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# Facilitating inter-municipal collaboration through mandated collaborative platform: evidence from regional environmental protection in China

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**ABSTRACT**

This article argues for the need to go beyond appreciating hierarchy and network as separate coordination processes. Rather it conceptualizes a mandated platform approach to facilitate inter-municipal collaboration with little collaboration experience and diverse interests. Based on a mandated regional platform in China, this article examines what an appropriate mandate is, and how network coordination evolves on this mandated platform. Practically, this study provides a potentially new coordination approach that integrates hierarchy and network. It also has important theoretical implications to enhance our understanding of hybrid coordination and collaborative governance in the public management field.

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**KEYWORDS** Mandated collaboration; collaborative platform; inter-municipal collaboration; regional governance; environmental protection; China

## 1. Introduction

Inter-municipal collaboration (IMC) has been an ongoing place of focus in public management field (Agranoff 2012). It has been articulated as a valuable route to address cross-boundary problems, a response to environmental turbulence, a means to leverage additional resources, and a reaction to the detrimental effects of New Public Management reforms such as 'pillarization' and 'single-purpose organizations' (Bel and Warner 2016; Bryson, Crosby, and Stone 2006; Christensen and Lægreid 2007).

This article concerns IMC's coordination issues, regarding the activities municipal governments taking account of each other, moderating interest conflicts, and enhancing harmonization (Hall et al. 1977). One of the widely recognized coordination approaches for IMC is collaboration network (also called policy network or governance network, see Klijn and Koppenjan 2016; Koppenjan and Klijn 2004). This approach refers to the voluntary negotiation and partnership

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across horizontal governments, based on their perceived interdependence, mutual trust, and shared information (Bolleyer and Börzel 2010; Peters 2015). It argues for the capabilities of self-organization and self-steering across equal partners (Rhodes 2000; Feiock and Scholz 2010), but in practice can often be impeded by the lack of motivation, high negotiation costs, and free-rider problems (Ostrom 2005).

Another way to achieve coordination is through hierarchy, which means superior governments intervein in inter-municipal relations and facilitate their coordination through top-down mandates and regulations. Such approach aligns with the traditional state or bureaucratic model and is based on formal rules, command-and-control leadership, and legal authority (Bouckaert, Peters, and Verhoest 2016). Recent studies have amplified the advantages of hierarchical intervention in catalysing communication, setting rules, creating shared visions, and arbitrating conflicts (Mu, de Jong, and Koppenjan 2019); while its disadvantages, such as weak local compliance, high enforcement costs, and damage to autonomy, have been equally emphasized (Zhou and Dai 2022).

Previous studies on IMC largely treat the network and the hierarchical approaches as two separate, or even alternative processes. This disaggregation, we highlight, is flawed since extensive empirical studies have demonstrated the co-existence of both approaches in different national contexts (e.g. Liu et al. 2021; Dixon and Elston 2020; Cucciniello et al. 2015; Keast and Brown 2002). Broadly speaking, hierarchical mandate and voluntary networking are two basic modes for societal coordination (Thompson et al. 1991), and 'it is the mix that matters' (Rhodes 1997). Until recently, only a few studies have explored this mixed use of network and hierarchy with the introduction of concepts such as mandated network (Krogh 2022; Saz-Carranza, Iborra, and Albareda 2015), mandated collaboration (Hafer 2018; Rodríguez et al. 2007), and mandated platform (Haveri and Anttiroiko 2021; Silva, Teles, and Ferreira 2018).

However, these studies are preoccupied with the tension between horizontal governments' autonomy and superior governments' steering, shown as incompatible goals (An and Tang 2022), power bargaining (Saz-Carranza, Iborra, and Albareda 2015), and conflicting institutional logics (Krogh 2022). Little is known about: how hierarchy and network can be mobilized together to give full play to their respective advantages? Particularly, we lack the knowledge about how hierarchical mandate could be deployed appropriately, in order to facilitate collaboration (Hafer 2018; Cucciniello et al. 2015) rather than jeopardizing collaboration (Zhou and Dai 2022; Keast and Brown 2002).

To bridge this gap, this article proposes the 'mandated collaborative platform' concept to describe a particular organizational form where collaboration networks are imposed on autonomous but interdependent governments by higher-level authorities via hierarchical instruments (e.g. political or administrative orders). We develop this concept from Ansell and Gash's (2018, 20) 'collaborative platform' which refers to member-based 'organizations fledged with dedicated competencies, institutions, and resources for facilitating the creation, adaptation and success of multiple or ongoing collaborative projects or networks'. Moving beyond this definition, 'mandated collaborative platform' is related more explicitly to the hierarchical coordination, while it also recognizes the spontaneous network coordination among members.

In particular, our research questions read as:

(1) *What is an appropriate mandate for mandated collaborative platform?*
(2) *How does network coordination evolve on mandated collaborative platform?*

Our empirical setting is the *Leading Group of Air Pollution Prevention and Control (APPC)* in the Beijing-Tianjin-Hebei region in China, which was established by the State Council in 2013. Various central and local governments were pulled onto the platform to work together to fight against regional air pollution. We undertake an in-depth examination of the coordination processes and uncover how the hierarchical and network coordination approaches co-evolved on this mandated platform. Our research method is inspired by longitudinal case study and event sequence analysis (Spekkink 2015). The central defining characteristic of this method is that historical events and their causal relations serve as the basis for analysing 'what was happening', 'how or why did that happen', and 'what were the consequences' in a case. A more detailed explanation on this method is shown in section 5.

In the rest of the article, section 2 conducts a brief literature review of traditional coordination approaches for inter-municipal collaboration. Section 3 offers a conceptual background on mandated collaborative platform and compares this concept with the traditional coordination approaches. Section 4 and 5 respectively explain our research context and methodology. After that, section 6 traces the dynamic process of inter-municipal collaboration on the APPC platform. Section 7 analyses the case findings. Finally, section 8 concludes the article, points out the theoretical and practical significance, and clarifies the research limitations and the future research agenda.

## 2. Traditional coordination approaches for inter-municipal collaboration

Network and hierarchy are two traditional coordination approaches for IMC (Randma-Liiv, Uudelepp, and Sarapuu 2015). The existing literature on IMC suggests that the network approach is often adopted by the US metropolitans (Bel and Warner 2016; Feiock and Scholz 2010; Holzer and Fry 2011). Kettl (2002) described the US experience as a 'transformation of governance' with the emergence of voluntary 'collaborative networks'. Feiock and Scholz (2010, 5) called this 'self-organizing federalism', specifically emphasizing the US metropolitans' reliance on spontaneous actions and the endogenous development and maintenance of coordination mechanisms. Research by Youm and Feiock (2019) revealed that, in the US, hierarchical intervention cannot facilitate but crowd out horizontal collaboration because local municipalities will give up collaboration with their peers and turn to collaborate with the upper-level states armed with more resources. It corroborates earlier research of Keast and Brown (2002), which concluded central governments can challenge the horizontal collaboration once they became aware of a potential loss of decision-making power. Actually, early in the 1960s, scholars have recognized the voluntary nature of IMC in the US. Marando (1968) studied the Detroit metropolitan area and recognized that signing contracts and formulating joint agreements are two major coordination events for IMC. Hawkins, Hu, and Feiock (2016) also found that informal policy networks gained increasingly significance for IMC; they found that informal

interactions between city governments (e.g. the leaders' inter-personal dialogues and exchange visits) can positively moderate coordination.

Different from the US, most European countries adopt the hierarchical approach for IMC (Bel and Warner 2016; Hulst and van Montfort 2007). Dixon and Elston (2020, 747) argued that 'voluntary council partnerships providing services across their separate jurisdictions have not been widely practised in England' and 'joint working was simply not taken seriously'. After 2010, however, the 'self-sufficiency' ideology has been broken by the newly elected government and inter-council collaboration has been imposed from the top as a 'default proposition' (Dixon and Elston 2020, 764). Hudson (2004, 76) has argued that: "in the UK, politicians and policy makers have, in line with a top-down perspective, taken the view that 'mandated partnership is necessary'. In other regions in Europe, Luca and Modrego's (2020) study on Italy's municipal unions approved that small local governments cannot achieve management efficiency through voluntary agreements due to the abundant information costs and negotiation efforts. Casula (2020, 1846) supplemented that in Italy, higher-level 'governance bodies play a crucial role on reducing contractual risks and information barriers for municipal actors when assessing costs and benefits related to IMC arrangements' and this hierarchical force 'had a direct influence during all the phases of a collaboration process'. These studies have concurred Cucciniello et al. (2015), who found that in two Italian regions, the coordination in health care services required continued commitment by the top political and administrative players. In Spain as well, Bel and Sebő (2021) showed that all successful IMC share the trait of having higher tiers of government intervening and transferring additional resources to IMC.

China's practices regarding IMC are similar with Europe. That is, in the context of fiscal decentralization, interlocal competition and administrative fragmentation, IMC relies highly on hierarchical intervention rather than collaboration network. As Zhou and Dai (2022) showed, China's IMC has long been operated 'within the shadow of hierarchy'; and they found that hierarchical interventions, including top-down regulations and performance evaluation, can enhance the formation of collaborative arrangements. Similarly, Liu et al. (2021) revealed that non-participation of higher-level governments inhibits collaboration in air pollution control, particularly given the strong inter-local competition. More specifically, Mu and Spekkink (2018) and Mu, de Jong, and Koppenjan (2019) showed that vertical meta-governance can help break negotiation impasses and arbitrate interest conflicts between the collaborators. Based on 564 IMC agreements of four urban regions in China, Yi et al. (2017, 560) revealed that higher-level governments frequently get involved in IMC both formally and informally. Informally, top party and government leaders can show up in an interlocal policy forum as political support and commitment; they can also express encouragement to cities to engage in IMC in an administrative briefing or press conference. Formally, higher-level governments can introduce regulations and guidelines to impose or direct collaboration.

As can be seen, the past worldwide experience with IMC shows an explicit cross-national difference: the US relies on the network approach, while in China and the European countries, the hierarchical approach remains salient. This article goes beyond researching the hierarchical and network approaches separately, or discussing their respective merits/demerits. It contributes to the literature by examining how hierarchical and network approaches can be adopted together and work in synergy. To

this end, we will introduce the concept 'mandated collaborative platform', as a creative coordination structure, in the following section.

## 3. Mandated collaborative platform

Research on platforms in the management field originated in the business sector, where platforms were used to improve the coordination efficiency of product systems, industry supply chains, market ecosystems and constellations of industries (Thomas, Autio, and Gann 2014). This term is currently becoming part of the public management lexicon. 'Collaborative platforms' was constructed by Nambisan (2009, 44), who defined collaborative platforms as 'systems that make collaboration happen' and 'places where different organizations can come together and work creatively to identify problems, test solution prototypes, and implement the solutions'. Lately, Ansell and Gash (2018, 19) revisited the concept and defined a collaborative platform as an organization or a programme (e.g. consortium, partnership, forum, league, and board) with 'dedicated competencies, institutions, and resources'. They clarified that a collaborative platform differs from a regular organization in terms of its special aims for 'facilitating the creation, adaptation, and success of multiple or ongoing collaborative projects or networks'. Examples of collaborative platforms range from cross-national ones like the *Coral Triangle Centre* for marine diversity protection (Ansell and Gash 2018), to national ones like the *Swedish Civil Society Platform against Human Trafficking* (Erikson and Larsson 2020), and to local ones like various *Urban Innovation Labs* (Haveri and Anttiroiko 2021).

We focus on 'mandated collaborative platform' (MCP), a special form of collaborative platform. The special character of MCP lies in the fact that member participation is not voluntary; it is mandated by a third party that attempts to impose collaboration on the 'members to-be'. MCP can be created by administrative orders, legislative decisions, and policy rulemaking. Collaboration network as an important coordination approach can take place in MCP, but it is more predicted on local compliance rather than the spontaneous mutual recognition and commitments. Thus, MCP is an organizational structure loading both coordination efforts from hierarchy and network.

However, the hierarchical coordination effort on MCP differs fundamentally from the traditional hierarchical approach in the sense that the strength of mandate can vary significantly. At one extreme, a mandate can be so strong that the collaborators are left little room for self-organized collaboration. In this case, the mandator takes charge of everything, ranging from setting the platform scope and objective, to formulating the platform rules, member responsibilities and benefit distribution method. At the other extreme, the mandate can be very weak; the mandator only pulls in relevant actors and leaves the members to negotiate platform rules and to self-organize collaborative arrangements.

The network coordination on MCP also differs from the traditional network approach. First, in traditional networks, government organizations do not participate into any new organizations as members. That means governmental organizations involved in networks still keep their original identities. However, the participating governments in MCP's networks not only keep their original identities but also have a new common identity as platform members and thus need to follow the rules of the platform and join the platform events. Moreover, as Erikson and Larsson (2020) pointed out, actor relations in traditional networks are only loosely coupled; and

networks exist only through actual and ongoing actor interactions. Networks cease to exist if interactive activities stop. By contrast, MCP's collaboration networks are more structured than traditional networks because they are judicial entities armed with formal political and administrative status and power. Therefore, even when the members do not temporally interact on the platform, the networks on MCP still exist and are running. In addition, Haveri and Anttiroiko (2021) suggested that on MCP, network interactions usually take place in a certain space, meaning that the members are brought by the platform to a special facilitated digital/online or non-digital/offline location (e.g. a meeting place) for communication; however, actor interactions in traditional networks are usually virtual; sometimes non-contractual interactions are even counted if certain actors share common grounds (Spekkink and Boons 2016).

## 4. The research context: the Beijing-Tianjin-Hebei's APPC platform

The Beijing-Tianjin-Hebei (BTH) region is the biggest urbanized megalopolis region in North China containing municipalities of Beijing, Tianjin, and 11 cities of Hebei province. In 2020, the region had a total population of 110 million people and produced about 8% of China's GDP. The region had traditionally been involved in heavy industries and manufacturing. Beijing had strong iron and steel, petrochemical, and coal-fired boiling industries. Tianjin's strengths have always been in aviation, logistics, and shipping. Hebei was an agricultural province and had been long suffering from poverty. As the national statistics (2021) indicate, Hebei's economic development and public services are lagged Beijing and Tianjin (Table 1).

The region has long suffered from heavy haze pollution (Cai et al. 2017). This was partly resulted from the region's poor coordination for environmental protection. Before 2013, the Ministry of Ecology and Environment (MEE, formerly known as

**Table 1.** Social-economic-environmental information on Beijing, Tianjin, and Hebei (2013, 2020).

| | Beijing | | Tianjin | | Hebei | |
|---|---|---|---|---|---|---|
| | 2013 | 2020 | 2013 | 2020 | 2013 | 2020 |
| Urbanized area (Thousand $km^2$) | 12 | 16 | 2.3 | 2.6 | 6.4 | 6.3 |
| Population (Million people) | 21.25 | 21.89 | 14.1 | 13.87 | 72.88 | 74.64 |
| GPD (Billion Yuan) | 211346 | 402696 | 99454 | 140080 | 242596 | 360138 |
| GDP per capital (Yuan/people) | 100569 | 183980 | 71345 | 101068 | 33348 | 48302 |
| Local finance enterprise income tax (Billion Yuan) | 80.2 | 118.2 | 20.4 | 31.1 | 23.2 | 35.6 |
| Number of industrial enterprises above designated size | 3641 | 3028 | 5511 | 5120 | 13968 | 14239 |
| $PM_{2.5}$ ($\mu g/m^3$) | 90 | 38 | 96 | 53 | 70 | 45 |
| $SO_2$ emission (Thousand ton) | 87 | 1.8 | 216.8 | 10.2 | 1284.7 | 161.7 |
| National financial educational funds (Billion Yuan) | 89.4 | 127.9 | 49.9 | 51.9 | 85.2 | 164.0 |
| Number of urban health technicians per 10,000 people | 159 | 184 | 87 | 97 | 103 | 87 |

the Ministry of Environmental Protection) relied on the hierarchical approach to impose environmental regulatory objectives on local Ecology and Environment Bureaus (EEBs) but this approach was proven ineffective because the local EEBs showed low compliance intention, driven by the most important local goal of economic growth.

Apart from the failure of the hierarchical approach, Beijing, Tianjin, and Hebei also failed in their self-organized network coordination. Due to severe inter-municipal competition, the three places failed to reach any effective collaborative arrangements on joint environmental protection before 2013. They experienced difficulties in reaching an agreement on industrial relocation (Mu and Spekkink 2018). In addition, they cannot easily achieve consensus on cost allocation associated with pollution prevention. Thus, the failure of the network approach is mainly due to the difficulties in mediating conflicting interests. And the lack of an arbitrator to reconcile the conflicts, resulting in many policy deadlocks.

In 2013, the annually average $PM_{2.5}$ concentration had raised to 106 $\mu g/m^3$ in this region, which was 10 times the World Health Organisation air quality guideline value (Cai et al. 2017). The State Council recognized that a single reliance on hierarchical command or networked negotiation would be insufficient to guarantee the region's long-term sustainability. It passed the *Air Pollution Prevention and Control Action Plan* and established *the Leading Group for Air Pollution Prevention and Control (APPC)*, particularly for the BTH region (hereafter the APPC platform). The State Council pulled various governmental organizations at central and local levels onto the APPC platform and built up the platform structure, as shown in Figure 1.

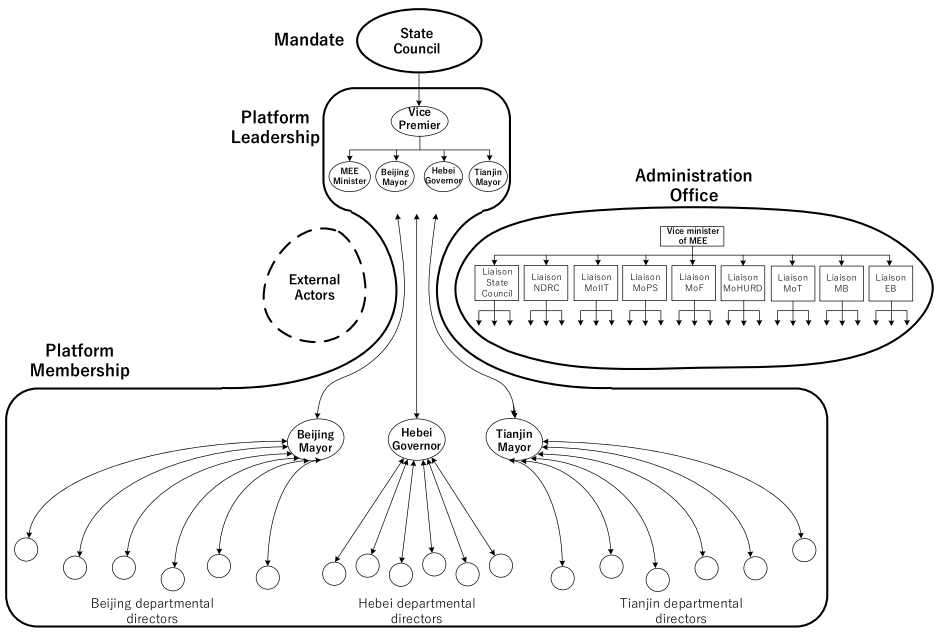


**Figure 1.** The organisational structure of the APPC platform (drawn according to the five basic parts of an organization by Mintzberg, 1993).

According to the notice of the State Council (2018), the APPC platform has three main structural components. On the top (below the mandate) is the platform leadership. The platform leader is held by the State Council's vice premier. The deputy leaders disperse in a negotiation network which is composed of the minister of MEE and the local leaders. The platform is armed with an administration office. The platform's chief administrator is taken by the vice minister of MEE. Below the chief administrator are administrative staffs or liaisons coming from diverse central government departments. The platform membership is composed of the local leaders and the directors of local governmental departments in Beijing, Tianjin, and Hebei. Depending on the issue discussed, the corresponding local leaders and directors will come together on an ad hoc basis and form into specific negotiation networks. Besides, the State Council clarified that, when necessary, external actors are allowed to be pulled onto the platform to support collaboration and devote resources.

## 5. Methodology

### 5.1. Introduction to the method

Our methodology is inspired by longitudinal research approaches developed in sociology (Abbott and Tsay 2000). At operationalization level, we used Spekkink's (2015) Event Sequence Analysis (ESA) to systematically investigate the longitudinal process of inter-municipal collaboration on the mandated platform. According to Spekkink (2015, 345), ESA builds on 'an ontological and epistemological position that views reality in terms of entities and events and that puts change and creativity in the forefront as fundamental aspects of reality'. This position provides us with a methodological perspective that focuses on the analysis of events and changes and thus is suitable to answer questions concerning how things emerge and change over time. In our case, for example, ESA brings us directly to the sequences of coordination events that constitute the changing pattern of inter-municipal collaboration.

### 5.2. Data collection

The database for our longitudinal case study is a set of coordination events that took place on the APPC platform. We identified and collected these events from various sources, including webpages, media reports, and government documents. The nature and the number of the data sources are shown in Part A of the online materials of this article. An event is identified when: (1) the information searched explicitly mentions the APPC platform; and (2) the event is about coordinated development issues in the BTH region. Five researchers collected the events and judged that the event list is 'complete' when the event items repetitively appear in the searching process. Then, the collected events from the five researchers were cross-checked and synthesized into one event dataset. This resulted in 93 events (see Part B of the online materials).

### 5.3. The coding scheme

After event searching, we labelled the events by using the symbols E1, E2, E3, . . . , E93, and recorded their time of occurrence and brief descriptions. Then, we examined the causal relations between antecedent events and succeeding events. A causal relation is

**Table 2.** The coding scheme.

| Coordination approach | Event initiator | Event type | Explanation |
|---|---|---|---|
| Hierarchical intervention | The mandator | Initiating | The mandator builds up the platform, pulls in related actors, and setting up the tasks and overall objectives. |
| | | Planning | The mandator makes plans for the development of the platform and formulates specific implementation routes. |
| | | Guiding | The mandator gives opinions on the platform development. |
| Network negotiation | Platform leadership | Rule design | The platform leaders collectively design rules for the platform operation and actor interactions. |
| | | Responsibility contracting | The platform leaders sign responsibility contracts and enforcement measures for achieving the platform targets. |
| | | Consensus building | The platform leaders negotiate and reach consensus. |
| | | Implementation | The platform leaders make implementation decisions, formulate implementation plans and action routes. |
| | | Information exchange | The platform leaders meet and exchange information on the working progress of each place. |
| | Platform administration | Interest mediation | The platform administrators act as a spokesman of the platform and leverage external resources for pushing platform development. |
| | Platform membership | Local platform construction | The platform members self-organize their own platforms to coordinate joint actions. |
| | | Interlocal agreement | The platform members sign formal interlocal contracts and agreements. |
| | | Policy tour | The leaders of member cities pay mutual visits to have a better understanding and seek for further collaboration opportunities. |

identified when the information searched explicitly claims that certain previous events are the preconditions of the occurrence of the latter event; and we judged the two events are successive because they touch upon the same issue or deal with the same problem. Next, based on our theoretical discussions on the hierarchical and the network coordination approaches, we used qualitative coding procedures to code the nature of the events. First, we distinguished between mandate events and network events. If the events' initiators are the State Council, then these events are mandate events; if the events are initiated by the platform actors, then these events are network events. We further grouped the network events occurred at the leadership, administration, and membership loci. Second, according to the contents of the events, we classified the events from certain groups into several types. The mandate events consist of three types: initiating, planning, and guiding; the leadership events consist of rule design, responsibility contracting, consensus building, implementation, and information exchange; the administration events only touching upon external resource leverage; and the membership events consist of local platform construction, interlocal agreement, and policy tour (see Table 2 for explanations).

### 5.4. Data analysis and validity check

In this study, we used visual mapping techniques to analyse data, which is discussed by Spekkink (2015). We adopted the Gephi software to visualize the sequences of events.

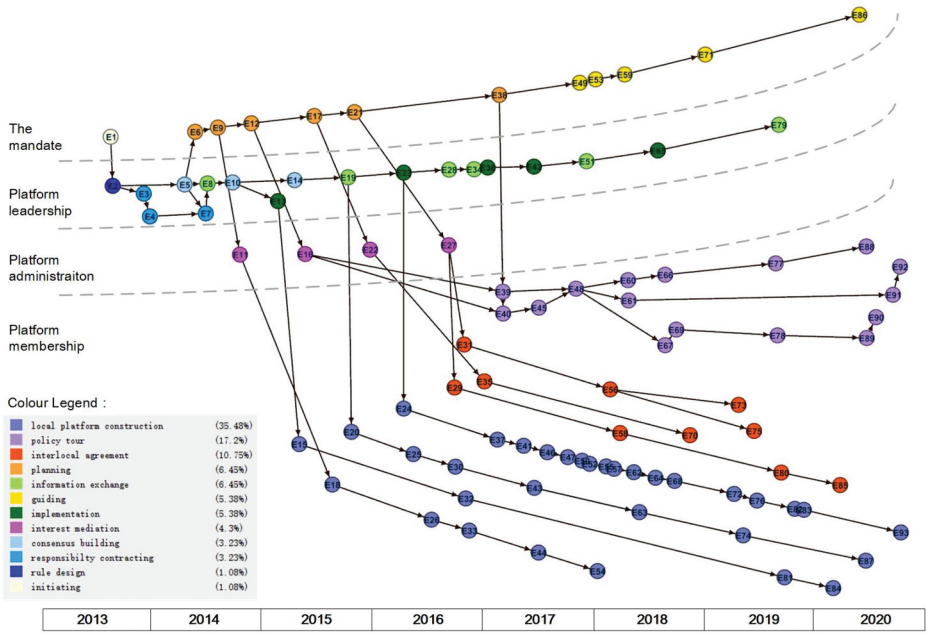


**Figure 2.** The visual map of the collaboration process (2013–2020).

By doing so, we obtained a bird view of the causal relations between the events, and the interrelationships between some of the sequences of events. In addition, we were able to see how many and what types of events occurred in different historical periods, which can assist us to analyse the changing pattern of collaboration. In a visual map (such as Figure 2 in our study), the circle nodes represent the events and the arrows represent the causal relations between the events. The colours of the nodes represent different event types.

To verify our analysis, we initially conducted interviews with local officials who were involved in some segments of the collaboration process. We only performed two interviews and halted because we soon realized that the interviewees could not remember the details of the events and felt hard to justify our analysis. As an alternative, we resorted to the second-hand interview data. From 2014 (the second year of the platform) to 2017 (the evaluation year), several influential social media organizations carried out a series of interviews with central and local top officials to obtain their opinions on the platform operation, touching upon the issues of collaboration experience, satisfaction on partners, working progresses, and coordination mechanisms, etc. We found that our analysis on the event sequences is highly consistent with what the social media reported. The brief information on the interviews is shown in Part C of the online materials.

## 6. Tracing the inter-municipal collaboration process on the APPC platform

The inter-municipal collaboration process on the APPC platform (2013–2020) is depicted as a visual map in Figure 2. Three phases can be distinguished. The first phase spanned from 2013 to 2014, during which the hierarchical coordination dominated the APPC platform, and the platform leadership focused on rule design and mandate maintenance; few local self-organized coordination took place. The second phase ran from 2015 to 2016, and during this time, the platform leadership motivated inter-municipal collaboration by spinning off local platforms while the platform administration focused on leveraging external resources and mediating local competing interests. The third phase began in 2017, and since then, there has been a retreat in platform leadership and administration and a dominance of local self-organized negotiations. Below, we will go into greater depth about this whole process.

### 6.1. Phase 1 (2013.9 ~ 2014): the mandate, rule design, and mandate maintenance

As Figure 2 shows, the whole process began with ***E1***, the State Council initiating the APPC platform with the organizational structure as depicted in section 4. Soon after the platform was initiated, the platform leaders jointly designed the *Implementation Rules and Regulations of Action Plan for Air Pollution Prevention in BTH* (***E2***), which not only clarifies the collective goal (i.e. the average concentration of $PM_{2.5}$ in BTH will reduce by 25% in 2017) but also specifies the differentiated responsibilities of each member city to improve air quality. Under these rules, the three places agreed to sign the *Target Responsibility Contracts on Air Quality* with the MEE (***E3***). The contracts did not formulate any hard-sanction measures for violations. Instead, the MEE determined to use some soft measures to enforce the contracts. In early 2014, the MEE formulated the *Temporary Measures for Interview*, with the intention of conducting periodic interviews to assess and urge the progress of contract implementation (***E4***). Based on these enforcement rules, the MEE issued an additional clause on treating air pollution from key industries within a time limit (***E7***), which triggered the mayors/governor to exchange information regarding their respective key pollution sources (***E8***) and to reach the consensus to close heavily polluting industries in the region (***E10***).

Following the rule design, the platform leaders gathered to discuss the joint action plan to reduce air pollution. During this discussion, the leaders came to the consensus that regional air pollution control cannot be separated from industrial relocation and the development of integrated transportation infrastructures in the region (***E5***). As a result, the platform leaders made the collective decision to scale up the issue of regional air pollution control to the whole regional coordinated development. In response, the State Council created a permanent mandating entity, the *Leading Group for Coordinated Development in BTH (LGCD)*, also with the vice premier as the chief leader, functioning on top of the APPC platform, not only mandating air pollution coordination but also coordination affairs in other policy fields (***E6***). On

September 2014, the vice premier organized a meeting among the local leaders and the various ministers planned three high-priority fields of coordinated development in BTH, including joint environmental protection, transport integration, and industrial transfer from Beijing to Hebei (***E9***). Since then, the mandate has been maintained, and the air pollution control issue was no longer stranded alone but was tightened up to other coordination fields, such as transport and industry.

### 6.2. Phase 2 (2015 ~ 2016): platform administration mediated local competing interests, and platform leadership spun off local platforms

The majority of coordination actions in the first phase took place at the leadership level and concentrated on designing platform rules and maintaining ongoing mandating power through issue up-scaling. By contrast, in the second phase, coordination actions started to appear at the administration and the membership levels, with the purpose of mediating local competing interests and building up local joint working mechanisms.

In the first phase, the platform leadership has reached a consensus that regional air pollution control cannot be done without transferring Beijing's heavy industries to Hebei and constructing integrated transport infrastructures. However, transferring industries is not easy as it touches upon the competing interests of taxation between the relocating and the recipient cities. To solve this complexity, the Ministry of Finance (who set a liaison of the platform administration), authorized by the mandate (***E12***), pulled the State Administration of Taxation (an external actor) onto the platform, and jointly issued the *Method for Tax-Sharing of Industrial Transfer in BTH* to reconcile potential tax conflicts induced by industrial transfer (***E16***).

In addition to the tax problem, the industrial transfer would bring an enormous financial and technological burden to Hebei in dealing with industrial pollution, given that Hebei, as an agricultural province, is much less developed than Beijing and Tianjin in terms of economy and technology and always has significant pressure on poverty alleviation. Therefore, authorized by the mandate (***E12, E17, E21***), the platform administration pulled three external actors, the National Health Commission, the Ministry of Education, the Ministry of Human Resources and Social Security, onto the platform to discuss how to assist Hebei in its social and economic fields. Eventually, three interest mediating actions were taken. The first action mediated how to share Beijing's and Tianjin's more advanced healthcare resources with Hebei (***E11***); the second action mediated how to share Beijing's and Tianjin's more advanced educational resources with Hebei (***E22***); and the third action discussed how Beijing and Tianjin could assist Hebei to reduce poverty (***E27***). These coordination actions at the administration level marked the efforts of the platform administration to pull external relevant actors and to exercise mediation to match interests, facilitate resource exchange, and resolve interest conflicts.

The success of the platform administration in mediating local-competing interests facilitated the negotiations between the platform leaders on joint environmental protection. The platform leaders commonly agreed to initiate local joint actions through spinning-off local platforms. The first local platform is on Motor Vehicle Emission Pollution Control (MVEPC) (***E15***), which was spun off from the leadership's implementation decision to jointly deal with air pollution from motor vehicles (***E13***). The MVEPC platform started the fashion for collaboration between

local EEBs. Local EEBs are determined to exchange the information of motor vehicles exceeding the national standard and carry out cross-jurisdictional law enforcement and penalties on polluting vehicles. In addition, they decided to exchange staff to share inspection experience and organize joint training programmes. The second local platform is on Joint Environmental Enforcement (JEE) (***E20***), which was resulted from the leadership's implementation decision to build up joint environmental enforcement mechanisms (***E19***). Since the establishment of the JEE platform, the local EEBs shared the information on their existing environmental supervision and enforcement routines and methods (***E25***) and negotiated the joint working mechanisms which enable action synergy for joint inspections by workers with different enforcement procedures (***E30***). Under the agreed working mechanisms, the local EEBs unified their inspection routines and formulated three agreements on cross-checking environmental violations, exposing the environmental violations on government portals, and supporting cross-jurisdictional checks on punishment implementation. The third local platform is on Joint Water Governance (JWG) (***E24***), which was spun off from the leadership's implementation decision to break through regional air pollution control and expand local coordination experience to regional water governance (***E23***). Heretofore, the original architecture of the platform had expanded, shown as a multi-level nested and multi-local-platform integrated, complicated structure.

### 6.3. Phase 3 (2017 ~ 2020): the leadership and the administration stepped back and watched, and local self-organized negotiations flourished

The main feature of the second phase is the platform leadership and administration spinning off local platforms and mediating local competing interests. In the third phase, however, it is apparent that no coordination actions took place by platform administrators; the platform leadership also stepped back, only routinely sharing information and making implementation decisions. In contrast to the previous two phases, this phase was dominated by the platform members' self-organized coordination.

The spun-off local platforms provided the EEB officials with arenas for negotiations. First, the EEB officials met on the MVEPC platform and organized cross-jurisdictional inspections and penalties on motor vehicles exceeding the national emission standard (***E32***), design joint regulations on motor vehicle emission (***E81***) and implementation strategies (***E84***). Second, the EEB officials also saw each other on the JWG platform, formulated yearly plans and reported annual progress (***E47, E50, E55, E68, E82, E93***), made emergency plans for water environment in key basins of BTH (***E37, E52, E57***), organized emergency drills for water pollution incidents (***E46, E64, E76***), and carried out joint pollution inspections (***E41, E62, E72, E83***). Third, the EEB officials gathered on the JEE platform, mixed their inspection corps, and coordinated the schedules, locations, and methods for joint enforcement actions (***E30, E43, E63, E74, E87***).

Another three parallel local coordination processes occurred in the fields of poverty alleviation, education, and public health. As we mentioned previously, the existence of these negotiation networks served for comprehensively balancing the social-economic-environmental status after industrial transfer between the three places. The first process took place between the local health departments and focused on transferring

advanced medical and health resources of Beijing and Tianjin to Hebei. The three places signed a series of agreements on inter-hospital cooperation and doctor transfer (***E44***), mutual recognition of inspection results of medical institutions (***E54***), and sharing medical imaging examination materials (***E33***). The second process took place between the local educational departments and focused on moving better educational resources of Beijing and Tianjin, such as senior teachers and branch campuses, to Hebei, to improve the educational service equity between the three places (***E35, E70***). The third process happened between district and county governments of the three places and centred on counterpart assistance on Hebei's poverty alleviation. Beijing helped Hebei via formulating action framework agreements (***E31, E56***) and started the assistance in agricultural industry (***E75***) (e.g. helping Hebei upgrade agricultural facilities and infrastructures and connecting Beijing's market of agricultural products to Hebei) and in labour collaboration (***E73***) (e.g. providing Hebei people with appropriate employment opportunities in Beijing). Tianjin's counterpart assistance strategy was more dynamic through establishing a joint meeting mechanism, listening Hebei's needs, and adapting assistance focus flexibly (***E29, E58, E80, E85***).

The last sequence of events is about the local leaders having policy tours to improve mutual understanding of industry situations and to discuss the construction plan for the Xiong'an New Area (***E39, E40, E45***). This marked the official opening of industrial transfer from Beijing and Tianjin to Hebei. Soon, the three places reached a common opinion of strengthening industry transfer and, in addition to the Xiong'an New Area, determined to build '2 + 4 + 46' additional industry undertaking areas in Hebei (***E48***). The success in achieving agreements on industrial transfer drove more policy tours of the local leaders. During 2018.04–2020, the local leaders had 12 policy tours and their talks and negotiations centred on continuously strengthening and promoting industrial transfer activities (***E60, E61, E66, E67, E69, E77, E78, E88, E89, E90, E91, E92***).

## 7. Case findings

Based upon the process analysis above, in this section, we summarize the shift of the strength and form of hierarchical mandate along the whole collaboration process, and explore the evolution of network coordination across different phases.

### *7.1. The changing strength of the mandate*

Table 3 summarizes the changing number and nature of the mandate events based on the visual map. Overall, we see that the number of the mandate events slightly increases across the three phases. It indicates that the mandating force needs to remain constantly present in the whole collaboration process. In other words, the mandating party not only needs to pull in relevant actors but also presents as a constant force to power

**Table 3.** The changing number and nature of the mandate events.

| Mandate events | Phase 1 | Phase 2 | Phase 3 |
|---|---|---|---|
| Event number | N=3 | N=4 | N=5 |
| Event nature | Initiating (*N*=1)<br>Planning (*N*=2) | Planning (*N*=4) | Guiding (*N*=5) |

the platform through monitoring implementation, building consensus, and facilitating information exchange. The mandating party cannot set the stage and leave the partner organizations groping in ambiguity and unable to resolve differences. Especially when prior collaboration intention is absent, or the partners had an unpleasant cooperation prehistory, the mandating party needs to intervene and offer necessary directions and arbitrations.

However, constant presence does not mean constant strength of the mandating force. As Table 3 shows, the mandate keeps weakening its intervening strength across the phases. In the first phase, the mandate initiated the platform by pulling relevant governmental organizations at central and local levels together. It soon adopted the planning approach to scale-up the collaboration issue from singular environmental protection to more complex regional coordinated development and formulated three prioritized fields that need coordination. In the second phase, the mandate still kept central planning: the Xiong'an New Area was brought forward as a national strategy to usher industrial transfer in the region. In the third phase, however, the mandate events focused on guidance, rather than planning. The mandator only watched what happened on the platform and showed up in collaboration networks to give encouragement and guidance.

To summarize, our case study found that an appropriate mandate for MCP should be consistent and flexible. The maintained hierarchical mandate can continuously push the platform and coordination forward. Whereas, along with the development of collaboration willing and capabilities of municipal governments, the mandate should evolve from more centralized and hierarchical planning and regulation in the beginning phase, to more encouragement and guidance in latter phases, with the target to foster self-organized collaborative actions. In this regard, we concur with the research who underlines the important role of hierarchical mandate in facilitating coordination as we reviewed before (e.g. Casula 2020; Cucciniello et al. 2015).

**Table 4.** The changing number and nature of the network events.

| Collaborative networks on the APPC platform | Network events | Phase 1 | Phase 2 | Phase 3 |
|---|---|---|---|---|
| At the leadership locus | Event number | N=7 | N=5 | N=6 |
| | Event nature | Rule design (*N*=1)<br>Responsibility contracting (*N*=3)<br>Consensus building (*N*=2)<br>Information exchange (*N*=1) | Implementation (*N*=2)<br>Consensus building (*N*=1)<br>Information exchange (*N*=2) | Implementation (*N*=3)<br>Information exchange (*N*=3) |
| At the administration locus | Event number | N=0 | N=4 | N=0 |
| | Event nature | N=0 | Interest mediation (*N*=4) | N=0 |
| At the membership locus | Event number | N=0 | N=6 | N=53 |
| | Event nature | N=0 | Local platform construction (*N*=6) | Local platform construction (*N*=27)<br>Interlocal agreement (*N*=10)<br>Policy tour (*N*=16) |

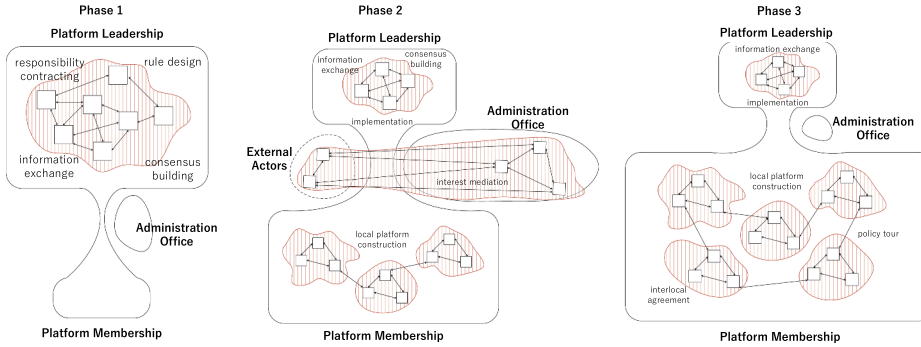


**Figure 3.** The evolution of collaboration networks on the APPC platform.

Moreover, we extend the current literature by revealing the flexible change of mandate over time, as part of our examination of the evolution of the MCP.

### *7.2. The evolution of the platform's collaboration networks*

Table 4 summarizes the changing number and nature of the network events based on the visual map. Figure 3 shows where the collaboration networks exist on the platform across different phases.

Building upon the current literature that underlining the importance of network-based coordination (e.g. Youm and Feiock 2019; Keast and Brown 2002), our case study extends the current literature by revealing that the network coordination occurs not only at the membership locus but can take place at the leadership and the administration loci. This three-locus coordination is enabled through the APPC platform, shown as a multi-level nested architecture.

When looking at the changing event nature at the leadership locus, it is evident that the function of the leaders' network was shrinking over time. In the beginning phase, the leaders' network played significant roles in designing platform rules, signing target responsibility contracts, negotiating enforcement measures, building consensus, and exchanging information. After these efforts, the leaders' network in the second phase turned much attention to make joint implementation decisions, although consensus building and information exchange were routinely conducted. In the third phase, the leaders achieved consensus, and progressively withdrew and stood aside, only drafting periodical implementation plans and refraining from meddling in local negotiations at the membership locus.

The idea that a collaborative platform needs a leadership coincides with the existing literature, which argues that leadership is necessary to manage the platform, set up rules, design institutions, and regulate member behaviour (Ansell and Gash 2018; Erikson and Larsson 2020; Haveri and Anttiroiko 2021). However, our case emphasizes that platform leadership should be embedded with a negotiation network composed of member delegates from the bottom. In doing so, the platform decisions from the top are made based on local consensus, which then facilitates the formation of local collaboration networks. It indicates that only when the platform leadership's decisions

can consider and balance members' interests, and consequently members' collaboration and compliance can be expected.

The second collaboration network exists between the platform administrators and the relevant external actors. This collaboration network was highly active during the second phase. To balance the social-economic-environmental status incurred by industrial transfer, the platform administration acted on behalf of the platform to negotiate with non-member ministries and national commissions to leverage external resources and to address local interest conflicts. This finding substantiates prior studies which argued that a platform can work as an independent entity (Ansell and Miura 2020); and we further contribute by adding that the dedicated administration office can enable the platform to act in its own right. Arming an administrative office is not mentioned in the extant literature on collaborative platform. Instead, our case suggests that platform administration plays an important role in handling conflicts and turbulences in collaboration. A platform administration can act as a spokesperson of the platform to coordinate with external actors, thus providing a crucial link between the platform and the platform's external environment, pulling in necessary actors, and absorbing external resources when necessary.

Table 4 and Figure 3 both show that the collaboration network at the membership locus underwent the most noticeable alteration. Between the member cities, an interaction network was not formed in the initial period. However, when the local platforms were being spun off in the second phase, the member cities became connected and local collaboration networks were built up. Local departments exchanged information, improved their mutual understanding, and planned coordinated activities on these local networks. These interactions facilitated the member cities to sign interlocal agreements on not only air pollution issues but other relevant issues such as traffic control and industry relocation. More surprisingly, we found that many non-environmental policy issues were involved in the negotiation, such as poverty alleviation, educational development, and medical and health care improvement. They were used to comprehensively balance the social-economic-environmental status of the three places. This extension of policy filed and the upscaling coordination mechanism based on the platform are two original findings of this article.

To summarize, the dynamic logic of the mandated platform offers a possible route in which network coordination can occur across reluctant municipal governments under centralized orchestration. Specifically, we found that an appropriate mandating power should be kept present, but its strength should be adjusted flexibly according to the situation of network development. Collaboration networks need to embed in every organ of the platform. But their functions and roles in facilitating negotiation change over time. The network at the leadership locus plays a significant role in setting rules and launching local platforms in the beginning phases but steps back afterwards; The network at the administration locus stands out to mediate interest conflicts and acts as a platform spanner to leverage resources outside; the networks at the membership locus aim to enhance mutual-understanding and adapt to self-organized collaborative arrangements.

## 8. Discussion and conclusions

This article examines what an appropriate mandate is for mandated collaborative platform and how the platform's collaboration networks evolve under such

a mandate. Based on a regional environmental protection platform in China, we made important observations on how a national mandated collaborative platform nudged local municipalities to work more closely with each other than otherwise. First, while traditional mandates are imposed on subordinate governments through one-shot political, legislative, or administrative orders, our APPC case illustrates an alternative approach where the mandate keeps constantly present, giving instructions every now and then and nudging local municipalities into collaboration in a long-term, progressive way. Second, traditional mandates are regarded as a rigid, top-down approach, but the case of APPC shows that the mandate can be flexible by increasingly considering local circumstances and leaving sufficient room for local municipalities on how they accomplish the mandated missions. Third, under such a constant and flexible mandate, we found that self-organized collaboration networks are fostered at the local level and coordination activities expanded from local platform construction to interlocal agreement and then to policy tour.

Our study contributes to the 'hierarchy-network' hybrid coordination literature. Since Thompson et al. (1991) seminal work on markets (on which this study does not touch), hierarchies and networks, the possible relationships between different coordination models have entered the vision of scholars. Thompson et al. explicitly pointed out that 'different coordination models have their respective strengths and weaknesses', and thus 'the employment of the models in combination enables the insights from each of the models to be mobilized together and enriches the analytical investigation' (Ibid: 17). Over the years, the idea of combinations, or hybrids, has been put on the table; as Bardach (2017, 560) argued: 'the public management literature on network has allowed hierarchy to creep back in, both conceptually and empirically'. In the current literature, scholars have widely acknowledged that collaboration networks need to be mandated (Krogh 2022), governed (Klijn and Koppenjan 2016), managed (Agranoff 2007), and directed (Saz-Carranza, Iborra, and Albareda 2015). Nevertheless, the extant studies have not shown how to combine hierarchy and network, and little attention has been paid to what hierarchical force is suitable for network. Using a state mandated platform as a case study, we unpack the coexistence mechanism of mandate and network by revealing the changing strength of mandate and the resulting dynamics of collaboration networks.

Our study also connects the hybrid coordination literature to the collaborative governance scholarship. The existing literature on collaborative governance usually assumes that factors coming out of the horizontal collaboration process are the key to drive collaboration. These horizontal factors include, for instance, perceived interdependence, mutual trust, mutual understanding, dialogues, information exchange, and learning (Emerson and Nabatchi 2015). By contrast, the literature relatively ignores the vertical factors in driving the collaboration process. Only a few studies provide insights on how vertical interventions moderate horizontal collaboration (Zhou and Dai 2022; Mu, de Jong, and Koppenjan 2019). However, these studies treat the vertical force as an internal driving factor. By contrast, our study addresses this vertical force of mandate as an externally imposed driving factor and examines how internal collaboration respond to the external force. Under the externally imposed mandate, the abovementioned horizontal factors no longer matter. For instance, it no longer matters whether the collaborators have perceived interdependence under external mandate. Thus, again, what matters is how the internal collaboration networks develop

themselves in responding to the external mandate. This provides a new analytical perspective for the study of collaborative governance.

Our findings have practical implications for the countries like UK and other European countries that have experience with the hierarchical approach to correct the previously formed fragmentation issues inside bureaucracy and for some Asia countries that have centralization histories and top-down planning tradition. The generalization of our findings to federal systems is limited because there are not the so-called 'higher authorities'; all governing bodies share an equal status and emphasize autonomy and turf protection (An and Tang 2022). The specific practical meaning lies in the fact that the national mandated collaborative platform will not always guarantee successful interlocal collaboration. Our theoretical inquiries bear practical implications for careful mandate design and platform design. Regarding mandate design, our findings suggest that the mandate should keep constantly present during platform operation, instead of giving a one-shot hierarchical order in the beginning and leaving the collaborators groping in ambiguity. Besides, we recommend that an appropriate mandate should be flexible enough, as our case shows, keeping an eye on interlocal collaboration and granting local actors with sufficient room for self-organized negotiations and interactions. Regarding platform design, our findings suggest that platform leadership should be better embedded with a negotiation network constituted by platform members. By doing so, collective decisions made by the leadership are easier to be accepted by the members and local compliance can be expected. In addition, we also recommend that a mandated platform can be armed with an administrative office that acts as a spokesman of the platform, bridging the platform with external resources and mediating local interests when necessary.

Given the above-mentioned findings, some limitations must be considered. First, this study adopts a mandated platform case that presents to be effective and successful for IMC. However, we need to realize that not all mandated platforms will work for inter-municipal collaboration. Therefore, failed mandated platforms are not discussed. As such, further study is needed to consider the case for research on failed mandated platforms and to push the above-presented framework further. Second, our research findings are achieved from the case embedded in the political and administrative context of China. Further studies are encouraged to investigate the working mechanism of mandated collaborative platforms in other nations. Third, our research traced the events that occurred in the collaboration process of regional air pollution, not touching upon the causality issue regarding what influencing factors impact the platform outcomes. Future research on the causality from influencing factors to platform outcomes is thus encouraged.

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