4. Towards a Conceptual Framework

This chapter puts forward the conceptual framework which guides this instrument-centred analysis and positions it in relation to scholarly literature. In line with the objective of explaining and analysing the development and institutionalisation of two SICs, three conceptual components drive this study. Firstly, scholarly literature is reviewed to provide an overview of how policy instruments are analytically framed and understood as distinct governmental tools (section 4.1). This facilitates an understanding of SICs as policy instruments. Policy instruments are commonly conceptualised as goal-oriented, neutral and technical devices, which are distinctly connected to policy design considerations and policy objectives. As such, they may take different shapes and rely on diverse mechanisms to create an impact. To understand how instruments operate and their potential impacts, scholarly literature draws on key taxonomies for analysis. These taxonomies will be introduced in the first section of this chapter (Capano & Howlett, 2020; Howlett, 1991).

Secondly, this study adopts a complementary definition of policy instruments and conceptualises them as institutions in the sociological sense (Lascoumes & Le Galès, 2004, 2007) (section 4.2). This understanding constitutes a conceptual shift from the previously mentioned interpretation of instruments as technical and neutral devices; it therefore requires a distinct pathway of analysis. More specifically, instruments are characterised as being carriers of rules, norms and values, which can structure interactions. They are seen to have a transformative effect and their development may differ from what governments have anticipated. What is more, once in place, these instruments create new perspectives on their use and are subject to interpretation by key actors (Le Galès, 2011, pp. 151–152). This instrumentation (i.e., use) may create distinct effects which might reinforce institutionalisation dynamics (of SICs). These considerations translate into a distinct heuristic framework, which is used for the analysis (see section 4.2.3). This framework, furthermore, enables us to grasp the essence of SICs and develops a distinctly actor-centred perspective. At the same time, it makes it possible to contrast actor-specific rationales with the prevailing normative assumptions about science diplomacy.

Thirdly, to develop this distinctly actor-centred perspective on SICs, a framework is needed which conceptualises organisational behaviour and facilitates understanding of how SICs developed. More specifically, the rationales for actors to participate in SICs and, more generally, in collective action need to be addressed (section 4.3). To that end, the theoretical considerations of meta-organisation theory are mobilised (Ahrne & Brunsson, 2005, 2008). However, this study does not imply that SICs are defined as meta-organisations; rather, they are defined as organisational instruments. The considerations of meta-organisation theory are selectively deployed to the extent that they probe why actors participate in SICs and unpack their differing rationales in order to understand SICs' instrumentation (and hence institutionalisation). In combination, these three components provide a conceptual architecture, which is informed by institutional theory and facilitates the analysis of how SICs developed and institutionalised.

4.1. Policy Instruments: A Functional Understanding

4.1.1. Definition

Policy instruments are traditionally defined as tools which "*encompass the myriad techniques at the disposal of governments to implement their public policy objectives*" (Howlett, 1991, p. 2; see also A. Schneider & Ingram, 1990). Scholarly literature refers to the notions of both policy tools (Hood, 1983) and policy instruments (Howlett, 1991; Howlett & Ramesh, 1993), and the terms are often used interchangeably. In addition, policy instruments are commonly viewed as being the "*building blocks of public policy*" (Linder & Peters, 1989, p. 43) and the direct results of policy-making processes (Capano & Lippi, 2017). As such, they are typically adopted to solve public problems (Rist, 1998; Salamon, 2000, pp. 1641–1642) or to instigate social change (Bemelmans-Videc, Rist, & Vedung, 1998, p. 3). This is reflective of a functional and goal-oriented understanding of policy instruments. In addition, policy instruments may have a symbolic function and latent dimensions which are assigned to them (Elken, 2015 and cf. Adler-Nissen, 2014 on symbolic diplomacy). Instruments may take different shapes and forms, and may vary, for instance in their degree of bindingness (cf. Peters & van Nispen, 1998). Analysis of policy instruments has gained renewed attention in recent years as these instruments are considered to be the sub-

stance of governance arrangements that provide "*an empirical window on the policy process […] and therefore give us insights into how a given policy is implemented and with what effects*" (Hellström & Jacob, 2017, p. 605).

In terms of implementation, scholarly literature assumes that policy instruments are often coupled and thus policy instrument mixes are adopted (cf. Borrás & Edquist, 2013 on policy mixes in innovation policy). Policy mixes are implemented to create synergy effects and to facilitate mutual reinforcement of the instruments (Capano, Pritoni, & Vicentini, 2019). Adopting instrument mixes is a strategic decision, which is explained by the aim of compensating for the weaknesses of certain instruments or tackling uncertainties regarding an instrument's effectiveness[65] (Hassel, 2015, p. 10; Howlett, Mukherjee, & Woo, 2015)[66]. In other words, instruments are assumed to "*work in concert to give affect [sic] to different aspects of a policy goal*" (Bali, Capano, & Ramesh, 2019, p. 3). The use of instrument mixes has also been observed in the field of science diplomacy; countries draw on a combination of instruments to address science diplomacy (cf. Epping, 2020; Flink & Schreiterer, 2010).

4.1.2. Taxonomies

To enrich the prevailing definitions of policy instruments, scholarly literature identifies various instrument taxonomies[67] that serve as analytical

65 Measuring the effectiveness of policy instruments has been discussed intensively by academic scholarship, most often in terms of goal attainment (cf. Howlett (2018); Bemelmans-Videc (1998); Peters et al. (2018)). Other contributions argue for moving beyond pure goal attainment and focus likewise on decision-making processes and the implementation phase as distinct aspects to take into account: "*the evaluation of policy effectiveness depends on a prior problem definition, the output of the political decision-making process, and the implementation of a policy measure*" (Héritier (2012, p. 676)). In addition, even other contributions argue in favour of also looking at issues of capacity, i.e. the ability and technical feasibility to reach effective solutions (cf. I. Mukherjee and Bali (2019)). Measuring the effectiveness of SICs is also an analytically and politically relevant aspect. However, whilst this study does not address questions of effectiveness, it proposes meaningful ways of measuring the effectiveness of SICs which go beyond goal attainment (section 13.5).

66 Analysing policy mixes/instrument combinations constitutes a distinct stream in scholarly literature (cf. Howlett (2004)).

67 These taxonomies are not uncontested since they are considered to omit decisive elements that allow for theory building (cf. Bressers and O'Toole (1998, p. 217)). Hence, they have a structuring and analytical purpose rather than explanatory power.

frameworks for their study. These classifications make it possible to understand how instruments embody political objectives while being reflective of their distinct characteristics and the ways they are designed to generate impact. A selection of taxonomies is reviewed to provide an understanding of the analytical categories. The NATO scheme, which was developed by Hood (1983), is a seminal contribution to classification literature on policy instruments. Hood identifies a "*tool kit*" (Hood & Margetts, 2007) that governments can draw on, mainly based on the resources which are deployed in a particular context. More specifically, these resources are categorised alongside four relevant dimensions of classifying policy tools: nodality (the provision of information), authority (instruments that command and forbid), treasure/finance (instruments drawing on financial incentives, for example loans or grants), and organisation (governmental activity that aims to directly influence citizens). The value of the NATO scheme was reconfirmed by Hood (2007) and is also reflected in its frequent application in scholarly literature (cf. Hassel, 2015, p. 8; Howlett & Ramesh, 2003; van Vught & de Boer, 2015). Other scholars, in contrast, distinguish between policy instruments according to the level of state intervention. Howlett and Ramesh, for instance, identify three types of policy instruments: voluntary, compulsory and mixed instruments (2003)[68]. The degree of state intervention, thereby, ranges from high (compulsory) to low (voluntary) (Howlett, 2005; Howlett & Ramesh, 2003). Furthermore, Howlett points to two types of policy instruments: substantial and procedural (Howlett, 2000). Substantial policy instruments aim to "*directly affect the nature, types, quantities and distribution of the goods and services provided in society*" (2000, p. 415), whereas procedural tools "*are intended to manage state-societal interactions in order to assure general support for government aims and initiatives*" (Howlett, 2000, p. 412).

An equally widespread and accepted classification of policy instruments can be found in the work of Bemelsmans-Videc, Rist and Vedung (1998). The authors provide a parsimonious distinction that is oriented towards the means used to achieve compliance and trigger social change: sticks, carrots and sermons. When there is a problem to be solved, instruments can a) take the form of sticks, meaning they are regulative, b) draw on economic means (either giving or taking), which corresponds to the carrot, or c) employ information, which is equivalent to a sermon. Besides this distinction, the

68 This work was first published in 1995 and, over time, has been slightly modified by the authors.

authors argue that instruments need to be examined in their respective contexts as they are assumed to be reflective of a certain *zeitgeist*. Bemelsmans-Videc argues that policy instruments "*are often indicative of either a certain period in the political and administrative history of states or of a dominant political and administrative culture*" (1998, p. 4). This assumption is noteworthy and relevant to keep in mind for the subsequent analysis of the two SICs (see chapters 7 and 10). Schneider and Ingram (1990) on the other hand take a different angle on the analysis of policy instruments; they highlight the behavioural assumptions of policy tools and reassert that instruments are in fact a political phenomenon. They distinguish between five types of instruments to demonstrate how relevant, politically anticipated behaviour can be cultivated: "*public policy almost always attempts to get people to do things that they might not otherwise do; or it enables people to do things that they might not have done otherwise*" (A. Schneider & Ingram, 1990, p. 513). In this vein, Schneider and Ingram identify the following five tools: authority, incentive, capacity, symbolic/hortatory and learning tools. Authority tools are conventional governmental tools that authorise, prohibit or call for action; incentive tools, in contrast, "*induce compliance or encourage utilization*" (A. Schneider & Ingram, 1990, p. 515). Capacity tools are those that provide resources to reduce barriers, such as a lack of information or skills, thus providing information, education or other resources to resolve such issues. Symbolic and hortatory tools assume that individuals hold intrinsic beliefs, which may affect how and whether they perform certain policy-related actions; thus, symbolic and hortatory tools aim to address and impact these beliefs. Finally, learning tools are applied in cases when it is unclear how the target population can best be reached.

This selective overview reflects the diversity of shapes and characteristics of policy instruments designed to transmit and to respond to wider governmental objectives (for a recent inventory, see Capano & Howlett, 2020). The central categories that can be deployed for analytical purposes include the level of governmental steering or the resources that are utilised. These taxonomies distinguish between and structure the diversity of policy instruments in an analytical way. Furthermore, they shed light on the diversity of choices and reflect the spectrum of considerations which policy-makers encounter when designing new instruments. So far, science diplomacy literature has not systematically classified science diplomacy instruments in relation to these taxonomies. However, the contribution by Leese (2018) can be evaluated as a step in that direction. Scholarly literature has otherwise

only selectively analysed policy instruments (cf. Epping, 2020; Sabzalieva et al., 2021).

4.1.3. Instruments and Policy Design

To expand on the previous sections, policy instruments are traditionally understood as being the results of policy design[69] considerations (Capano & Lippi, 2017). Policy design is defined as a "*purposive attempt by governments to link policy instruments or tools to the goals they would like to realize*" (Howlett & Mukherjee, 2017, p. 140). Furthermore, policy design is viewed as a "*deliberate endeavor to link policy tools or instruments with clearly articulated policy goals or a policy problem*" (Bali et al., 2019, p. 3). These two definitions underline the functional perceptions of policy instruments in the sense that they are goal-oriented devices which are designed to tackle policy problems (cf. Hoornbeek & Peters, 2017; Peters, 2005). A central role in policy design is assigned to policy-makers: instruments that are designed in a top-down fashion should be sensitive to "*anticipatory design*" in terms of arranging and organising policies in the most suitable ways, in line with set goals (Bali et al., 2019, p. 5). Although policy design is strongly linked to purposive governmental action, scholarly literature attributes a central role to other (non-state) actors in the process (cf. Howlett, 2014a). Recent studies highlight, for instance, the crucial role of networks (Zito, 2018) and actors in the policy design process: "*policy design may not solely be introduced by a set of rational policy designers but rather through interaction between various actors who move in the confinement of the present institutions and on the basis of different interests and resources*" (Haelg, Sewerin, & Schmidt, 2020, p. 314).

What is more, scholarly literature argues that design choices and the design process itself are not linear but may be constrained by several aspects. For example, the capacities of optimal design might be limited by bargaining exercises (Howlett, 2014a, p. 188) or conflicting demands (Capano & Lippi, 2017) between actors which need to be reconciled. In addition, the *"multi-level, nested, nature of policy tool choices*" (Howlett, 2014b, p. 282) must be kept in mind. Accordingly, the options available are

69 The literature on policy design has encountered renewed interest in recent years. However, it also seems to be characterised by questions of demarcation and boundaries (cf. Howlett (2014a); Howlett and Mukherjee (2014)).

often limited and restricted, for instance by programme-level objectives or by the policy-making process environment, in terms of actors, institutions and practices (cf. Howlett, 2009)[70]. Capano follows this line of argument and adds that "*policy design spaces*" might be constrained by legacies of the past, such as existing instruments (Capano, 2018, p. 676). In addition, contingency has been singled out as an element which may impact the policy design process. In a similar vein, "*situational logics*" have been identified as shaping the design process rather than careful assessments (Howlett, 2014a, p. 188 and. cf. Howlett, 2014b). This understanding constitutes a shift away from the ideal-typical understanding of how policies are designed. More specifically, situational forms of logic also refer to notions of contingency or contingent events, which are conceptually rooted in literature on path-dependency[71] (cf. Pierson, 2000). Pierson defines contingency as follows "[r]*elatively small events, if they occur at the right moment, can have large and enduring consequences*" (2000, p. 263). In other words, the temporal ordering of events can sometimes play a decisive role for certain things to occur and to unfold impact (Pierson, 2004). It can be argued that an event might potentially have a large impact and major consequences if the timing is right. Furthermore, Pierson (2000) argues that if an event occurs too late, the effect might get lost and this would presumably produce a different outcome. Therefore, timing is seen as a crucial element in the design process. In combination, the aspects described above have a constraining effect on the ideal-typical design process. In essence, decisions might be constrained or driven by situational logic rather than being subject to intensive deliberations. This is seen as explaining why certain instrument choices are made and how particular shapes emerge.

In summary, the previous sections have outlined the "*generic*" (Hood, 2007) understanding of policy instruments in scholarly literature; policy instruments are designed to respond to wider governmental goals or selected problems. As such, they are seen as functional tools that are the result of deliberate design processes. These processes might, however, be subject to constraints, such as distinct actor configurations and interplay, as well as arrangements that have evolved institutionally in the past. This might take the

70 Other research streams focus on aspects of instrument choice/design and aim to unravel why certain policy instruments have been utilised by policy-makers instead of others; see Capano and Lippi (2017).

71 The concept of path-dependency is understood as decisions or events which are *"shaped and limited by constraints imposed by past policy*"; see Harmsen and Tupper (2017, p. 351).

form of instrument legacies or actor constellations (i.e., the role of certain key stakeholders, such as intermediary organisations). These premises are subject to reflection in light of changing (new) governance arrangements and actor constellations (as will be discussed in the next section).

4.2. A Renewed Focus on Policy Instruments

A complementary (non-rivalrous) approach to the previously described functional understanding of policy instruments are "*institutions-as-tools*" approaches (Hood, 2007, pp. 134–135). Instruments are defined as institutions in the sociological sense and thus challenge key assumptions of generic policy instrument approaches[72]. In addition, this posits a distinct framework for analysis. Institution-based approaches are inspired by the rise of a new governance paradigm (Salamon, 2000, p. 1613). Salamon observes a shift away from hierarchical governance structures to network governance structures. This implies that governments increasingly draw on other (non-state) actors when solving public problems. The inclusion of non-state actors in addressing public problems has also been pointed to in the comparative overview of SICs (chapter 3). A proliferation of policy instruments is seen to be reflective of these changing arrangements, and Salamon argues that each of these instruments possesses its own characteristics and logics, in essence their "*political economy*" (2000, p. 1613). What is more, Salamon suggests that policy instruments are "*profoundly political: they give some actors, and therefore some perspectives, an advantage in determining how policies will be carried out*" (2000, p. 1627). To pursue this further, Salamon argues that choosing an instrument is already a "*political battle*" (2000, p. 1627). These considerations reflect a different understanding of policy instruments than the one presented in the previous sections[73] (see section 4.1.1): "*a tool, or instrument, of public action can be defined as an identifiable*

72 Scholarly literature often distinguishes between organisations and institutions (cf. W. R. Scott (2008)) and sees them as competing approaches. This study is aware of the theoretical implications which each perspective brings. In this study, SICs are conceptualised as organisational policy instruments, which are analysed from an institutional perspective.

73 In line with that understanding, Salamon proposes a four-fold typology of policy tools to visualise the complexity of instrument choice (2000, pp. 1650–1669): 1) degree of coerciveness, being the restriction or en-/discouragement of certain behaviour; 2) degree of directness, referring to the involvement of governments, measured as low/medium/high; 3) automaticity, addressing whether a tool establishes

method through which collective action is structured to address a public problem" (Salamon, 2000, pp. 1641–1642). Salamon's definition emphasises the *structuring* role of instruments (as opposed to the technical, functional understanding). The work of Salamon marks the dawn of a new pathway for studying policy instruments and has laid the foundations for Lascoumes and Le Galès' (2007) intellectual approach, which will be discussed in the next section.

4.2.1. Instruments as Institutions

This changing understanding of policy instruments has been consolidated in the work of Lascoumes and Le Galès (2004, 2007) and will also be adopted as the main understanding in this study. The authors follow Salamon (2000) in terms of conceptualising policy instruments as institutions in a sociological sense, although they refer to instruments rather than tools[74]. They draw on Powell and DiMaggio (1991) to define an institution as: "*a more or less coordinated set of rules and procedures that governs the interactions and behaviors of actors and organizations*" (Lascoumes & Le Galès, 2007, p. 8). The view of policy instruments as institutions that shape and govern interactions constitutes a distinct difference to the traditional understanding of them, which regards policy instruments as being the functional outcomes of policy design processes (cf. Howlett, 1991, 2000). This conceptual shift inverts the prevailing conceptualisation of policy instruments (see section 4.1), albeit in a complementary way (cf. Hood, 2007). To explicate, instruments are assumed to be carriers of meanings and norms that structure interactions. Accordingly, they play a central role when attempting to understand (changing) governance and public policy arrangements. A public policy instrument[75] is defined as:

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new structures or uses the existing administrative apparatus; and 4) visibility, as being indicative of how visible the tool is, particularly concerning budget issues.

74 The authors propose differentiating between instruments, being a social institution, techniques (a device to measure the instrument) and tools, being a "*micro device*" within the technique (Lascoumes and Le Galès (2007, p. 4)).

75 In line with their understanding of policy instruments, the authors distinguish between five types of instruments (Lascoumes and Le Galès (2007, p. 12)): legislative and regulatory, economic and fiscal, agreement- and incentive-based, information- and communication-based, and de facto and de jure standards/best practices. The first two models are viewed as being classical governmental instruments; the last three types are understood as a reflection of a new types of policy instruments enact-

> "*a device that is both technical and social, that organizes specific social relations between the state and those it is addressed to, according to the representations and meanings it carries. It is a particular type of institution, a technical device with the generic purpose of carrying a concrete concept of the politics/society relationship and sustained by a concept of regulation*" (Lascoumes & Le Galès, 2007, p. 4).

The aspect of governance arrangements is noteworthy and should be discussed in more detail; scholarship assumes that instruments illuminate governance arrangements (Le Galès, 2011) since they generate insights into the relationship between those who are governed and those governing. In other words, "*every instrument constitutes a condensed form of knowledge about social control and ways of exercising it*" (Lascoumes & Le Galès, 2007, p. 3)[76]. In a similar vein, it has been argued that instruments determine certain conditions; for example, they "*confront actors with structures of opportunity, influencing how they behave and privileging certain actors and interests over others*" (Kassim & Le Galès, 2010, p. 4). This underlines the structuring and organising function that instruments have. Therefore, it is assumed that instruments reflect and reveal distributions of power between actors. Moreover, they determine which resources can be "*used and by whom*" (Le Galès, 2011, p. 11). In combination conceptualising instruments as institutions entails a distinct set of assumptions and provides a lens for understanding governance arrangements because they are seen as having a transformative and shaping role for their environment (Lascoumes & Le Galès, 2007, p. 8 and cf. Saurugger, 2014) rather than being neutral devices.

Thus, the analysis of policy instruments therefore needs to account for this understanding. Moreover, the use of an instrument, i.e., its instrumentation, presents a distinct avenue for reflection. The central thesis of Lascoumes and Le Galès is that policy instrumentation

> "*means the set of problems posed by the choice and use of instruments (techniques, methods of operation, devices) that allow government policy to be made material and operational. Another way of formulating the issue is to say that it involves not only understanding the reasons that drive*

ed by governments, while a trend is visible towards the adaptation of incentive-based instruments.

76 This is shared by D. Braun and Capano (2010), who argue that instruments are a form of social representation and reflect certain societal beliefs.

towards retaining one instrument rather than another, but also envisaging the effects produced by these choices" (Lascoumes & Le Galès, 2007, p. 4).

In addition, instrumentation is viewed as being profoundly political: choosing a certain instrument "*may form the object of political conflicts*" (Le Galès, 2011, p. 11) and structure the process and its potential outcomes. To pursue this even further, apart from the choices for particular instruments, it is equally essential to understand their development and "*identify their uses*" (Le Galès, 2016, p. 518). Focusing on the use of the instruments, once they are in place, constitutes a relevant avenue for research because of the structuring character that is assigned to them. Le Galès explains that "*once in place, these instruments open new perspectives for use or interpretation by political entrepreneurs, which have not been provided for and are difficult to control, thus fuelling a dynamic of institutionalization*" (2011, pp. 151–152). While scholarly literature has analysed the choices of instruments and the distinct instrumentation effects this might create (Marques, 2018; Reale & Seeber, 2011), an analysis of instrument use is seen as an equally relevant avenue (cf. Ravinet, 2011). In other words, analysing the use of the instrument and its interpretation by key actors addresses relevant considerations that: *"illustrate the scope of the register of potential instrument appropriation and [...] underline the transformative effects that different uses may bring"* (Lascoumes & Simard, 2011, p. 15).

Rather than being vectors that embody stable notions and meanings (Lascoumes & Simard, 2011), once in place, instruments might develop a life of their own that differs from what policy-makers had initially anticipated (Kassim & Le Galès, 2010). Accordingly, the use (instrumentation) and interpretation of a policy instrument might again fuel institutionalisation dynamics. Furthermore, scholarship argues that the instrumentation might also be subject to change over time and in different contexts (Jenson & Nagels, 2018). To sum up, conceptualising instruments as institutions constitutes a core assumption of this study. This understanding challenges some of the previously mentioned assumptions that instruments are neutral devices that primarily respond to politically anticipated goals (see section 4.1). In the following section, the notion of instrumentation is introduced in more specific terms and linked to how it may fuel institutionalisation dynamics.

4.2.2. Instrumentation and Institutionalisation

The previous section referred to the notion of instrumentation as a central element in the analysis of policy instruments, which are conceptualised in a sociological sense. This is because the instrumentation of policy instruments might create distinct effects and foster institutionalisation dynamics (Lascoumes & Le Galès, 2007). Institutionalisation is thereby understood as the "*stabilisation of public policy instruments*" (Newman, 2009). More specifically, institutionalisation is also defined as *a process by which individuals create a common definition of a social reality* (Mayntz & Scharpf, 1995)[77]. Le Galès (2011) explains that instrumentation should be studied by first connecting the development and choice of an instrument with its implementation and then looking at how the instrument is used (these two steps inform the heuristic framework that will be used for the analysis of SICs, see section 4.2.3). The use of an instrument is seen to create an instrumentation output, which encompasses the procedural dimension in terms of "*instruments, budgets, rules, norms and standards*" (Le Galès, 2016, p. 518). Yet, output can also be "*medium and long-term in terms of (in) ability of policies to organize a policy field and influence social behaviour through conflict resolution, the allocation of resources and the imposition of sanctions*" (ibid.). In other words, analysing the instrumentation, i.e., the use of instruments, is essential since this may create distinct effects which promote institutionalisation dynamics. Lascoumes and Simard identify three instrumentation effects (2011, pp. 15–16):

1) Aggregation effect: the instrument brings together heterogeneous actors who work on a certain topic; this ultimately leads to a modification of their initial positions (understood by the authors in an actor network sense). In addition, this might create inertia effects, which, to some degree, explain an instrument's resistance to change (a definition of inertia will be provided further below).
2) Representation and problematisation effect: the instrument leads to a framing of the issue in the sense that it creates a direct cognitive effect and proposes an explanatory system
3) Instruments are not isolated devices but are embedded in their context and there may be distinct modes of appropriation (by key actors):

77 Original quote by Mayntz and Scharpf (1995, p. 42), drawing on Berger and Luckmann (1997): "*Institutionalisierung der Prozeß, durch den Individuen eine gemeinsame Definition der sozialen Wirklichkeit aufbauen*".

> professional mobilisation (i.e. "*affirmation of new competencies*"), reformulations (i.e. "*serving particular interests and power relations between the actors*") or resistance (i.e. "*to reduce the impact of the instrument*") (Lascoumes & Simard, 2011, p. 15).

Lascoumes and Le Galès (2007) argue that these instrumentation effects might consolidate each other and reinforce a (gradual) process of institutionalisation. Ravinet (2011) also stresses the aspect of appropriation and describes the role of actors in this process: *"in some cases, an instrument can be put in place even when the actors have not really settled on how it should be used. They may discover the functions they attribute to it during the course of its development*" (Ravinet, 2011, p. 38). What is more, scholarly literature[78] reaffirms that instruments are bearers of changing ideas and that their functions may also change (Ravinet, 2011). In other words, they are subject to instrumentation by key actors (D. Braun & Capano, 2010, p. 13). Before we proceed to the next section, it is relevant to discuss the notion of inertia as a distinct instrumentation effect. Lascoumes and Le Galès (2007) do not define inertia in their writing (cf. also Lascoumes & Simard, 2011 do not specify this). However, the way that the notion is used seems to reflect an understanding of continuity and resistance over time, particularly in light of external events, such as governmental changes. This understanding differs from how inertia is defined by path-dependency scholars, such as Pierson (2000). Furthermore, assumptions such as equilibrium situations are not key to the work of Lascoumes & Le Galès (2007). Nevertheless, it is essential to understand the concept of inertia; for the purposes of this study, inertia is regarded as patterns of continuity and a certain resistance to change over time (excluding considerations of equilibrium).

To sum up, it is assumed that the study of policy instruments and the study of instrumentation effects go hand in hand as the latter are seen to reinforce the (gradual) institutionalisation of instruments (this will be defined in more detail in section 4.2.3). Furthermore, shifting the analytical focus to instrumentation provides a new and refined perspective on how instruments might change and impact existing (governance) arrangements.

78 The work of Lascoumes and Le Galès has been increasingly applied in scholarship: (Menon and Sedelmeier (2010); Kassim and Le Galès (2010)). Contributions range from environmental studies (Halpern (2010, 2008)) to studies of higher education (Ravinet (2011); Reale and Seeber (2011); Marques (2018)), the European Union (Bache (2010); Saurugger (2014)), and the study of science diplomacy (Epping, 2020).

Moreover, instruments may unravel competition between those actors who steer and drive public policy (Badout, 2011). Therefore, adopting this perspective reveals the "*invisible—hence depoliticized—dimensions of public policies*" (Lascoumes & Le Galès, 2007, p. 7) and shows "*what is at stake politically in a particular policy field*" (Bache, 2010, p. 59). In the following section, these conceptual considerations will be translated into a two-step heuristic framework that provides the basis for the subsequent analysis of the two SICs.

4.2.3. A Heuristic Framework

Based on the conceptual considerations (Lascoumes & Le Galès, 2007; Le Galès, 2011), a two-step heuristic framework has been extracted and deployed in order to analyse the development and institutionalisation of SICs. These two steps are: 1) analysing the development of SICs and 2) analysing the use of SICs by key actors. These steps will be introduced and conceptualised in detail in the next section.

4.2.3.1. Step 1: Analysing the Careers of SICs

The first step involves historically reconstructing the long-term development (career) of the SICs, while at the same time disconnecting it from its goals (Halpern, Jacquot, & Le Galès, 2008, p. 2). This long-term perspective will be applied because instruments often reflect longevity, even in the light of governmental changes (the conceptual considerations of policy design inform this analysis, see section 4.1.3). Accordingly, this study focuses on the "*long-term political careers of policy instruments, to analyse the debates surrounding their creation and introduction, the ways they were modified, the controversies*" (Lascoumes & Le Galès, 2007, p. 17). Furthermore, scholarly literature argues that the effects of certain "*decisions are likely to be enduring*" (Kassim & Le Galès, 2010, p. 6). The genesis and establishment of SICs deserves particular attention since this phase is seen to reflect the *zeitgeist* at that time (cf. Bemelmans-Videc, 1998, p. 4) (see section 4.1.2). More specifically, the following relevant aspects should be considered: arenas of interaction, the key actors involved as well as the discussions that ultimately impacted and shaped SICs' development. Focusing on these aspects also facilitates identifying arrangements that have evolved institutionally and instrumentation effects linked to the choice of the instrument (see

section 4.1.3). Linder and Peters also argued for this approach much earlier (1989, p. 39): "*an important component of understanding the instruments of government will be understanding where the tools come from (conceptually and practically) and the decisions processes involved in selection*".

What is more, by reconstructing the development of SICs from a long-term perspective, the concept of critical junctures is employed. The notion of critical junctures is not used by Lascoumes and Le Galès (2007), who, in fact, largely refrain from conceptualising turning points in an instrument's development. Critical junctures are understood as decisive moments or turning points which change and impact the previous workings of instruments (Hall & Taylor, 1996; Pierson, 2000)[79]: "*Junctures are 'critical' because they place institutional arrangements on paths or trajectories, which are then very difficult to alter*" (Pierson, 2004, p. 135). Scholarly literature assumes that critical junctures are often linked to exogenous shocks, which are seen to be the source of change: "*long periods of institutional stasis periodically interrupted by some sort of exogenous shock that opens things up, allowing for more or less radical reorganization*" (Streeck & Thelen, 2005, p. 3) as opposed to incremental change (Caporaso, 2007; Mahoney & Thelen, 2009). According to Harmsen and Tupper, "*the existence of such critical junctures [is] undoubtedly […] easier to assert than to define precisely*" (2017, p. 351). The concept of critical junctures proves to be a useful lens for analysing the development of SICs. It enriches the heuristic framework in such a way that it enables critical moments in the evolution of SICs to be identified and described; at the same time, it also points to changes in the instruments' ways of operating. These critical moments may, for instance, refer to changes in SICs' structures (such as the enlargement or reduction of a network and the potential implications of this), as well as to governance arrangements which introduce new steering or financing structures.

4.2.3.2. Step 2: Use of SICs by Actors

In the second step, the concept of instrumentation is analytically deployed and its potential effects are explored, which may reinforce the (gradual) institutionalisation of SICs. In addition to analysing the choice of a particular

79 The concept of critical junctures is deeply rooted in historical institutionalism (cf. Pierson (2004); Capoccia and Keleman (2007)).

policy instrument, we need to examine instrumentation as it is also inextricably connected to the use of the SICs by key actors (Lascoumes & Simard, 2011; Le Galès, 2011). Analysing the way actors use SICs facilitates an understanding of institutionalisation processes: the "*institutional context, the narratives through which instruments are interpreted and responded to, and changing perspectives as actors adjust to new instrumentation and to each others [sic] responses over time*" (Newman, 2009, p. 4). In line with Newman, this study's analytical focus will be on the interpretation and the use of SICs by their key stakeholders. This reveals the distinct instrumentation of SICs and may thus reinforce and explain their (gradual) institutionalisation. Lascoumes and Simard argue that such approaches: "*illustrate the scope of the register of potential instrument appropriation and [...] underline the transformative effects that different uses may bring*". (2011, p. 15). This study hence develops a distinctively actor-centred perspective on SICs (and thus on science diplomacy) and reveals actors' differing rationales. The next section will conceptualise the use of the instruments by its actors in more detail to enrich this heuristic framework[80].

4.3. Conceptualising Actor Rationales

In order to develop an actor-centred perspective on SICs, a framework is needed, which conceptualises organisational behaviour and provides an insight into why actors join SICs. This study thus mobilises meta-organisations theory[81] in a selective way (Ahrne & Brunsson, 2005, 2008). This approach provides an orientation on how and why actors might use SICs; however, it is relevant to note that this study does not aim to conceptualise SICs as meta-organisations. On the contrary, this thesis conceptualises SICs as organisational instruments in the sense of them being institutions. Nevertheless, meta-organisation theory has a distinct explanatory value because of its organisational and actor-centred perspective. In essence, meta-organisation theory aims to explain why organisations participate in or create

80 Please note, in this study the focus is not on individual actors but on organisations which participate in SICs (see also section 3.3.4).

81 Meta organisations are defined as organisations that have other organisations as members and "*have assumed the form of associations*"(Ahrne and Brunsson (2005, p. 431)). Meta-organisations possess a set of "*endemic characteristics*" (Ahrne and Brunsson (2005, p. 431)) which scrutinise widespread assumptions in the literature on organisations (cf. Ahrne, Brunsson, and Seidl (2016, pp. 4–5)). This mainly relates to two concepts: environment and membership.

other (new) organisations, in other words, why organisations participate in collective action. Collective action is also a key element in relation to SICs. What is more, the key stakeholders that are analysed in this study are organisations (see chapter 3). Hence, this framework seems applicable for conceptualising their interpretation and their use of SICs. Furthermore, meta-organisation theory considerations are used selectively to the extent that they: a) explain the collective behaviour of organisations and b) reveal an insight into actors' sense-making by drawing on a distinct set of specific rationales. Accordingly, this study deploys certain meta-organisation theory assumptions which shed light on organisational behaviour. Moreover, it develops a distinctively actor-centred perspective, without claiming that SICs are meta-organisations (it also refrains from using key meta-organisation terminology and adopts more general notions, such as collective action and stakeholders, where possible).

4.3.1. Creating and Sustaining SICs

Understanding why key stakeholders (i.e., organisations) create and participate in collective action is central to this study. This is best understood by taking a step back and discussing why collective action was initially considered. According to scholarly literature, meta-organisations (and thus collective action) can either result from a demand of its prospective members[82] or external actors (Ahrne & Brunsson, 2008, pp. 66–77). In other words, the desire to organise collective action might develop either due to perceived urgency among certain organisations or due to an external demand, such as a political initiative to consolidate collective action (the latter aspect aligns with policy instrument design considerations as discussed earlier in section 4.1.3). Different starting positions and sense-making are assumed depending on this initial decision: these may either lead to immediate support because there is a perceived added value in this collective action (Lubell, 2003), in contrast to added value that first needs to be created. Scholarly literature identifies four overlapping purposes which explain the creation of meta-organisations (Ahrne & Brunsson, 2008, pp. 66–77). Rather than drawing onmeta-organisations terminology, these four purposes are described more generally as promoting collective action and

82 In meta-organisation theory, the concept of membership/members is central. In the context of SICs, stakeholders are referred to.

explaining why stakeholders choose to engage in this. Firstly, attempts are made to change patterns of interaction. More specifically, this links to the provision of information and increases the (common) knowledge base, while also facilitating exchange and support for individual stakeholders' operations. Ahrne and Brunsson argue that these considerations are particularly relevant to meta-organisations in science and research (2008, p. 66) and thus presumably also to instruments such as SICs, which also operate in this domain. In addition, a key purpose might be to strengthen collaboration (between members) in order to tackle competition.

Secondly, key stakeholders may take a deliberate decision to promote and engage in collective action to influence the environment by providing more and better resources (as well as influence). Thirdly, collective action may tackle questions regarding identity and status: the creation of a meta-organisation may aim to "*create, reinforce, or at least confirm a certain identity*" because membership is linked to aspects of similarity (Ahrne & Brunsson, 2008, p. 72). In other words, stakeholders that are similar or operate in a similar realm might join forces to gain more influence and be recognised for this. Finally, the creation of a meta-organisation might respond to an external demand (i.e., not from prospective members/stakeholders) with the aim of changing the environment. To put this differently, an external push (i.e., governmental) might bring about collective action. The authors argue that the initiation of collective action can in fact be a response to a mix of purposes, which either derive from stakeholders themselves or from external actors. These purposes can be seen as providing general justifications of why collective action is primarily considered to be useful. The next section will focus on the sense-making of individual organisations and will identify more specific rationales.

4.3.2. Rationales for Joining SICs

If the focus is shifted to the specific rationales, a refined set of considerations can be extracted from meta-organisation theory (Ahrne & Brunsson, 2005); these considerations are applicable to this research context (see section 4.2.3) because they facilitate explanations of why individual organisations choose to participate in collective action (see Table 7). These general meta-organisation theory assumptions are translated into specific rationales for joining SICs in the remainder of this section. Stakeholder rationales for joining SICs primarily relate to general support for a SIC's mission and

activities. More specific inducements include facilitating cooperation with other SIC stakeholders and a desire to change interactions with other stakeholders. Opportunities for collaboration must be understood as aiming to create an impact and "*to achieve external influence*" (Ahrne & Brunsson, 2005, p. 434). This is because meta-organisations (in this study, SICs) can organise collective action and are able to represent and lobby for their members' interests, while also protecting them. This consideration is subject to further analysis because there are presumably differences in the degree of collective action that can be organised through a SIC in comparison to a formalised organisation.

Table 7 Rationales for Joining Meta-Organisations

Rationales for Joining Meta-Organisations
Inducements
(1) Support for the organisation's purpose
(2) Cooperation opportunities between members
(3) Change interactions
(4) Exert external influence (through collective action)
(5) Protect own interests
(6) Benefit from social status and prestige
Expected contribution
(1) Cost-opportunity balance
Precautionary reasons
(1) Participate to not be left out
(2) Prevent undesired developments
Identity
(1) Logic of appropriateness
(2) Expectation to participate from environment
(3) Participation equals an entry criterion
Availability of alternatives

Source: created by the author based on the work Ahrne & Brunsson (2005, 2008).

Moreover, participating in SICs can be linked to stakeholders' desires to acquire social status and prestige. Other factors which influence decisions to participate in SICs relate to expected contributions for participation; these might be of a material nature, such as fees that must be paid; however, this also includes opportunities and specific channels of influence. Ahrne and Brunsson refer to "*low costs and good opportunities for exerting influence*" (2005, p. 434) as attractive conditions for participation[83].

In addition, stakeholders (members) may decide to join a SIC for strategic or precautionary reasons. More specifically, stakeholders participate in SICs to avoid being left out and not being able to influence what happens at a later stage. What is more, scholarly literature assumes that stakeholders might join a SIC although they do not support its overall idea; however, they participate to ensure they are in a position that allows them to potentially prevent undesired activities or developments (Ahrne & Brunsson, 2005, pp. 434–435). Another set of considerations which explain participation are associated with identity, such as "*logic of appropriateness*" (Ahrne & Brunsson, 2005, p. 435). When organisations wish to join a meta-organisation, they consider the differences and similarities to other members and are likely to join a meta-organisation that operates in a similar domain. In other words, stakeholders consider participating in SICs if there is a sufficient level of similarity to other stakeholders.

Moreover, scholarly literature assumes that participation is often expected by the environment and that non-membership/non-participation would raise questions, or even suspicions. Accordingly, scholarly literature argues that participation in SICs is viewed as facilitating and reinforcing the processes of stakeholders' identity construction. Moreover, it might be indispensable for an organisation to participate in collective action since this creates a source of credibility and non-members are looked at with suspicion. This aspect raises considerations of legitimacy: participation might serve as an entrance ticket or a door-opener in certain settings. This aspect would presumably depend on a SIC's degree of institutionalisation

83 The aspect of expected contributions is also highlighted elsewhere in scholarly literature. A model that also hinges on explaining actor rationales is the work by Coleman (2010), who introduces the resource pooling model. Coleman, in contrast to meta-organisation theory, formulates his assumptions based on individuals as members (rather than organisations). While assuming rationality among individuals, he claims that the most dominant explanation of why actors decide to bundle their activities and resources links to cost-benefit considerations. In other words, the expected outcome for participation must be higher than non-participation.

in terms of reputation building, for instance (as opposed to the theoretical assumptions that membership of a meta-organisation might suffice).

Lastly, the decision about whether to join a meta-organisation might also be linked to the alternatives that are available. In other words, a stakeholder's decision on whether to participate in a SIC might be explained by other opportunities which would enable them to achieve a similar goal[84]. Moreover, Ahrne and Brunsson describe the tendency of meta-organisations to "*become organizations for the weak rather than the strong*" (2005, p. 435), which presumably holds true for SICs too. Following the authors' premise that meta-organisations and their members are rather similar by definition and that they might even face a certain level of competition, they claim that strong organisations are less dependent on meta-organisations than weaker members. This is because organisations that do well on their own, might be less incentivised to join a meta-organisation. In addition, scholarly literature argues more generally that some organisations are more likely to join SICs if other specific organisations are already on board and participating. In other words, the participation of some organisations might act as a pull-factor for others due to their reputation or the potential for cooperation. To sum up, this section conceptualised stakeholders' potential use of SICs. It revealed specific factors and considerations, i.e., the sense-making in relation to creating and joining SICs (inspired by meta-organisation theory). This section thus enriches the conceptual framework by providing explanations as to why actors participate in SICs and highlighting the expected (and nuanced) use of SICs; hence, it sheds light on the operationalisation of instrumentation[85].

84 Scholarly literature furthermore refers to organisations which deliberately avoid becoming members and keep operating alone (Ahrne and Brunsson (2005, 2008)). It might be more attractive for members not to join a meta-organisation because this may also generate a positive identity which facilitates its interactions with third actors (cf. Ahrne and Brunsson (2008, p. 84)). This aspect is to a lesser degree relevant for this study because the actors which are sampled participate in SICs.

85 The results of the analysis will be presented in an aggregated form. Accordingly, there is little added value to formulating specific assumptions. These would be more relevant if actors were singled out in the analysis, that is, actors who assign a greater value to the SICs might be more likely to use and promote them; actors who participate because of expectations might be less inclined to use SICs for strategic purposes and keep their involvement to a minimum.

4.4. Conclusion and Discussion

This chapter provided the conceptual framework for this study and positioned its approach in relation to relevant scholarly literature. Furthermore, key components were defined and a heuristic framework was extracted for analysis. This framework can be applied to explore the development and institutionalisation of SICs. Therefore, concrete research steps have been outlined which provide an analytical lens that guides the study's data analysis and presentation. To reiterate, policy instruments have been conceptualised in two ways: a) technical and static understanding, where policy instruments are seen as the distinct result of a policy design process and b) in terms of a political sociology framework. The latter approach has been adopted in this study. Following the main argument that instruments are institutions in the sociological sense, instruments were ascribed a transformative and shaping role in their environments. Moreover, despite initial goals, they have the potential to create their own effects, which may differ from those which were politically formulated. In this vein, it is argued that, in addition to analysing an instrument's constituencies, it is also relevant to analyse its instrumentation, i.e., the use of the instrument by actors.

To that end, a heuristic framework has been extracted that serves as the basis for the subsequent analysis of the development of the two SICs examined in this study. Two main components have emerged: firstly, a historical deconstruction exercise of the instrument (disconnected from political goals) and secondly, an analysis of the instrumentation and the potential effects that might be created. These effects are viewed as reinforcing a (gradual) institutionalisation process. SICs are governmentally initiated instruments that aim to promote collective action and strongly rely on their use by actors to avoid being an empty shell. To illuminate the instrumentation by key actors, the considerations of meta-organisation theory form a significant building block which helps to outline organisational interests. In other words, the theoretical premise facilitates an understanding of why organisations create and participate in collective action; furthermore, it conceptualises participation in SICs (and hence also science diplomacy) from an actor-centred perspective.

The framework has a significant value with regard to answering the main research question; however, it also has limitations, such as the assumption of a tabula rasa situation in relation to the design processes of instruments. Lascoumes and Le Galès (2007) fail to acknowledge and conceptualise that room for manoeuvring might be constrained by various external factors.

To give an example, policy-makers do not have an unlimited range of options to draw on due to various limitations, as explained earlier (see section 4.1.3). In addition, path-dependency effects might be at stake, and this could affect and limit future design choices. In addition, the concept of turning points in the instrument's trajectory is not conceptually developed in the initial work by Lascoumes and Le Galès (2007). To overcome this, the notion of critical junctures has been mobilised as an analytical concept which sheds light on turning points and key events in the development of the two SICs (see section 4.2.3.1). To conclude, it should not be assumed that instruments develop in a vacuum situation, as Ravinet (2011, p. 16) also pointed out; instead it is vital to consider contextual elements which derive from the aspects mentioned above. The next chapter will outline the methodological choices which guide this study.