all together represented and covered by public health institutes" (16, Public Health Institute, Italy). As the interviewee indicated, food safety is covered by the public health institute, but the veterinary institutes also deal with some aspects of food safety. There is no national veterinary institute, instead, there are ten regional veterinary institute. Although many respondents emphasised the well-established structures and network of the veterinary institutes, some interviewees revealed a disadvantage in regard to applying for grants. It was stated that instead of regional veterinary institutes, a national veterinary institute could be an advantage to "[...] apply to research projects or other activities [...]" (26, Veterinary Institute, Italy). Another respondent from an Italian veterinary institute supported this, adding that being a regional authority with smaller administrative offices challenges the ability to apply for grants, especially elaborate ones from the European Union. The institute for environmental protection and research is the national authority covering the environment. There are connections to the public health institute's environment department, as well as close contacts with the regional environmental institutes and their laboratories.

The Italian national and regional authorities work together on specific projects or ongoing surveillance activities. However, concerns were raised regarding clashes among national and regional approaches (see Fig. 2, top box on the left). This was attributed to the independence of the Italian regions that have their own laws, as one interviewee lamented: "We have 21 regions, we have 21 different health systems, which is not good for a country" (14, Public Health Institute, Italy). To approach this issue, interviewees emphasised the need to facilitate dialogues between national and regional levels to understand their needs and simultaneously promote the One Health approach.

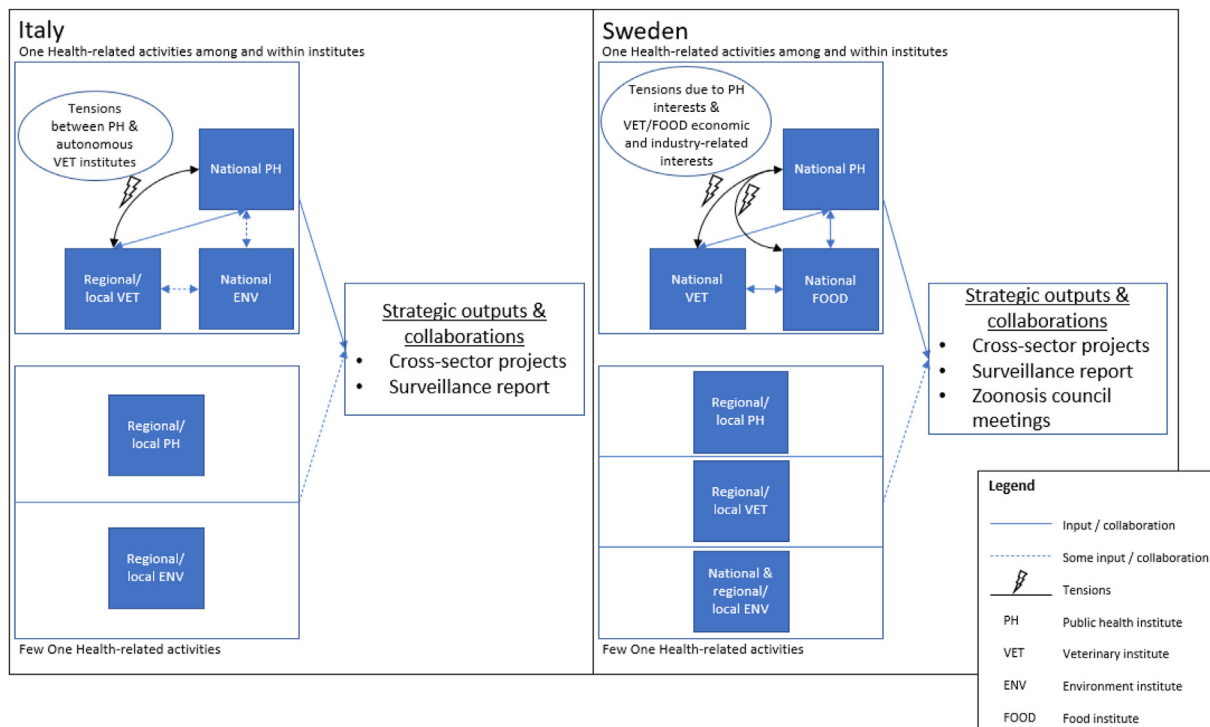


Fig. 2. One Health operationalisation in Italy (left) and Sweden (right). Main actors and activities according to interviewees.

3.1.2. Sweden

In Sweden, there are authorities on regional and local levels responsible for issues of public health, animal health and the environment, which are regulated through national legislations (Swedish Environmental Protection Agency, 2017). However, it was stated that the local municipalities “haven’t worked with One Health at all” (17, Environmental Agency, Sweden). This might be related to Sweden’s more national approach to One Health (see Fig. 2, top box on the right), as one interviewee stated: “We are a small country, just 10 million people. We do most things on national level.” (14, Veterinary Agency, Sweden).

Both, the Swedish national public health and the veterinary agencies are expert authorities and provide scientific advice to their respective ministries. In contrast to Italy, Sweden has a stand-alone food agency. The food agency deals with water, especially drinking-water, which, as an interviewee explained is covered by environmental institutes in most other European countries. This categorisation can be a challenge for the food agency, as in Europe “no one wants to discuss drinking-water [with the food agency], because it is [categorised under] environment and not food” (10, Food Agency, Sweden). The Swedish environmental protection agency covers other water-related topics such as water use and wastewater. In general, the agency focuses on “compiling knowledge and documentation” and developing and implementing environmental policy and does not have own laboratory capacities (Naturvårdsverket, 2022).

The different mandates of the agencies and their resulting agendas and priorities can cause conflicts and clashing interests (see Fig. 2). The food agency must for example take into account the industry’s (“the companies, the food producers”) interests, as it is in their “mission to support them” (5, Food Agency, Sweden). The veterinary agency must consider “economic interests that sometimes [come] before [the] health of the animals” (11, Veterinary Agency, Sweden).

3.2. Coordination

Coordination was approached from different angles by the interviewees. In the following, the findings on coordination in relation to strategies and networks within and across agencies are outlined.

3.2.1. Strategies

Many interviewees emphasised the extensive coordination efforts needed to realise the One Health approach. Interestingly, to accomplish this, neither Swedish agencies nor Italian institutes employed a One Health strategy. Although no specific One Health strategy was employed, experts from both countries emphasised that there are approaches to “overcome the division within the different scientific fields” (15, Public Health Institute, Italy), to “meet [...], to attend the different meetings [of] outbreak groups together with the different agencies”, and that there is a “[...] One Health [...] base in whatever we are doing” (11, Veterinary Agency, Sweden).

For example, in Italy, the One Health approach is realised through research activities of institutes. Italian interviewees did not indicate that national and regional institutes established formal frames for meeting to discuss One Health-related themes. However, interviewees described some informal approaches: “One Health is being taken as a paradigm or a conceptual reference for departments, different departments in our institute. And recently we started to talk to each other and to interact. We are now trying to launch an initiative gathering all of us” (16, Public Health Institute, Italy). The initiative was called the ‘One Health group’, and is confined to the public health institute, though including several departments to discuss interdisciplinary One Health issues. A follow up with interviewees revealed that the group has established itself informally in 2021, operating under the president of the Italian public health institute, with meetings approximately every two months. Further, the Ministry of Health has a One Health strategy for antimicrobial resistance (Ministry of Health, 2017). A key output is the national prevention plan, which “[f]or the first time, [...] is urging the development of the One Health approach” (32, Environmental Institute, Italy). The report is

issued every three to five years by the Ministry of Health, supported by the public health institute, including also environmental and veterinary perspectives (Ministry of Health, 2020).

In Sweden, there are several opportunities to discuss One Health-related issues, for instance in bi-monthly meetings, involving the veterinary, food, and public health agencies, as well as the Swedish Board of Agriculture. The Swedish Board of Agriculture is an expert authority, covering agriculture and horticulture, which also has a department for animal health and welfare (Jordbruksverket, 2021). Further, the Swedish Zoonosis Council, including the veterinary, food, and public health agencies, as well as the Swedish Board of Agriculture, Work Environment Authority, County Medical Officers, County Veterinary Officers, and representatives of the municipalities meet four times a year to discuss “strategic issues” relating to zoonoses (Ellis-Iversen et al., 2019). Another initiative is One Health Sweden, a platform for scientists working with zoonoses and antimicrobial resistance to network and connect (Hallstan, 2021). A Swedish One Health output is the joint report on zoonotic diseases. The report is created annually since 2000 in collaboration of the veterinary, food and public health agencies as well as the Swedish Board of Agriculture (SVA, 2022a). Sweden also develops an action plan to combat antimicrobial resistance, which emphasises and employs the One Health approach in terms of cross-sector collaboration including public health, veterinary, food and environment sectors (Wierup et al., 2021).

There was a dissonance between national and local One Health practices in both countries. Interviewees felt a lack of dialogue and communication that caused “the regions to take decisions that are completely different than those of the central government” (14, Public Health Institute, Italy). Putting strategies in place that “make it to a routine” (4, Public Health Agency, Sweden) to collaborate was indicated by both Swedish and Italian interviewees as beneficial for a harmonised One Health approach. Additional strategies to achieve multifaceted One Health activities were to involve “sociologists and lawyers” (23, Public Health Institute, Italy) and to consider “economical, social, cultural” aspects (11, Veterinary Agency, Sweden).

Interviewees also pointed towards another strategic approach that could encourage the use of the One Health approach, which was to put “[One Health] in a broader context, also with sustainability and climate change”, as those approaches already include “ecological and social and economic” dimensions (6, Food Agency, Sweden). Or biodiversity, as “it has already sort of an institutional stamp in several documents” (32, Environmental Institute, Italy). The notion of increasingly connecting One Health to those environmental concepts was raised because within the environment sector, One Health “is not very much felt as an urgency”, in contrast to the environmental concepts (32, Environmental Institute, Italy).

3.2.2. Networks

To coordinate One Health activities, the role of individuals as leaders can be especially beneficial for creating networks within and across institutes (Stephen & Stemshorn, 2016). For example, in Sweden, the notion of One Health is well known and there are already networks established in the form of regular cross-sector meetings for zoonoses and outbreaks, or the One Health Sweden network, connecting experts from different sectors. One interviewee emphasised that “in every One Health activity, you really need to have someone steering the process towards using the data together, sharing the data constantly, and using information from one side as an input for the other side” (15, Public Health Institute, Italy). This can also help to avoid doing the same work double across and within institutions, as a veterinary scientist emphasised: “We have different plans, but with the same task, within the same institutes. We lose money, we lose efforts. We don’t put together our commitment in a way that we probably can reach much more results” (28, Veterinary Institute, Italy). Similarly, another interviewee expressed that “[t]here is a big risk of people doing the same work in different places at the same time if you don’t coordinate and get to know each other” (7, Veterinary Agency, Sweden).

In both, Swedish agencies and Italian institutes, there are collaborations across disciplines that are perceived to be One Health. The collaborations felt valuable, as one interviewee put it: “It is a very enriching experience to see the different perspectives from each of the disciplines involved in One Health. And it makes me realise how small and narrow my own field is. And if you don't put it into perspective, you don't really understand the full impact” (8, Veterinary Agency, Sweden). However, there are limits for collaborations, as they happen more likely within institutes to different departments or between the public health and veterinary institutes. There are some connections to the environment sectors, but those have less routines. In Sweden, those connections did not seem to include three-way collaboration of the public health, veterinary and environmental agencies. Rather, the connections were two-way collaboration among the environment and public health agencies on specific topics, such as “outdoor recreation” and school children's “access to green areas”, or among the environment and veterinary agencies on “wildlife welfare” (13, Environmental, Sweden). An interviewee from the Italian environmental institute stated that they “do not think there is a strict cooperation [with the public health and the veterinary institutes]”, although it was mentioned that the COVID-19 pandemic provided a “chance to improve this cooperation” (32, Environmental Institute, Italy). Suggestions were that “[w]hen you have a problem for humans and for animals, you should also involve people interested in the environment, so you create such habits” (21, Public Health Institute, Italy), and to establish “[...] an institutional process of working together” (32, Environmental Institute, Italy). However, even if involved, the participation might be limited, as a scientist from the Swedish veterinary agency noticed: “I know [scientists from the environmental agency] have been invited for some areas of work but have not really participated so much” (3, Public Health Agency, Sweden). This was attributed by interviewees to the different tasks and agendas that the Ministry of Environment mandates to the environmental institutions, as compared to those for the veterinary and public health institutions, but also to limited personal contacts and willingness of the environment sector to engage. Further, across departments within an institute and across the borders of the institute, it was not always clear who to contact to establish collaboration. Connecting with scientists from the environment sector seemed especially challenging, as there are generally fewer research collaborations, and forums to meet, as one scientist stated: “I don't even think I understand who does that in my country. Who would we have to include? [...] [T]he environment would require so many different agencies. You know there is weather, there are natural resources ... I don't even know how we would go about it” (9, Veterinary Agency, Sweden). Interestingly, at the Italian veterinary institutes, there is more clarity regarding responsibilities and who to contact. The good structure and role allocation was generally well-known: “It is easy to work with the [veterinary institutes] especially if you are a vet, it is more difficult to collaborate with the human side, the public health colleagues, especially because [...] it is not clear who is tasked with what” (17, Public Health Institute, Italy). However, at the Italian public health institute, the presence of the environment department and the veterinary department was seen by many interviewees as a helpful connecting entity to respective national and regional institutes.

Some conflicts were pointed out among veterinarians and medical doctors, relating to veterinarians experiencing “difficulties to interact with physicians” (30, Veterinary Institute, Italy). This was attributed to the issue of “more vets than human doctors that are participating” in One Health projects (5, Food Agency, Sweden), and the sentiment that medical doctors “[...] are much less interested in One Health” (24, Public Health Institute, Italy).

4. Discussion

The case study demonstrated examples of One Health governance and coordination in Italy and Sweden. This provided a foundation to investigate some of the challenges of implementing the One Health approach,

comparing government and institutional structures as well as coordination practices. However, the small number of interviewees from the Swedish food institute and the environmental institutes in Sweden and Italy limits the research validity, as the perspective of the few interviewees is not representative. Nevertheless, the interviewees were included to gain general insight into the institutes and their structures, procedures and approaches to One Health. The findings of the study can inform about processes and steps that are crucial when planning to implement One Health activities. The knowledge translation perspective allowed to illuminate organisational structures and networks. In the following, the differences and similarities of the two cases are discussed.

4.1. Differences

4.1.1. Governance

The study showed that Swedish and Italian ministries and their services are differently structured, which affects the institutes agendas due to different mandates, interests and priorities. For example, while Sweden has a stand-alone food agency, in Italy food safety issues are dealt with by the public health and veterinary institutes. For the One Health approach, both setups can have advantages and disadvantages. While a stand-alone food agency can potentially result in a more focused conception of the topic, it can also lead to cementing another disciplinary silo (Manlove et al., 2016). Having food safety within public health and veterinary institutes can result in closer connections and collaborations on interdisciplinary issues like food-borne diseases, contamination, and animal welfare (Landford & Nunn, 2012). Similarly, the topic of drinking-water is categorised under the authority of the Swedish food agency, while some specific water-related topics are handled by the environmental agency. An interviewee highlighted that in Europe (as well as in Italy), water-related issues are usually dealt with by environmental institutions. Connecting the Swedish food agency with other countries' environmental institutes has shown to create challenges when dealing with water-related issues, as pointed out by an interviewee of the food agency. Categorising water under environmental institutes could not only facilitate a more coordinated approach, it can also provide an entry point for the institutes into One Health activities and projects that focus on issues like water-borne diseases. Hence, it is crucial to consider the collaboration potential and the topics that need to be dealt with before establishing a government agency (Rhodes, 2017; van Thiel et al., 2012). There are different ways in which governments can decide for the need of a government agency. Within the decision-making process, it is important to establish criteria that provide clarity on the agency's tasks and responsibilities. This can help to keep fragmentation of agencies limited, manageable and transparent (van Thiel et al., 2012). Developing criteria can support decisions for or against establishing national agencies. For example, the lack of a national veterinary institute in Italy has led to challenges in terms of acquiring funding for international projects. In contrast to the national institutes, regional veterinary institutes have small or no administrative departments with little resources that may assist in grant writing. This has led to fewer institutes able to apply for international funding opportunities. Evaluating this aspect could help to determine whether this is a challenge within all regional institutes. Establishing criteria (in the case of the Italian veterinary institutes it could be to acquire more funding or presence in international research projects) can identify the governments needs for the agency.

Another distinction is the different responsibilities of the institutes. Veterinary and food institutes have responsibilities for the industry and must take economic performance into account (van Herten & Meijboom, 2019). These responsibilities might clash with interests of, for example the public health institute, which rest primary on the health of the public. Establishing a One Health activity that in the design stage of the project considers the actors responsibilities, interests, and potential ways to align or adapt to them, can circumvent clashes (Rhodes, 2017). Further, it can facilitate knowledge translation across sectors, clarifying institutional boundaries as well as agendas, and promoting cross-fertilisation that

allows for aligning and adapting perspectives (Liyanae et al., 2009).

There are also differences in national and regional approaches. While in Sweden, most is coordinated on national level, leaving defined tasks to the regional and local authorities, in Italy, regions have more autonomy. This can lead to disparities in efforts to implement the One Health approach. In Sweden, a main issue between the national and local level was that the local levels rarely work with One Health. There is limited knowledge of the One Health approach and hence, One Health is sparsely integrated into local activities (Vestling, 2020). The lack of knowledge about One Health and the ensuing lack of implementation must be addressed, especially by national legislation and agencies as they direct the regional and local authorities' work. A way can be to involve regional actors into project design and planning stages to share knowledge and establish common goals, tasks as well as responsibilities (Gulati et al., 2012).

4.1.2. Coordination

Collaborations can result in complementary knowledge coming together and creating fruitful outcomes (Boyko et al., 2012). In Sweden, this can be seen by formalised procedures like regular meetings addressing outbreaks as well as investigations, and by outputs such as the report addressing antibiotic resistance or the yearly issued surveillance report. In Italy, One Health-related procedures and outputs are more fragmented and less formalised. This difference between Sweden and Italy might relate to the different sizes and structures within the countries. In terms of population, Sweden is much smaller and all four national agencies are in proximity (European Union, 2022; The Government Offices, 2014). In contrast, Italy has a much larger population, and while the public health and environmental institutes are both located in Rome, the veterinary institutes are spread across Italy (European Union, 2022; ISPRA, 2022a; ISS, 2022; Ministry of Health, n.d.). This posed as a challenge to find responsible individuals and set-up meetings. Italian interviewees did not mention regular, formalised meetings where outbreaks, zoonoses or other One Health-related topics were being discussed. However, the interviewees reported that a One Health group within the Italian public health institute was being formed. The One Health group can be a inception towards a more formalised process that may encourage interdisciplinary discussions (Skelcher et al., 2011). Italy's key One Health-related outputs are the action plan against antimicrobial resistance and the national prevention plan that address the One Health approach specifically, as well as many related topics (Ministry of Health, 2017, 2020). In comparison with the annually published Swedish surveillance report, the Italian national prevention plan is less frequently issued with three to five year intervals (Ministry of Health, 2020; SVA, 2022b). To establish more formalised networks (like the One Health group can become) and regular outputs (like the prevention plan), establishing a One Health strategy on institutional level can help to create One Health networks, projects and outcomes that are coordinated across sectors (Khan et al., 2018; Skelcher et al., 2011). It can establish stakeholder engagement procedures that facilitate the identification of responsible actors (Conrad et al., 2013). A strategy can further assist in connecting actors that previously might not have known one another. This can especially benefit the inclusion of actors from the environment, social and political sectors (Humboldt-Dachroeden, 2021; Khan et al., 2018).

4.2. Similarities

4.2.1. Governance

Similarities of the Swedish and Italian government and their governance practices were based on their democratic set-ups that allow for managing specific sectors within ministries. Further, the study showed that both governments and their agencies expressed their dedication to implementing the One Health approach. The countries main One Health-related functions and outputs, such as surveillance practices, reports, and networks were on a national level, while regional and local levels

addressed more specific One Health themes. Recognising the similarities of the government set-up and governance practices highlighted the importance of establishing structures that enable cross-sector governance (van Thiel et al., 2012). Clear agency-related set-ups facilitate comprehensive surveillance activities and reports that integrate essential components from the public health, veterinary, environment and food sectors. Hence, enabling cross-sector coordination facilitates and fosters One Health-related collaborations and networks. These factors can become lessons learned for other countries, transferring them to their context in terms of designing agencies with low barriers for collaboration.

4.2.2. Coordination

Mapping and engaging actors should happen early in the stages of establishing One Health activities. However, who partakes in activities is often determined by personal connections and convenience. People within the same institute and within close proximity are more likely to engage into collaboration. This phenomenon is called homophily (McPherson et al., 2001). When mapping for scientists to engage into One Health collaboration, an emphasis must be put on finding relevant actors (Mazet et al., 2014). Those actors might not be in proximity, both in terms of topic and location. Networking and resource-related efforts must be made to find and reach out to actors. The actors might not be within the usual pool of colleagues (Errecaborde et al., 2019; Mazet et al., 2014). As described above, more collaboration (and therefore knowledge translation) happens among the public health and veterinary sectors and fewer with the environment sectors. A special emphasise must be put on finding actors from the often-neglected environment sector (Essack, 2018). Communication and knowledge translation to this sector will facilitate collaborations (Boyko et al., 2012). It can reveal similarities in topics, technologies, and methods. It can also counteract duplication, like the collection of assimilable data or performing similar surveillance activities (Gulati et al., 2012). Further, and if feasible for the One Health activity, using terms and notions of already established approaches within the environment sector, like 'sustainability', 'biodiversity' and 'climate change', might facilitate knowledge translation. It can encourage inclusion of actors from the environment sector who are familiar with these concepts, and contribute to connecting One Health to those approaches.

Homophily does not only happen on the human-animal-environment interface. This study also indicated a gap or distance to actors from the social and political sciences. The social and political science sectors are lacking collaborations (and consequently also knowledge translation) and are not fully integrated in One Health networks (Lapinski et al., 2015). While social and political science actors can contribute in various ways to the One Health approach, like agenda setting, policy-making, contextualising through analysis of local to global realities, contributions of gender-based or indigenous knowledge, and much more, social and political scientists rarely contribute to One Health projects (Craddock & Hinchliffe, 2015; Degeling et al., 2015; Garnier et al., 2020). The more 'common' One Health actors from the natural and medical sciences might have no connections or reference persons to social or political scientists. However, the strategic inclusion of experts with social and political science backgrounds is argued to be essential to establish One Health projects that are comprehensive and sustainable (e.g. (Craddock & Hinchliffe, 2015; Degeling et al., 2015; Garnier et al., 2020; Lapinski et al., 2015)). Establishing inclusive networks relies on the effort of people who design One Health activities. Here, leaders can foster cross-sector relations through their ability to broker knowledge, meaning to connect to, and communicate with different sectors (Tasselli et al., 2015). They can use their competencies to influence individuals to enable innovation in terms of linking formerly disconnected or rarely connected sectors, which promotes the designing of inclusive One Health activities (Hecló, 1978; Tasselli et al., 2015). This encourages heterophily of the hitherto lesser involved sectors, and facilitates knowledge translation (Rogers, 2003).

Networks rely on relations among people (Errecaborde et al., 2019). Interviewees with veterinary backgrounds experienced challenges with experts in the human health sector, specifically with medical doctors. This might be due to different perspectives within these sectors: the individual versus the population perspective. While veterinary health professionals can have an individual perspective, working at veterinary clinics, they can also have a population perspective and deal with public health or epidemiology, managing numerous animals, herds, or samples in laboratories. Medical doctors usually have an individual approach, focusing on diagnosing and treating persons (King, 2021). Individual and population perspectives are both important and inextricably linked through context, circumstances and the environment (Arah, 2009). When investigating health or disease (in humans and animals), it is important to consider both perspectives. However, bridging the individual and population perspectives can be challenging. There might be misunderstandings or a perceived unimportance of more comprehensive approaches that take time, resources, and only show results delayed. Brokering knowledge across the sectors can facilitate a One Health approach that benefits from both, individual- and population-based perspectives (Tasselli et al., 2015). That the perspectives can complement one another was exemplified by the COVID-19 pandemic. Specific (human and veterinary) medical knowledge was crucial for understanding the pathways and course of the disease, which is important for promoting and protecting human and animal health (Ferri & Lloyd-Evans, 2021). At the same time, the population approach enabled veterinary laboratories in Sweden and Italy to assist and take active roles in diagnosing human samples to support hospitals. This was possible, as veterinary laboratories are usually equipped to deal with large amounts of samples (Humboldt-Dachroeden, 2021). Educating and leading discussions on the importance of both, the population and the individual perspectives, their links to disease prevention and health protection, as well as the abilities and benefits of both professions will be valuable for establishing One Health-related collaborations.

5. Conclusion

As One Health gains momentum, it is important to understand institutional governance and coordination that challenges or facilitates the approaches implementation within institutes that deal with cross-sectoral health topics. Italy and Sweden provide good examples to understand institutional and government set-ups that influence One Health implementation. This is because both countries promote the One Health approach but operationalise it differently due to the institutional and structural set-up of their agencies.

This article highlights the importance of considering the need for specific agencies and distribution of tasks, already when establishing the agencies. Decreasing agency fragmentation regarding the Swedish food agency by integrating it into public health and veterinary agencies can be beneficial for enhanced coordination and reaching of common interdisciplinary One Health goals. This also facilitates the food and veterinary sectors' roles of accommodating the industry's economic interests. The result can be an increase in formalised activities that lead to more One Health-related outputs. To achieve this, the implementation of institutional One Health strategies that are carried out by leaders who are able to identify responsible actors and connect sectors is important. This fosters diversity of sectors within One Health networks and enhances collaborative outputs. Similarities of governance and coordination practices in the two countries demonstrate the importance of the design stage of a One Health activity that includes the mapping of actors. While accounting for different interests, common goals must be developed to ensure effective cross-sector collaboration. Institutes will benefit from educating or employing brokers who enable the connection of different sectors and promote knowledge translation. This facilitates heterophily by enabling the engagement of lesser represented but relevant actors into One Health activities, such as those from the environment, social and political sectors.

This study presents insights into institutional governance and coordination processes. The lessons learned of the cases provide valuable information that can be used to enhance the design and implementation of a country's One Health approach. Future research about One Health implementation can benefit from a more focused engagement of actors, for example those from the environment sector or those coming from countries where the One Health approach is in its infancies.

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Declaration of competing interest

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssmqr.2022.100198>.

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