

8. Analysis of Actor Rationales for Participation (DWIH)

This chapter complements the reconstruction of the DWIH's development (chapter 7) and examines the instrumentation of the DWIH, i.e., the use of this instrument by key actors. It also generates additional evidence on the (gradual) institutionalisation of the DWIH. The chapter is divided into two main parts; the first part addresses the (political) objectives and goals that the DWIH has responded to over time (section 8.1). The second part presents the rationales of key actors, which can explain their participation in the DWIH and enable a better understanding of how the instrument is used. In combination, these two analytical stages provide an insight into how the DWIH are interpreted and used by key actors, as well as how they are embedded into their context. In other words, this chapter presents evidence regarding the DWIH's instrumentation, which may ultimately push forward institutionalisation dynamics.

8.1. Political Objectives

The following section analyses the political objectives that the DWIH should respond to, i.e., their political instrumentation. To evaluate the DWIH's framing by the key ministries¹⁴⁹, an analysis of publicly available political documents was conducted (see Table 13) (see also Appendix 1.2). This analysis adds another layer of insights into the DWIH's (gradual) institutionalisation since it reveals how the instrument is seen by key political actors. The analysis identified three main objectives, which are strongly intertwined thematically. These objectives are linked to a) branding and visibility, b) cooperation and competition and c) economic considerations. The findings reveal that the DWIH's initial objectives, such as to showcase Germany and improve its international position, have remained firmly in place over time, while layering in favour of new objectives was also identified. This will be discussed in the next sections.

149 See footnote 133 on the considerations of inter-ministerial competition (cf. Mai (2016)).

8.1.1. Branding and Visibility

Since its launch in 2009, the DWIH has been viewed as an instrument that helps to promote Germany as a country that excels in science, research and innovation. Its initial core goals were to raise the profile of the German science and innovation ecosystem, and to promote international cooperation and networking activities (see Table 13). The DWIH were further identified as a vehicle that contributes to wider foreign policy goals due to its embeddedness in Germany's overarching science diplomacy strategy. The DWIH are by definition instruments of Germany's foreign policy strategy and hence contribute to these wider objectives, despite the fact that in certain years (2014, 2015, 2020) this is less explicitly mentioned in the policy documents. More specifically, the DWIH are seen as an instrument that can exert influence. Early conceptualisations of the DWIH emphasised its role: despite the fact that the DWIH operate in an international environment, they are primarily intended to cater to German needs (internal document, 2008).

Moreover, it should be prevented that the DWIH are (indirectly) used by host countries as a platform to exert influence¹⁵⁰. Furthermore, the DWIH were seen as a way of opening up new paths for diplomacy by drawing on distinct channels of communication to ultimately increase their potential to exert influence. This is reflective of the science diplomacy discourse (which led to the DWIH's creation). To give an example, establishing a good international reputation for the German science system was considered beneficial for pursuing successful foreign policy and achieving distinct objectives (cf. Ammon, P., 2009). These assumptions reflect the normative prospects linked to the science diplomacy discourse, as has been discussed previously (see chapter 2). The data shows that these key objectives, which respond to branding and visibility, have remained relatively stable and in place over time.

150 This consideration is notable because it points to limits and unintended effects of science diplomacy activities, such as a reversed influence.

Table 13 Main Themes and Objectives Tied to the DWIH

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Branding & Visibility: promote, present, and inform about Germany												
Showcase and strengthen Germany as an innovative country; present know-how (abroad)								**		**		
Showcase and strengthen Germany's (dynamic) research and science sector						*		**		**		
Promote and strengthen int. cooperation and networking (between German and int. scientists)						*		**		**		
Service point (for national innovation leaders who operate abroad and int. scientists exploring opportunities to work in Germany)								**		**		
Improve public perception of German engagement in science												
Facilitate foreign policy goals												
Cooperation & Competition												
Access to talents, resources and new markets						*		*				
Participate in the scientific excellence of other states						*						
Reinforce worldwide networking and internationalisation of higher education, science and research										**		
Contribute to being internationally competitive										**		
Economic Considerations												
Tackle skill shortage by securing (highly skilled) workforce					*							
Secure forerunner role (in terms of business & innovation)												
Facilitate knowledge exchange: secure growth and employment												
Strengthen bilateral (science-technological) cooperation							*	*		*		
Promote economic and societal innovation							*	*		*		**
Global Responsibility & International Solidarity												

Legend

Grey cells = topic is mentioned by the AA

Grey cell +* = topic is mentioned by BMBF only

Grey cell +** = topic is mentioned both by AA & BMBF

* Please note, the official 2014 publication by the AA does not refer to the DWIH at all. However, the BMBF document refers to the DWIH.

* Please note for 2014, 2015 and 2020, the DWIH were not seen as contributing to foreign policy goals. However, the DWIH are an instrument of the AKBP and are by definition viewed as contributing to Germany's foreign policy goals.

Source: created by the author.

8.1.2. Cooperation and Competition: Internationalisation

In 2014, the DWIH were subject to a minor change of framing. Germany's internationalisation strategy explicitly situates the DWIH in the larger discourse of cooperation and competition dynamics. Notably, the BMBF issues the internationalisation strategy for the whole government and seems to add another layer¹⁵¹ to the framing of the DWIH (cf. Huisman & van der Wende, 2005; J. J. W. Powell et al., 2017). The BMBF views the DWIH as an instrument that a) responds to key challenges, such as the run for talent, b) grants access to resources and funding opportunities and c) secures Germany's (reputation for) excellence and fosters its participation in other markets and regions of excellence (BMBF, 2014). These objectives underline the earlier assertion that the BMBF looks at the DWIH from a different angle: it takes a perspective from within the system and views the DWIH as vehicles with which to strengthen the German science and research system. More specifically, the DWIH are considered to create new capacities and respond to international dynamics, such as competition and cooperation (Deutscher Bundestag, 2013, p. 2) (see section 7.2.1).

This stands in contrast to the AA's perspective, which typically views the DWIH as an instrument with which to promote Germany's visibility internationally. In other words, while the BMBF takes an internal perspective, the AA adopts an external perspective (these different forms of logic were discussed in section 7.2.1). What is more, from 2018 onwards, the documents point to the DWIH's role in facilitating internationalisation activities and tackling international competitiveness. While this framing had already been adopted by the BMBF prior to that (in reports in 2014 and 2016), the AA has only considered these to be core aspects for the DWIH since 2018. This may be linked to the DWIH's audit exercise, which took place in 2015/2016 and called for stronger cooperation between the two ministries (AA and BMBF) in relation to the DWIH.

8.1.3. Economic Considerations and Innovation

Around 2015, the DWIH experienced another layering in the form of economic considerations linked to the DWIH. The DWIH's role of secur-

151 The concept of layering is often associated with the works of Capano (2019), for instance.

ing Germany's position in the future, given its scarce natural resources, was highlighted when the network was launched. However, this objective was not mentioned prominently again until the AA report in 2015. This change in layering may suggest that economic considerations became a pressing (political) issue around that time¹⁵². More specifically, the AA report assigned a crucial role to scientific findings and ideas as the engine for future developments, which would ultimately contribute to Germany's economic and societal innovation capacity. The DWIH are seen as a strong instrument that reinforces this capacity (cf. Auswärtiges Amt, 2016). The analysis further reveals that, since 2015, *innovation* has increasingly become a key political concern for the DWIH. This mainly relates to reinforcing Germany's international competitiveness. Although the DWIH's name includes the word *innovation*, this focus has been contested throughout their institutionalisation, and the data refers to intense debates about the DWIH's core mission among key science stakeholders (see chapter 7).

8.1.4. Consolidating Science Diplomacy

In 2020, the stable framing of the DWIH changed due to a renewed strategic focus on science diplomacy. The AA resurrected the political relevance of science diplomacy and launched a new strategic framework. This strategy marks a change of framing because new topics were included, and this constituted a (partial) thematic shift compared to the 2009 version. This new strategy developed from intense stakeholder consultation (AG Science Diplomacy, 2019) and seems to be more holistic in concept, while it also encompasses more themes than its predecessor. Four core themes are identified (Auswärtiges Amt, 2020a, 2020c): a) tackling global challenges and finding answers to strategic questions relating to issues such as climate change, public health and digitalisation, b) strengthening academic cooperation and mobility, while also promoting partnership programmes for higher education institutions, c) promoting academic freedom and supporting scholars at risk, themes which emerged from threats of fake news and international developments at the time, and d) promoting and branding Germany as a place of innovation and research. The DWIH serve as a most prominent way to promote Germany internationally.

152 In line with Bemelmans-Videc (1998, p. 4), instruments are viewed as reflecting a certain *zeitgeist* (see section 4.1).

This strategy appears to be strongly in line with Germany's internationalisation strategy (BMBF, 2017a), yet it reflects a change of framing. Its strategic objectives shifted in favour of emphasising global responsibility and underlining international solidarity (for instance, towards scholars at risk), while also focusing on the distinct principles of science, such as academic freedom. This stands in contrast to the previous approach, which primarily focused on national considerations (Epping, 2020; Flink & Schreiterer, 2010).

8.1.5. Discussion

The analysis of the DWIH reveals that key objectives and core goals have remained relatively stable over time¹⁵³: the DWIH are an instrument which aims to promote Germany internationally and reinforce its visibility. However, the comparison of the objectives shows that certain topics become more relevant in some years and disappear again in others. This is particularly evident in relation to cooperation and competition, as well as economic considerations. This suggests that the instrument is used by ministerial actors as a platform to address politically relevant topics¹⁵⁴. In 2020, new political framing of science diplomacy was introduced, which constitutes a move away from primarily national considerations. Furthermore, the analysis further shows that interpretations and objectives associated with the DWIH differ between the two ministerial actors.

The comparison over time shows that the BMBF views the DWIH from an internal perspective (i.e., it considers the DWIH to be a vehicle for national actors to improve Germany's research capacity), while the AA adopts an external perspective which focuses on the branding of Germany. This finding reaffirms the tensions and different logic between the two key ministries (see chapter 7). However, the data also shows that in certain years the two ministries adopted similar framing of the DWIH (2016, 2018). This may suggest that a common understanding of the instrument was beginning to evolve, which reinforced the institutionalisation process of the

153 The analysis furthermore sees increased coverage of the DWIH in official reports (following its reorganisation). This may suggest that the DWIH have been consolidated in such a way that they have become an even more prominent tool which Germany uses to position itself with.

154 To what degree this change in framing may have impacted the actual work and thematic coverage of the DWIH (on-site) is subject to additional research.

DWIH. Evidence is further seen in the jointly launched science diplomacy strategy in 2020.

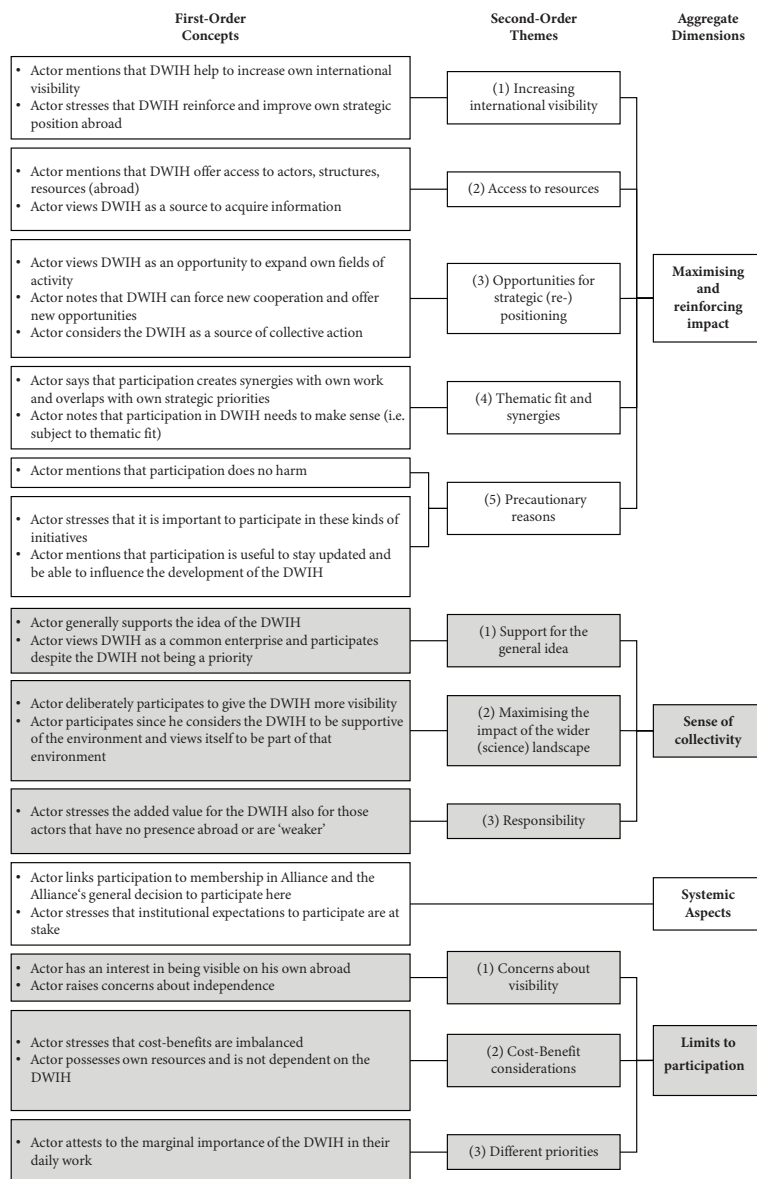
To sum up, the DWIH's core goals have remained stable; however, a certain layering can also be observed. To contextualise this, the analysis reveals themes which are strongly intertwined (it is sometimes difficult to identify demarcations) and are analytical in nature. Nevertheless, thematic shifts should not automatically be interpreted as a sign of diminishing (political) relevance. The next section presents the analysis of the key stakeholders' use of the DWIH.

8.2. Key Stakeholder Rationales

The following section presents an aggregated analysis which explains why actors participate in the DWIH and how they use this instrument (see the data structure in Figure 7). The analysis reveals that the interests of individual organisations are a most relevant factor and seem to be the dominant explanatory element. In addition to these strategic considerations, the data also provides evidence of a collective dimension since the DWIH are viewed as an instrument that benefits the German research and science landscape as a whole. In essence, the analysis identifies three overarching dimensions, which can be viewed as explanations for actor participation: a) actors' strategic interests, b) aspects that link to a sense of collectivity and c) explanations that are of a systemic nature. The three categories reflect a form of dynamic interplay in the interviews as they are typically mentioned in combination. In addition, the interview data points to factors that limit participation in the DWIH. These elements will be discussed in more detail later in this chapter.

8. Analysis of Actor Rationales for Participation (DWIH)

Figure 7 Rationales for Actor Participation (DWIH)

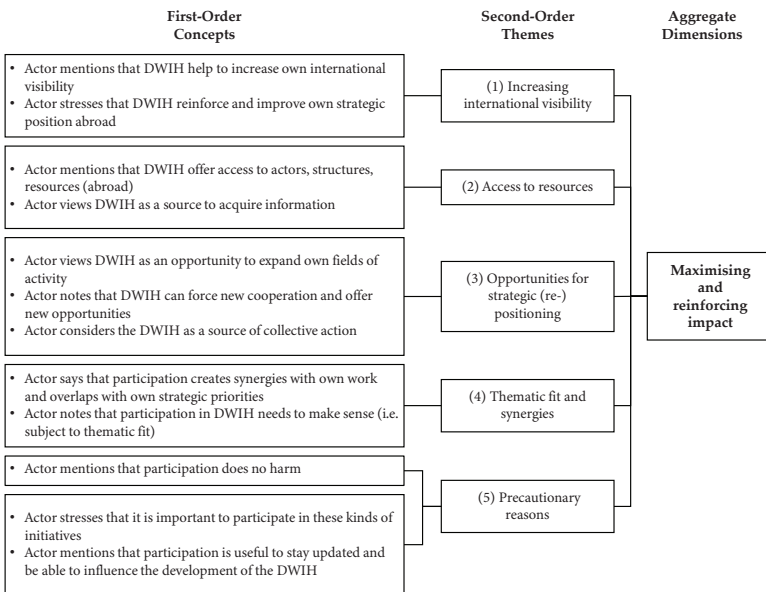


Source: created by the author.

8.3. Strategic Considerations: Maximising Impact

The first set of considerations that explain actor participation are aimed at reinforcing actors' own positions. The analysis reveals five intertwined aspects, which underline that actors' aim to reinforce activities and ultimately maximise their impact (see Figure 8). More specifically, the data shows that actors participate in the DWIH: (1) to increase their own visibility abroad, (2) to gain access to resources, (3) as an opportunity for strategic (re-)positioning, (4) in alignment with their own priorities and topics create synergies, and (5) for precautionary reasons and to gain a strategic position which allows them to influence the DWIH (or prevent certain developments). The next section discusses these aspects in detail: however, there is no suggestion of a hierarchy in terms of importance.

Figure 8 Actor Rationales: Maximising and Reinforcing Impact



Source: created by the author.

8.3.1. Increasing International Visibility

A key consideration that explains actor participation in the DWIH is linked to maximising institutional visibility. The data shows that institutional visibility is a key concern for actors. Being visible and internationally recognised as distinct actors is seen as a motivation to engage with the DWIH. DWIH are viewed as an instrument that can foster this (institutional) visibility abroad (see Table 14). The quotes below demonstrate that actors' see the DWIH as a useful vehicle to help them strengthen their own international position and can act as a multiplier to their own activities. In other words, the DWIH are used in such a way that they serve as a multiplier for actors' key missions. Actors' benefit from the instrument because it may increase the visibility of their organisation internationally, while the DWIH also act as a brand for the wider German landscape (which may lead to collective visibility). The analysis highlights that gaining international visibility is a key consideration that explains participation because actors often strive to operate internationally. In a similar vein, the DWIH are viewed as an instrument that has the potential to advance an actor's strategic position abroad and reinforces its international activities. Accordingly, the analysis reveals that the DWIH are seen as an opportunity which may promote an actor's visibility. This multiplier function is particularly relevant in cases where actors have limited or no (institutional) exposure abroad. This relates to those cases where actors do not have their own offices or staff members abroad. It is also relevant to note that actors' starting positions vary significantly in terms of international outreach.

Table 14 Increasing International Visibility

(1) Increasing International Visibility		
Actor mentions that DWIH help to increase own international visibility	Actor x as such is internationally renowned. That is something that can be expanded and that we want to expand, and an instrument such as the DWIH are very useful in this respect, because they facilitate doing this in a very meaningful way. (GIW2)	"[Actor x] als solche international sehr bekannt sei. Das ist etwas, was man ausbauen kann und was wir auch ausbauen und da ist natürlich ein solches Werkzeug wie die DWIH sehr interessant. Weil sie auch natürlich ermöglichen, dass auf eine sinnvolle Art und Weise zu tun". (GIW2_2017-07-26: 41 - 41)
	So, yes, Actor x is always interested in creating an outside impression, and this is why we said we somehow	"Also, jawohl, {actor x} ist immer daran interessiert Außenwirkung zu erzielen, deswegen haben wir auch gesagt bei solchen Ideen

(1) Increasing International Visibility

	need to be involved in these kinds of ideas. (GIW6)	müssen wir irgendwie dabei sein“. (GIW6-2018-03-27: 34 - 34)
	And for us it is obviously also helpful, if we want to be present in [place x], to do that together with the DWIH. And there were always good subjects to be found where we then hosted a little event, an evening event or something, together with the DWIH. And that works wonderfully. (GIW10)	“Und für uns ist es natürlich auch hilfreich, wenn wir dann mal in [place] präsent sein wollen, das mit dem DWIH gemeinsam zu machen. Und da haben sich eigentlich auch immer gute Themen finden lassen, wo wir dann eine kleine Veranstaltung, Abendveranstaltungen oder so mit dem DWIH zusammen gemacht. Und das läuft wunderbar“. (GIW10_2020-02-10: 38 - 38)
Actor stresses that DWIH reinforce and improve own strategic position abroad	We hope that our own reputation will benefit from this, in the sense that it makes it easier to establish cooperation with international partners. (GIW5) And, of course, occasionally, when we are there, that they support us in organising a nice event or that we, together with them, maximise a joint event/or the effect of our own activities. (GIW4)	“Und natürlich punktuell, wenn wir gerade da sind, dass die uns unterstützen mal eine schöne Veranstaltung zu organisieren, oder das wir mit ihnen gemeinsam eigene Veranstaltungen/also den Effekt eigener Aktivitäten maximieren“. (GIW4_2017-08-10: 51 - 51)

Source: created by the author.

8.3.2. Access to Resources

Closely tied to the previous aspect, the analysis shows that the DWIH are seen as a distinct platform offering access to a range of resources that would not otherwise be accessible to actors (see Table 15). The data provides evidence that actors use the DWIH in cases where it: a) provides access to facilities, b) creates networking opportunities and c) offers a certain infrastructure. Gaining access to these resources is also considered valuable from a cost-benefit perspective. To elaborate, the DWIH are viewed as a valuable, low-threshold opportunity for actors to gain access to these resources. The costs involved in establishing their own institutional presence abroad, which could generate similar opportunities, are considered to be far higher.

What is more, actors view the DWIH as a flexible, low-cost way of achieving their own (international) objectives, particularly if actors' priorities change. In addition, they enable actors to test the waters and find out whether establishing their own premises in the future might be viable option in the long run. In addition, the interview data emphasises that the DWIH are also seen as a valuable source of information. This relates to situations in which actors require specific information about a particular country, the region or a type of infrastructure as well as contact points; this could potentially facilitate actors' own operations. Hence, actors view the DWIH's ability to provide significant information as added value.

Table 15 Access to Resources

(2) Access to Resources

Actor mentions that DWIH offer access to actors, structures, resources (abroad)	And for that, of course, the DWIH are a good platform which, for one thing, combine local knowledge and which simply achieve a greater impact through this joint presence and activities on-site, and that also makes it easier, of course, for us to be a bit more flexible. [...] So, we, if we considered engaging in a certain country with an own office, this is of course an investment that one has to consider for 15/20 years and that has to pay off, and this can change. So, this is a good reason to participate [in the DWIH]. (GIW2)	“Und dafür sind die DWIH natürlich eine gute Plattform, die das lokale Wissen zum einen bündeln, die durch diese gemeinsame Präsenz und Aktivität vor Ort einfach auch eine größere Schlagkraft erreichen und die auch natürlich so ein bisschen dazu dienen, um etwas flexibler zu sein. [...] Also wir, wenn man sich jetzt mal überlegen würde, man engagiert sich in einem bestimmten Land mit einem Büro, dann ist das natürlich auch eine Investition, die man irgendwie so über 15/20 Jahre sich irgendwie überlegen muss und die sich dann auch rechnen muss und sowas kann sich ändern. Das ist ein guter Grund sich zu beteiligen [in den DWIH]“. (GIW2_2017-07-26: 41 - 41)
	And therefore, the DWIH opens up ways to approach topics and use networks, to gain contacts that would otherwise remain closed to us. (GIW8)	“Und deswegen eröffnet das DWIH uns auch Möglichkeiten in Bereichen, in Bereiche vorzustößen und Netzwerke zu nutzen, Kontakte zu gewinnen, die uns sonst verschlossen blieben“. (GIW8_2018-05-04: 23 - 23)
Actor views DWIH as a source to acquire information	Another is certainly, though that differs among the centres, that you can gain information about the science landscape on-site through the centres. (GIW2)	“Ein anderer ist sicherlich, das ist aber auch unterschiedlich gelagert bei den Häusern, also man kann natürlich auch Informationen über die Wissenschaftslandschaft vor Ort über die Häuser gewinnen“. (GIW2_2017-07-26: 42 - 42)

(2) Access to Resources

So, for us it is also a source of information, not only a place that we use or a platform that we use to place our own information. (GIW4)

“Also für uns ist es ja auch eine Informationsquelle, nicht nur ein Ort, den wir nutzen oder eine Plattform, die wir nutzen, um unsere eigenen Informationen zu platzieren“. (GIW4_2017-08-10: 15 - 15)

Source: created by the author.

8.3.3. Opportunities for Strategic (Re-)Positioning

The analysis identifies a third element which explains participation in the DWIH: opportunities for strategic (re-) positioning (see Table 16). More specifically, the data reveals that some actors view the DWIH as a (strategic) opportunity to expand their portfolio. The DWIH are as a strategic opportunity to access new fields of activity and actors use them for strategic positioning. This finding is notable since it suggests that the instrument may potentially have a lasting impact on individual actors and the way that they operate. In addition, the data shows that the DWIH are seen as an opportunity to enter into new cooperation with other national actors (on-site) under the DWIH umbrella. The data refers to these new forms of cooperation in terms of joint events on-site or the creation of new partnerships with other (national) actors¹⁵⁵. What is more, these types of new cooperation might relate to otherwise atypical things for actors, which gain legitimacy because they are done to support the DWIH (this points to the DWIH as a valuable source of collective action, see next sections). The subsequent quotes illustrate these positive aspirations and the perceived benefits for actors who engage with the DWIH in a good way.

Table 16 Opportunity for Strategic (Re-) Positioning

(3) Opportunity for Strategic (Re-) Positioning

Actor views DWIH as an opportunity to expand own fields of activity

But I think that [for actor x], innovation is a field that we have to tap into. There, [actor x] can of course strongly position itself in a research field and also as an institution. That

“Sondern ich glaube schon, dass [for actor x] [...] Innovation ist ein Feld was wir uns erschließen müssen. Da kann der [actor x] sich natürlich auch positionieren, auf einem Forschungsfeld und auch als

¹⁵⁵ Please note, this slightly overlaps with the aspect *sense of collectivity*.

(3) Opportunity for Strategic (Re-) Positioning

	is why, I think, it is also highly attached to [actor x]. (GIW7)	Institution sich nochmal in einem Feld ganz stark aufstellen. Deswegen ist das glaube ich auch relativ hoch im [actor x] [...] aufgehangen“. (GIW7_2018-05-03: 225 - 225)
	Like I said, because with the DWIH we access topics that are not our core competence. I already said that this is the innovation topic, so very precisely the intersection between yes, research and industry, and that is at the same time also, at least at many locations, access to pertinent research networks. (GIW8)	“Wie gesagt, weil wir mit den DWIH in Bereiche auch selber vorstoßen, die nicht unsere Kernkompetenzen sind. Ich sagte schon das ist, in die, das ist das Innovationsthema, also ganz konkret die Schnittstelle zwischen ja, Forschung und Wirtschaft und das ist gleichzeitig auch, jedenfalls an vielen Standorten, der Zugang zu den einschlägigen Forschungsnetzwerken“. (GIW8_2018-05-04: 35 - 35)
Actor notes that DWIH can force new cooperation and offer new opportunities	But that also stretches to atypical things for [actor x] like workshops to show [destination x] how [topic x is done]. And then, representatives of [actor x] come and participate in these workshops and teach and lecture there. (GIW14)	“Das geht aber auch hin, bis etwas [actor x] untypische Dinge wie zum Beispiel Workshops zu, die dazu dienen sollen [destination x] die [topic x]. Und dann kommen Vertreter [actor x] nehmen dann an diesen Workshops teil und unterrichten oder lehren quasi“. (GIW14_2020-02-04: 41 - 41)
	In fact, this Monday I will travel to [destination x] [...] we will, among other things, have an event during that time, which we will organise together with [actor y] [...]. Would we have previously jointly designed such an event? Probably not. (GIW8)	“Ich fahre jetzt am Montag tatsächlich nach [destination x]. [...], wir werden unter anderem eine Veranstaltung dann während der Zeit durchführen, die gemeinsam mit [actor y] [...]. Hätten wir vorher solche Veranstaltungen gemeinsam konzipiert? Vermutlich nicht.“ (GIW8_2018-05-04: 25 - 25)
	And then we said, ok let's see how we can use this: maybe we will get closer to [actor x] or maybe launch partnerships that might be beneficial after all. (GIW5)	
Actor considers the DWIH as a source of collective action	So, the division of work and the added value, also belonging to an official German organisation, are indeed immense. (GIW11)	“Also die Arbeitsteilung auch und der Mehrwert, auch einer offiziellen deutschen Organisation anzugehören ist schon immens“. (GIW11_2020-01-10: 12 - 12)
	And then, that is of course very practical, in quotation marks, or it entails synergy, if you have all of	“Und dann, das ist dann natürlich sehr praktisch, in Anführungszeichen oder eben sehr synergiestiftend,

(3) Opportunity for Strategic (Re-) Positioning

these actors on board sitting together at a table and you can discuss how we should, how we want to plan these events. (GIW14)	wenn man alle diese Akteure an Bord hat und gemeinsam an einem Tisch sitzen kann und sich überlegen kann, wie soll, wie wollen wir jetzt diese Veranstaltungen planen“. (GIW14_2020-02-04: 51 - 51)
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Source: created by the author.

8.3.4. Thematic Fit and Synergies

The analysis of the interview data also reveals thematic fit and the creation of synergies as distinct aspects (see Table 17). The data shows that actors must see a clear added value to their participation in the DWIH, as is illustrated by cost-benefit considerations. This suggests that participation is linked to conventional cost-benefit considerations, which implies that the benefits must be higher than the potential costs. Stakeholders tend to critically examine cooperation opportunities, for example, in relation to thematic fit. In addition, strategic priorities, such as target regions or the nature and set-up of events, emerged as relevant issues. The data furthermore refers to scientific standards or scientific quality considerations, which explain participation in a particular DWIH location. These examples demonstrate that actors' participation is explained by their vested interests and that cooperation is subject to their specific sense-making; ultimately, actors participate because they consider participation to be beneficial to their organisation due to the synergies created (the quotes below illustrate that some actors continue to operate as they would normally and that synergies are thus ensured). These considerations point to the limitations of participation.

Table 17 Thematic Fit and Synergies

(4) Thematic Fit and Synergies

Actor says that participation creates synergies with own work and overlaps with own	We are on board, and we use it [...] but we use it on-site for strategically motivated activities in selected cases. [...] So, when it suits our activities, be it scientific cooperation or even science diplomacy activities, we like to work with the individual centres [...] Let's say it like this, we pre-	“Wir sind dabei und nutzen das, [...] Aber wir nutzen es für strategisch begründete Aktivitäten im Einzelfall vor Ort. [...] Also wenn es in unsere Aktivitäten, sei es jetzt wissenschaftliche Kooperationen oder eben auch Science Diplomacy Aktivitäten passt, arbeiten wir gerne mit einzelnen
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(4) Thematic Fit and Synergies

strategic priorities	pare [...] we consider in detail where we strategically want to be active and with whom we are going to do that, where there is enough scientific quality. (GIW3)	Häusern zusammen. [...] sagen wir mal so -wir machen das vorher. Wir überlegen sehr genau wo wir strategisch aktiv werden und mit wem wir das tun, wo ist ausreichende Masse an wissenschaftlicher Qualität gegeben“. (GIW3_2017-07-26: 25 - 25)
	Well, there are certainly ways for synergies to emerge if we can use mailing lists of the other organisations, invite each other to events, etc. However, we would do many of these things anyhow. (GIW5)	
	And for us it proved to be a significant advantage to be connected on-site, to appear with other organisations in public. (GIW11)	“Und für uns hat sich das als ein entscheidender Vorteil tatsächlich erwiesen, vor Ort vernetzt zu sein, mit gemeinsamem, eben mit anderen Organisationen auch einen Außenauftritt zu haben“. (GIW11_2020-01-10: 12 - 12)
	Well, this participation, to varying degrees, has different reasons. One reason is obviously that we [actor x] [...] have given ourselves regional priorities. [...] that means we have given ourselves certain priorities; that is one reason. Another reason, for example, is [country x]. Because [country x] is a firm core area of the joint international work. (GIW2)	“Also diese Beteiligung in unterschiedlichem Grad hat verschiedene Gründe. Also der eine Grund ist natürlich, dass wir [actor x] [...] uns bestimmte regionale Prioritäten gegeben haben. [...] / Das heißt wir haben uns da bestimmte Schwerpunkte gegeben, das ist der eine Grund. Ein anderer Grund ist zum Beispiel [country x]. Also [country x] ist ein dezidierter Schwerpunkt der gemeinschaftlichen internationalen Arbeit“. (GIW2_2017-07-26: 34 - 34)
Actor notes that participation in DWIH needs to make sense (i.e., subject to thematic fit)	So we, so to speak, selectively participate in the DWIH [...] if, in the context of the annual theme or, generally, programme development, we have a look if we have scientists for a specific topic, we can make thematic suggestions that suit us, and then we look if we have scientists for events, that is, if we can suggest them as participants in workshops or events that are held by the DWIH and so on [...] With [city x] I would say the co-operation is resting a bit more at the moment [...] simply because it hasn't occurred, that is simply what our activities, so we have many examples	“Also wir bringen uns sozusagen punktuell in die DWIHs ein [...] wenn wir im Rahmen der Jahresthemen oder überhaupt der Programmentwicklung, schauen wir halt immer ob wir Wissenschaftler haben, die zu einem bestimmten Thema passen, wir können ja auch thematische Vorschläge machen, die zu uns passen, und schauen dann, ob wir Wissenschaftler zu Veranstaltungen, also ob wir die sozusagen benennen als Teilnehmer zu Workshops, Veranstaltungen, die vom DWIH durchgeführt werden und so weiter.[...] Bei [city x] würde ich sagen,

(4) Thematic Fit and Synergies

of cooperation with [country x] and we are also bilaterally engaged. But it simply does not have the momentum in terms of events that create synergy [...] it is simply not that central at this moment. (GIW14)	dass ruht er ein bissl mehr [...] Einfach das hat sich nicht ergeben, das ist einfach was unsere Aktivitäten, also wir haben viele Kooperationen mit [country x] und wir sind da auch bilateral unterwegs. Aber das hat einfach nicht das Momentum im Hinblick auf Synergie-stiftende Veranstaltungen [...] Das ist einfach momentan nicht so zentral“. (GIW14_2020-02-04: 47 – 49)
In each individual case, it is subject-dependent, topic-driven [...] We always think about this from a content perspective [...] and because of that, connecting points arise. (GIW3)	“Im Einzelfall ist es fachbedingt, Topic-bedingt auch jeweils gegeben [...] Wir denken das immer vom Inhaltlichen her [...] und daraus ergeben sich dann Anknüpfungen“. (GIW3_2017-07-26: 13 - 13)
Because our main, our decisive criterion for cooperation is that there is an interest from the scientific side. [...] We don't want to go into cooperation after meeting [person x] and thinking it would be nice to do something. Instead, we want to have a scientific interest. (GIW11)	“Weil das Haupt, unser ausschlaggebendes Kriterium für eine Kooperation ist, dass ein Interesse auf der wissenschaftliche Seite gibt. [...] Wir wollen nicht irgendwie in Kooperationen gehen, wo irgendwie [persons x] getroffen habe und dachte es wäre doch schön mal irgendwas zu machen. Sondern wir möchten ein wissenschaftliches Interesse haben“. (GIW11_2020-01-10: 66 - 66)
And in [location x] we don't participate. That is because it does not correspond to our interest. (GIW4)	“Und in [location x] bringen wir uns gar nicht ein. Also das, da liegen unsere Interessen halt nicht an dem Standort“. (GIW4_2017-08-10: 31 - 31)

Source: created by the author.

8.3.5. Precautionary Reasons

The interview data also reveals that precautionary measures are another reason why actors engage with the DWIH (see Table 18). Actors stress the importance of participating in these kinds of initiatives as they are long-term projects which are here to stay. The data shows that actors refer to participating due to a desire to be kept informed about the latest developments and to receive relevant information so that they can (potentially) influence decisions and developments in relation to the DWIH. Con-

sidering the DWIH’s actor-driven (representational) set-up, this finding is not surprising; actors explain their decision to participate in relation to strategic (governance) considerations. Furthermore, the data underpins the importance for actors of being in a position which allows them to potentially influence, or even prevent undesired developments. This might be an important enough reason to explain participation in the DWIH, even if there is a limited immediate added value for actors (see quote GIW9). The data underlines this and shows that the DWIH are viewed critically among some of the actors.

Moreover, the establishment of the DWIH was, in some cases, seen as an undesirable development since it competed with the actors’ own key missions. Whilst actors could not prevent such developments, it became strategically even more relevant for them to be in a position to exert influence and potentially minimise additional problems or disadvantages. This shows that an initial reluctance to participate in the DWIH (which is evident from the institutional struggles regarding competence division) was transformed into a deliberate choice in order to gain a strategic position and to exert impact. In a nutshell, some stakeholders maintain a watching brief to secure their position: they participate in the DWIH because no harm results from their participation. It can be assumed that actors who participate on this basis are not the most enthusiastic and engaged ones.

Table 18 *Precautionary Reasons*

(3) Precautionary Reasons		
Actor stresses that it is important to participate in these kinds of initiatives	So, we are not even passionate about this situation. It was not our idea. Again, but then if they are there, we were not interested in other [actors] creating such competitive things. (GIW9)	“Wir waren ja gar nicht mal so leidenschaftlich in der Sache. Das war nicht unsere Idee gewesen. Nochmal, aber wenn sie denn schon, dann war man gar nicht interessiert, dass die anderen [actors] so Konkurrenz-Dinger aufbauen“. (GIW9_2020-02-11: 16 - 16)
	They are important in the sense that since there is this initiative, we need to urgently participate in it. We would like to be just as visible, together with other organisations, so that we can also say that we don't have to do everything alone; in co-operation with others, we can be even more visible as part of the Ger-	“Sie sind insofern wichtig, also da es diese Initiative gibt, machen wir sie dringend mit. Wir möchten gerne ebenso sichtbar sein mit den anderen Organisationen zusammen, so dass wir auch sagen, wir müssen das nicht alles alleine machen, sondern in Kooperation mit den anderen können wir eben noch sichtbarer sein als Teil der deutschen [...] [L]andschaft, wir

(3) Precautionary Reasons

	man [...] landscape; we try to get involved wherever possible. (GIW6)	versuchen uns einzubringen, wo immer es geht“. (GIW6-2018-03-27: 46 - 46)
Actor mentions that participation is useful to stay up-dated and be able to influence the development of DWIH	And at the other locations we, by all means, made sure that [actor x] is at least on board, is informed and also on board so that we can positively accompany that. (GIW12) You have to look at it from two angles; the one that will always be the case is that we accompany the centres in an abstract way. And that takes place continuously. So, we participate in the programme committee. Our management participates in the board of trustees. And that will always be the case. That is not related to one case, but it continues. And that is actually the most important point for us. That we always keep an eye on this, always look at how this project is developing. (GIW10)	“Und dann in anderen Standorten haben wir dann tunlichst zugesehen, dass [actor x] mindestens mit im Boot, mit informiert sind und auch möglichst mit im Boot sind, dass das positiv begleiten können“. (GIW12_2020-01-13_mp3: 11 - 11) “Also man muss es ja immer auf zwei Schienen sehen. Das eine wird ja immer sein, dass wir eben die Häuser abstrakt begleiten. Und das ist kontinuierlich. Also wir sind eben im Programmausschuss vertreten. Unsere Leitung ist in dem Kuratorium vertreten. Das wird ja immer so sein. Das ist nicht fallbezogen, sondern läuft einfach weiter. Und das ist für uns eigentlich erst einmal der wichtigste Punkt. Dass wir eben das immer im Blick haben, immer schauen, wie entwickelt sich dieses Projekt weiter“. (GIW10_2020-02-10: 38 - 38)
Actor mentions that participation does no harm	So, in short, we are on board—but we are not the most engaged of participants. (GIW3) So [actor x] profits from it, or does not suffer any damage from it, which is probably even more important. (GIW12) So, our reasons for participating in this initially were that we said it could be that something develops from it, and if this is wanted politically, and it doesn't cost us anything, it won't do any harm, so let's give it a try. (GIW5)	“Also der kurze Überschriftensatz sozusagen, wir sind dabei - aber wir sind nicht die Engagiertesten“. (GIW3_2017-07-26: 7 - 7) “Also [actor x] profitiert davon, oder sie nimmt zumindest keinen Schaden, was vielleicht noch wichtiger ist“. (GIW12_2020-01-13_mp3: 47 - 47)

Source: created by the author.

8.4. Sense of Collectivity

As discussed earlier in this chapter, actors choose to participate with the aim of improving their own (strategic) positions; furthermore, the analysis also reveals considerations that encompass actors' contributions to the general science and research landscape. Whilst actors are motivated by a desire to improve their own position mainly, the interview data reveals that the DWIH are seen as a frame of reference and actors argue that their participation in them benefits the overall German science and innovation landscape. This highlights a collective dimension. This is noteworthy since the DWIH's early development was characterised by conflict and a tug of war between the actors involved (see chapter 6). These points of conflict seem to have been overcome or at least pushed into the background for a common idea that is linked to the DWIH. Accordingly, the DWIH seem to represent a new point of reference and a common context: actors support the instrument due to their belief that, as a joint international presence, the DWIH will benefit them as individual actors but also promote Germany's visibility internationally.

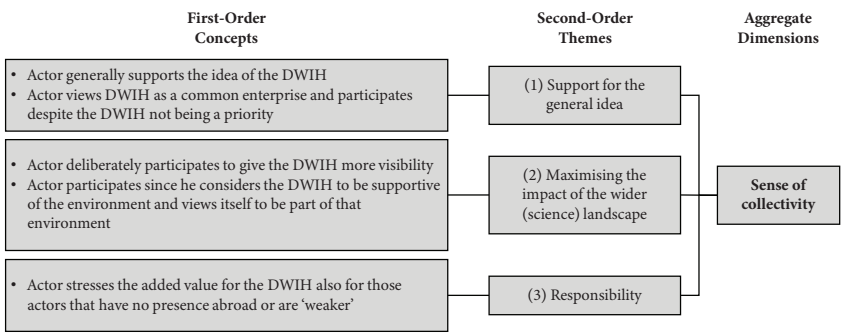
What is more, the interview data shows that actors support the DWIH for the sake of the DWIH. In other words, its concept and because of the ideas it encapsulates rather than looking only at the benefits for individual actors: in fact, these benefits sometimes appear to be of secondary importance (see Figure 9). The added value of the DWIH is highlighted in the context of their potential closure, which was discussed as an option in the light of the evaluative exercise in 2015/2016. The data shows that the potential closure of the network was considered to constitute a severe loss of face for both the German landscape and individual organisations abroad.

There was the question of what would happen if the DWIH would be eliminated. We [here: the Alliance of Science Organisations] all considered this to be a catastrophe since this would have implied a huge loss of face on-site. This would probably not have affected the AA much [here: Auswärtiges Amt], which is unknown on-site. However, if [actor x] and [actor y] and [actor z] suddenly pulled out and no longer cooperated, that would be catastrophic (interview GIW5).

This suggests that the DWIH have become institutionalised in some locations and that they have created a collective visibility, which is also beneficial for those actors who operate abroad. The analysis identifies three aspects which reveal actors' sense-making in terms of collective participa-

tion: (1) general support for the idea and their awareness of being part of a common enterprise, (2) maximising the impact of the wider (science) landscape and (3) a sense of responsibility for those actors that do not have an international presence.

Figure 9 Actor Rationales: Sense of Collectivity



Source: created by the author.

8.4.1. Support for the General Idea

The data reveals strong support for the DWIH's idea among its key actors; this is evident from the quotes below (see Table 19). Actors support the DWIH as a concept and because of the idea it encapsulates rather than only considering their individual benefits. The data suggests that actors support the instrument due to a belief that the DWIH are beneficial in promoting Germany's international visibility in a holistic way and that it also creates synergy effects and establishes a common platform. The data further shows that actors support this idea due to a sense of responsibility for those actors who do not have their own premises abroad. Participation is explained by a sense of solidarity: the DWIH are seen as an instrument that benefits the 'weaker' actors in the ecosystem. In other words, stronger actors use and support the DWIH to enable weaker actors to participate as well. Therefore, participation in the DWIH can be seen as constituting a common endeavour that benefits the ecosystem as a whole, rather than only putting only key actors in a better position.

This perception of being part of a common enterprise serves as a justification on its own. This seems to lead to new instances of cooperation and collaboration, which would presumably not have occurred in the absence

of the DWIH. The German–Brazilian Innovation Congress organised at the DWIH São Paulo is one example of this; it is considered a successful example of collaboration between different German actors, including some actors which are not primarily concerned with innovation. This underlines that the DWIH create a new frame of reference and a new context for joint action.

Table 19 Support for the General Idea

(1) Support for the General Idea		
Actor generally supports the idea of the DWIH	We really have a situation where we can create synergies. And it is in fact because of the differentiation in the German higher education, research and innovation system that we thought, as science organisations, as the Alliance of Science Organisations, that it would be good to collate this diversity. (GIW8)	“Aber wir haben wirklich hier das, die Situation, dass wir Synergien schaffen können. [...] Und es ist tatsächlich auch durch die, ja die Diversifizierung des deutschen Hochschul- und Forschungssystems, dass wir auch gedacht haben, als Wissenschaftsorganisationen, als Allianzorganisationen, dass es gut ist das zu bündeln und das zusammen zu führen“. (GIW8_2018-05-04: 23 - 23)
	We do that, as already said, with conviction; we believe in a physical presence abroad and we participate actively. (GIW11)	“Wir machen das, wie gesagt schon mit Überzeugung, wir glauben halt auch an diesen, aber wir glauben auch an die physische Präsenz vor Ort und wir sind da auch aktiv mit dabei“. (GIW11_2020-01-10: 125 - 125)
	On the contrary, no, but the fact that we have a common platform also means that we can participate and contribute to it. And we do that whenever it is possible. (GIW12)	“Im Gegenteil, nein, aber die Tatsache, dass man eine gemeinsame Plattform hat heißt ja, dass man immer genau da noch was mit einbringen kann. Und das tun wir auch, wann immer es möglich ist“. (GIW12_2020-01-13_mp3: 41 - 41)
	Generally, I think the idea was considered to be reasonable, and we welcomed it. (GIW13)	“Grundsätzlich glaube ich, wurde der Gedanke zunächst hier im Hause durchaus irgendwie für sinnvoll gehalten und begrüßt“. (GIW13_2020-02-13: 4 - 4)
	For us it was clear that the DWIH as a window of the German science abroad could play an important role. And in terms of it being a one-stop-shop and enabling competences to be bundled on the German side, under one roof, it was an initiative that was certainly considered to be reasonable.	“Für uns war klar, dass die DWIH sozusagen als Schaufenster der deutschen Wissenschaft im Ausland eine wichtige Funktion erfüllen könnten. Und auch im Sinne des One Stop-Shop und der Bündelung der Kompetenzen sage ich mal, auf deutscher Seite, unter einem Dach

(1) Support for the General Idea

	Accordingly, we supported it from the very beginning. (GIW14)	wurde durchaus als sinnvolle Initiative angesehen. Von daher haben wir natürlich von Anfang an unterstützt“. (GIW14_2020-02-04: 19 - 19)
	Yes, a well-stocked shop window can never hurt in terms of international exchange, in international science. (GIW3)	“Ja, ein gut gefülltes Schaufenster kann niemals schaden im internationalen Austausch, in der internationalen Wissenschaft“. (GIW3_2017-07-26: 61 - 61)
	And there are discussions on whether to establish DWIH in other locations too. And we would actually welcome that. (GIW4)	“Und es gibt ja Überlegungen auch an anderen Standorten DWIHs zu schaffen. Das würden wir schon begrüßen“. (GIW4_2017-08-10: 51 - 51)
	Apart from that, we are part of the German science system [...] so we naturally need to participate where we realise an instrument is suitable for us. And this understanding exists [...] So, [actor x] also considers this to be relevant for the overall task. (GIW5)	“Abgesehen davon, wir sind ein Teil des deutschen Wissenschaftssystems [...] also müssen wir natürlich da, wo wir feststellen, ein Instrument ist geeignet uns auch beteiligen. Und die Einsicht ist auf jeden Fall da, [...]. Also auch [actor x] sieht schon, dass es sozusagen für die Gesamtaufgabe wichtig ist“. (GIW5_2016-01-02-00-48-16 part II: 26 - 26)
	Instead, I think we are doing the right thing by promoting Germany as a research destination and in terms of Germany's attractiveness as a research destination. And therefore, I think, we are part of the German research and science landscape, and therefore it is important that have a joint appearance. (GIW6)	“Sondern ich glaube wir tun gut daran als deutschen Forschungsstandort und auch für die Attraktivität des deutschen Forschungsstandorts zu werben. Und deswegen denke ich, also wir sind Teil des deutschen Forschungsstandortes und der deutschen Wissenschaftslandschaft und deswegen ist es schon wichtig, dass wir auch ein gemeinsames Auftreten haben“. (GIW6-2018-03-27: 48 - 48)
Actor views DWIH as a common enterprise and participates despite the DWIH not being a key priority	Because traditionally, [actor x] does not go abroad to hold a workshop on [topic x]; that is not our business. But in the context of the DWIH, you can do that, yes. (GIW14)	“Weil klassischerweise geht ja [actor x] nicht ins Ausland und macht einen Workshop zu [topic x], das ist ja eigentlich nicht unser Ding. Aber im Sinne des DWIH kann man das ruhig auch mal machen, ja“. (GIW14_2020-02-04: 44 - 45)
	There were cases where we said this is a really important event for the DWIH, although it is not our key priority. But we considered this event to be so important that we were willing	

(1) Support for the General Idea

to make a financial contribution to support it. So, yes, this kind of commitment exists. (GIW5)

Eventually, if you do it right, and I think we are doing it right now, it is a win-win situation for everyone [...] because the brand of Germany is larger than, for example, the brand of [actor x] or the brand of [actor y] or the brand of actor [z]. (GIW8)

Naturally the exchange as well, and that aligns with what I said, shifting one's respective individual interests from the national to the international level. (GIW3)

“Also, das ist letztlich, wenn man das richtig macht, und ich glaube, wir machen das jetzt richtig, ist es eine Win-Win-Situation für alle [...], weil die Marke Deutschland größer ist, als beispielsweise größer ist als die Marke [actor x] oder die Marke [actor y] oder die Marke [actor z]“. (GIW8_2018-05-04: 21 - 21)

“Natürlich auch Austausch, und das passt wieder zu dem was ich sagte, die jeweiligen Einzelinteressen von nationaler Ebene auf die internationale Ebene zu spielen“. (GIW3_2017-07-26: 51 - 51)

Source: created by the author.

8.4.2. Maximising the Impact of the Wider (Science) Landscape

In addition to the rationales described in the previous section, the data also shows that participation is explained by an attempt to maximise the impact of the national (education, science and innovation) ecosystem (see Table 20). The DWIH seem to provide a new point of reference which generates its own justification for participation: actors consider themselves to be part of a common enterprise and engage in activities which are not primarily beneficial for their very own interests or do not reflect their core tasks. Actors support the DWIH by participating in joint activities with the aim of maximising the impact of the wider ecosystem to which they belong. Thus, participation is also seen as providing credibility and visibility to the DWIH abroad; at the same time, international reputation and a strong (German) ecosystem are also ultimately beneficial to the individual actors. For the sake of supporting the concept of the DWIH, to some extent, actors even subsume their primary interests in favour of this collective idea. The quotes below illustrate this and indicate that certain implicit expectations may be at stake and explain why actors engage with the DWIH (due to being part of the system).

Table 20 Maximising the Impact of the Wider (Science) Landscape

(2) Maximising the Impact of the Wider (Science) Landscape		
Actor deliberately participates to give the DWIH more visibility	But the fact that we have a common platform means that you can always contribute something exactly there. And we do that whenever possible. (GIW12)	“Aber die Tatsache, dass man eine gemeinsame Plattform hat heißt ja, dass man immer genau da noch was mit einbringen kann. Und das tun wir auch, wann immer es möglich ist“. (GIW12_2020-01-13_mp3: 41 - 41)
	Also, doing something that is not directly of use to [actor x], because I think, I believe, we have a larger responsibility to make sure that we also support the organisation more strongly there. (GIW11)	“Auch mal was mitzumachen, was vielleicht nicht den direkten Nutzen für [actor x] hat, weil ich einfach, finde ich, habe mir eine größere Verantwortung zu gucken, dass wir auch, da tragen wir das halt mehr mit, das Haus“. (GIW11_2020-01-10: 32 - 32)
	We, because we participate in the DWIH, we give the other actors and the other organisations, give the DWIH visibility. (GIW14)	“Also wir, dadurch, dass wir uns am DWIH beteiligen, geben wir, auch die anderen Akteure, auch die anderen Mitgliedsorganisation, geben ja dem DWIH sozusagen eine Visibilität“. (GIW14_2020-02-04: 57 - 57)
Actor participates since they consider the DWIH to be supportive of the environment and views itself to be part of that environment	It is a question of how I see myself in the system. Am I [actor x] or am I a part of the German science system. If I consider myself part of the German science system, then I see that there is an added value in that and to achieve that added value, I participate as [actor x]. (GIW5)	“Das ist jetzt halt eine Frage, wie betrachte ich mich im System. Also bin ich [actor x] oder bin ich Teil des deutschen Wissenschaftssystems. Wenn ich mich als Teil des deutschen Wissenschaftssystems verstehe, dann sehe ich schon, dass es einen Mehrwert gibt, und um diesen Mehrwert zu erreichen, bringe ich mich als [actor x] ein“. (GIW5_2016-01-02-00-48-16 part I: 31 - 31)
	But yes, you have to see, we would be capable of acting, and doors would be opened for us without these centres. But as a part of the whole German research and science landscape, we are very happy about this opportunity, that we can do this with the partners on-site in each respective country. (GIW3)	“Aber ja, das muss man schon sehen, wir wären auch handlungsfähig und es würden uns Türen geöffnet werden ohne diese Häuser. Aber als Teil der gesamten deutschen Wissenschafts- und Forschungslandschaft sind wir sehr froh über diese Möglichkeit, dass dann mit den Partnern vor Ort im jeweiligen Land tun zu können“. (GIW3_2017-07-26: 65 - 65)

Source: created by the author.

8.4.3. Responsibility

Finally, the analysis identifies a sense of responsibility regarding those actors that do not have a presence abroad (see Table 21). This has partially been discussed in the previous sections; however, it is a significant and distinct consideration in its own right. While participation may not provide significant added value from an individual perspective, the data reveals that there is a sense of responsibility between actors. While, for some actors, engaging with the DWIH may lead to minimal changes in their own activities, there is evidence that a sense of responsibility and a collective environment leads to new interaction patterns, actor constellations and visibility.

Table 21 Responsibility

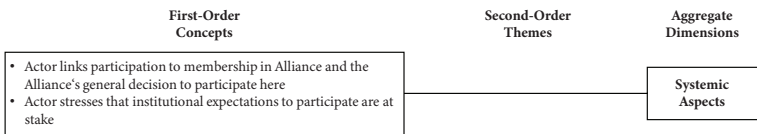
(3) Responsibility		
Actor stresses the added value for the DWIH, also for those actors that have no presence abroad or are ‘weaker’	These synergies are very limited for us. [...]. However, if you look at it from the perspective of the wider science system, if we think that organisations such as [actor x], [actor y] or [actor z], which cannot easily create offices abroad, but are not included [...] and now also have representation there, then, for the whole German science system, it certainly has an added value. (GIW5)	“Synergien gibt es da für uns nur sehr bedingt. [...] Wenn man das fürs ganze Wissenschaftssystem betrachtet, wenn wir überlegen, dass es Organisationen wie [actor x], wie [actor y] oder [actor z], gibt, die halt nicht einfach Büros im Ausland gründen können, die aber jetzt mit einbezogen werden, [...] und dann halt auch eine Repräsentanz dort haben, dann hat es für das deutsche Wissenschaftssystem auf jeden Fall einen Mehrwert“. (GIW5_2016-01-02-00-48-16 part I: 31 - 31)

Source: created by the author.

8.5. Systemic Aspects

The analysis reveals systemic rationales which account for participation (see Figure 10). More specifically the analysis identifies two elements: a) participation which is explained and linked to the actor’s membership in the Alliance of Science Organisations and b) institutional expectations to participate.

Figure 10 Actor Rationales: Systemic Aspects



Source: created by the author.

To start with, the data points to the early state involvement of the Alliance of Science Organisations in the DWIH's launch. In the context of these deliberations the Alliance was approached by key political actors and asked to support the instrument. The data reflects that the Alliance took the decision to collectively participate and support the DWIH (interview GIW13). This decision still constitutes a source of legitimacy, a belief-principle which explains actors' participation. In other words, it constitutes a distinct frame of reference, which leads in turn to a certain degree of compliance. Despite this common decision, the data shows that individual actors stress and safeguard their autonomy:

Naturally also and because we are all independent actors. No one can tell either actor [a] or actor [b] or actor [b] or actor [c] or actor [d] or actor [e], you have to participate in this (interview GIW2)¹⁵⁶.

In a similar vein, the data reveals the existence of certain path-dependencies and system-eminent expectations (see Table 22). More specifically, it was mentioned that nested institutional structures explain participation. To give an example, actors had strong ties with the AA and accordingly referred to this institutional connectedness as a reason for participation in the DWIH (see interview GIW14). In other words, the data emphasises that an expectation is at stake that the actor will also participate in the DWIH. This is reflective of the nested (governance and) funding structure within Germany, where different ministerial actors issue (project) funding (cf. BMBF, 2020b). This ultimately seems to create strong linkages between them. Accordingly, participation in the DWIH can be understood as being a norm where compliance is expected and where non-participation would raise questions.

156 “Natürlich auch und vor allem, weil das unabhängige Akteure sind. Also niemand kann weder [Akteur a] noch [Akteur b] oder [Akteur c] oder [Akteur d] oder [Akteur e] sagen, ihr beteiligt euch da jetzt dran“. (GIW2_2017-07-26, Pos. 92).

Table 22 Systemic Aspects

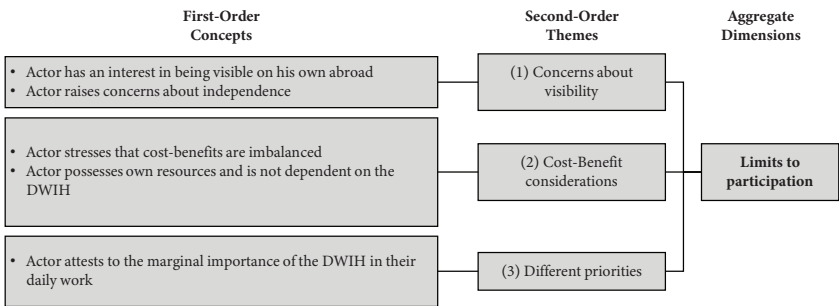
(1) Systemic Aspects		
Actor links participation to membership in Alliance and the Alliance's general decision to participate here	And ultimately, also on the level of the Alliance, where they again and again talk about the German Centres of Science [...] and Innovation. It is a common, so to speak, decision to participate in them. (GIW6)	“Und letztlich auch auf der Ebene der Allianz, wo sie sich ja auch immer wieder über die deutschen Häuser der Wissenschaft [...] und Innovation besprechen. Das ist ja auch eine gemeinsame, sozusagen Beschluss, dass man sich daran beteiligt.“ (GIW6-2018-03-27: 74 - 74)
	For logical reasons, [actor x] was then, I think like all other organisations in the Alliance, asked to participate in the establishment or formalisation of this association (GIW13)	“[Akteur x] ist dann, wie glaube ich fast alle Allianz Organisationen, in sinnvoller Weise gebeten worden, bei der Gründung eben oder Formalisierung dieses Verbundes in Mitglied [...] zu werden.“ (GIW13_2020-02-13: 2 - 2)
Actor stresses that institutional expectations to participate are at stake	It is very clear; I mean, we work directly, [actor x] works closely per se with the BMBF and also the AA in an international context, and, as I just mentioned, the initiative was not met with criticism or concern at our end. Hence, there were no doubts that we would participate. (GIW14)	“Ich meine, wir arbeiten direkt, [actor x] arbeitet per se im internationalen Bereich auch immer schon eng mit dem, sowohl dem BMBF wie aber auch mit dem Auswärtigen Amt zusammen und wie ich soeben sagte, stieß ja diese Initiative bei uns nicht in keinsten Weise auf Kritik oder Skepsis. Insofern gab's da auch keine Zweifel, dass man sich da dann einbringt.“ (GIW14_2020-02-04: 21 - 21)

Source: created by the author.

8.6. Limits to Participation

In the previous sections, considerations which explain actor participation were discussed. Similarly, the interview data also identifies reasons that constitute limits to participation. To some extent, these aspects invert the previous findings, but, not entirely. Three interrelated key themes have been identified and will be discussed in this section (see Figure 11): (1) concerns about visibility, (2) cost-benefit considerations and (3) different priorities.

Figure 11 Actor Rationales: Limits to Participation



Source: created by the author.

8.6.1. Concerns about Visibility

Concerns about visibility are a common and omnipresent limitation to participation among the DWIH’s actors (see Table 23). This was already identified as a key element during the establishment and subsequent development of the DWIH, and it is also a relevant aspect which limits participation (in joint activities). Actors stress the need to be visible as distinct, individual actors and they decide on a case-by-case basis whether to be included under the DWIH umbrella (while, of course, a certain degree of participation is given, due to their involvement in the DWIH’s governance). This reflects a clear hierarchy of interests where actors’ individual strategic considerations are prevalent. More specifically, the interview data shows that actors deliberately and strategically hold events on their own and do not always wish to be subsumed under the DWIH label; this is evident from the quotes below. Actors need to maintain their own visibility, and this should be more prominent than that of the DWIH. While actors engage in certain activities to promote Germany’s (or the DWIH’s) visibility, the data shows that there are clear limits to this by referring to institutional interests which take precedence. The data reflects that safeguarding individual visibility is a common concern among actors. What is more, this is acknowledged and respected between actors (see quote below from interview GIW8). In a similar vein, the data also reveals that actors take deliberate decisions to maintain autonomy and that they prefer to remain in charge of their own (strategic) resources.

Table 23 Concerns about Visibility

(1) Concerns about Visibility		
Actor has an interest in being visible on his own abroad	We cannot do everything under the roof of the DWIH. We also want to keep our own visibility in the countries. (GIW14)	“Wir können ja nicht alles unter dem Dach der DWIH machen. Wir wollen ja auch unsere eigene Sichtbarkeit in den Ländern wahren“. (GIW14_2020-02-04: 57 - 57)
	There are a few events, but only a few, where we deliberately say that we don't want to have another logo on it, and it should only be [actor x] on it. (GIW5)	
	And therefore, it is the case that we of course, along with all other organisations, have the natural need to be supported by this strong brand but to similarly be visible on our own and be recognised as [actor y]. (GIW8)	“Von daher gibt es, ist es so, dass wir natürlich, und das haben alle Organisationen, ein natürliches Bedürfnis haben mit der starken Marke im Rücken gewissermaßen sichtbarer zu sein aber auch erkennbar zu sein als [actor y]“. (GIW8_2018-05-04: 45 - 45)
	Where they are, [actor x] has to be careful not to be dwarfed by the Science Centres. (GIW15)	“Wo es sie gibt, muss [actor x] aufpassen, dass [actor x] nicht in den Schatten der Wissenschaftshäuser gerät“. (GIW15_2020-02-21: 27 - 27)
Actor raises concerns about independence	For us, it was important to have an equal partnership and while there is someone who can coordinate this, we did not like the idea of hiring someone to coordinate all of this. (GIW5)	

Source: created by the author.

8.6.2. Cost-Benefit Considerations

Cost-benefit considerations emerged as a significant element which influences actors' decisions on whether to participate in the DWIH (see Table 24). Three elements are identified in the analysis. Firstly, actors refer in general to an imbalance between cost and benefits, which poses a limit to participation. More specifically, the data reveals that this consideration relates to the absence of synergy effects or to aspects of proportionality in terms of time and outcomes. Secondly, the analysis highlights that those actors who have access to their own distinct resources are less inclined to

participate in the DWIH. The data identifies the DWIH’s limited added value for actors with their own offices abroad. To pursue this further, clear reasons need to be found for the actor to participate nevertheless (the previous sections identified a number of reasons, such as general support or aspects of collectivity). Furthermore, the quotations below indicate that actors with access to, for instance, selected networks or cooperation are independent and are able to operate without the DWIH. Accordingly, the data shows that actors’ decisions about whether to participate in the DWIH are influenced by the availability of their own resources. Furthermore, the data indicated tendencies that those actors who possess their own resources tend to view the DWIH as being of marginal importance to their own work.

Table 24 Cost-Benefit Considerations

(2) Cost-Benefit Considerations		
Actor stresses that cost-benefits are imbalanced	Synergies are very limited for us. Cost-benefit considerations, I would say, do not really pay off. (GIW5)	“Synergien gibt es da für uns nur sehr bedingt. Also Kosten-Nutzen Betrachtung würde ich sagen, lohnt nicht wirklich“. (GIW5_2016-01-02-00-48-16 part I: 31 - 31)
	You cannot fly for a three-hour advisory board session from here to [DWIH location]. That is not possible, that does not relate to the cost. (GIW14)	“Also man kann nicht von hier für eine dreistündige Beiratssitzung nach [DWIH location] fliegen. Also, das geht nicht, das ist einfach, da steht, das würde nicht im Verhältnis stehen vom Aufwand her“. GIW14_2020-02-04: 47 - 47)
Actor possesses own resources and is not dependent on the DWIH	There is a limited added value of the DWIH for those actors such as [actor x] or [actor y] who already operate abroad. (GIW5)	
	And there is one fundamental difference: we have a network [...]. We can use this to position and participate. And others do not have that. (GIW12)	“Und dann gibt es einen entscheidenden Unterschied wir haben dieses Netzwerk [...]. Darüber können wir uns mit positionieren oder einbringen. Und das haben die nicht“ (GIW12_2020-01-13_mp3: 64 - 64)
	We are lucky that we have a partner in every country. [...] We have a door which we can knock on and go through [...] For us, what we want to do is not essentially dependent on	“Haben wir natürlich das Glück in jedem Land einen Partner zu haben [...] Wir haben also eine Tür, an die wir klopfen können und durch die wir gehen können. [...] Für uns ist also das, was wir tun wollen, ist jetzt

(2) Cost-Benefit Considerations

the Deutsche Wissenschafts- und Innovationshaus. (GIW3)	nun nicht essenziell auf das deutsche Wissenschafts- und Innovationshaus angewiesen“. (GIW3_2017-07-26: 65 - 65)
We have long-established examples of cooperation that are also very autonomous [...] and are not dependent on the intervention and support of an intermediary such as the DWIH. (GIW4)	“Wir haben/sind langjährige Kooperationen, die auch sehr autonom [...] und somit jetzt auch nicht die Intervention oder die Unterstützung eines Mittlers, wie das DWIH, benötigen“. (GIW4_2017-08-10: 15 - 15)

Source: created by the author.

8.6.3. Different Priorities

Finally, the findings suggest that actors are reluctant to participate in the DWIH if they consider the DWIH’s portfolio to only be of marginal importance to their regular activities (see Table 25). While previous sections have shown that the DWIH are seen to be strategically relevant for actors, this perception is not shared by all actors. More specifically, the interview data refers to different regional priorities. In other words, certain DWIH locations might be of less relevance for actors, and this can be considered to limit their participation (see quotes below). What is more, some actors consider the concept and work of the DWIH itself to be less relevant to their key missions. The latter finding is not surprising since one would assume a functionally divided and organised ecosystem to be in place that will be able to survive even in the absence of the DWIH.

Table 25 *Different Priorities*

(1) Different Priorities		
Actor at- tests to the marginal importance of the DWIH in their daily work	So, I have to say, as I already said, that is only a topic of marginal importance to us. (GIW13)	“Also wir haben, ich muss sagen, so, ich sagte ja schon, das ist für uns eher ein Randthema“. (GIW13_2020-02-13: 32 - 32)
	Probably, as regards our strategic profile, the DWIH are not necessarily relevant, I would say. (GIW14)	“Also wahrscheinlich, was unser strategisches Profil betrifft, sind die DWIH nicht unbedingt relevant, würde ich mal sagen“. (GIW14_2020-02-04: 61 - 61)

(1) Different Priorities

And we don't participate in [location x]. That is because it does not correspond to our interest. And also, not in [location y]. (GIW4)	“Und in [location x] bringen wir uns gar nicht ein. Also das, da liegen unsere Interessen halt nicht an dem Standort. Und ebenfalls in [location y]“. (GIW4_2017-08-10: 31 - 31)
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Source: created by the author.

8.7. Findings and Discussion

This chapter identified the rationales that are tied to the DWIH, namely, ministerial and key stakeholder rationales. This added another layer of insights to the (gradual) institutionalisation of the DWIH and thereby helped to position and enable a better understanding of the DWIH's key developments and design principles. At the same time, this also provided insights into the DWIH's instrumentation and provided an actor-centred perspective. The analysis enables the following conclusions to be drawn: the DWIH's political objectives remain relatively stable and primarily address branding and visibility aspects. Over time, layering became evident and considerations relating to cooperation, competition and economics were observed. In addition, more recently, notions of global responsibility and international solidarity have emerged. In combination, the analysis provided a more refined and nuanced understanding of the political rationales which are tied to the DWIH. One aspect has remained relatively unchanged: as an instrument, the DWIH are still firmly situated in the realm of foreign policy.

In addition, the analysis of stakeholder rationales was carried out using an aggregated approach to data presentation; this showed the wealth of considerations that ultimately account for an actor's decision to participate in the DWIH. For reasons of anonymity, there was a deliberate decision not to focus on the level of the individual actors. The analysis identified the following three themes as being relevant to participation in the DWIH (see Table 26). Strategic considerations, i.e., those which aim to maximise the impact of the actor were discussed as being explanatory. In addition, reasons were identified which refer to a sense of collectivity and reasons which are explained by systemic characteristics. Furthermore, the analysis identified factors that limit participation. The findings suggest that the forms of logic that drive participation in the DWIH primarily relate to the actors' own interests and agendas and that they are mainly reactive.

Depending on their point of departure¹⁵⁷, the DWIH were evaluated differently by actors: either as a useful instrument that facilitates international outreach or as an instrument which is of marginal importance, to show the two extremes¹⁵⁸. Thus, the (perceived) importance of the DWIH can be seen as an influential factor in actors' decisions to participate¹⁵⁹. What is more, the findings revealed that actors use the DWIH as a strategic resource for repositioning themselves and engaging in fields which are not part of their core mission. Therefore, the DWIH can be seen as having a lasting impact on actors' ways of operating. In summary, the data found a clear hierarchy of interests in favour of actors' individual strategic interests.

Despite participation securing actors' individual benefit, the data showed that collective considerations also played a role. More specifically, the analysis found that the DWIH created distinct actor constellations and moments of interaction because actors collaborated for the sake of supporting the idea of the DWIH and the concept it encapsulates; thus, some actors showed a general willingness to support the instrument. In addition, a strengthening of the DWIH's international presence was viewed as beneficial for the wider German science ecosystem (and the potential closure of the DWIH network was considered as a loss). Furthermore, the data showed that there was a sense of solidarity towards those actors who did not have their own presence abroad. These findings emphasise the distinct added value of the DWIH, which extends beyond individual actors' considerations.

The data revealed a third set of rationales for participation, such as institutional expectations from political actors and aspects of institutional embeddedness. More specifically, actors took collective decisions to participate in the DWIH through their membership of the Alliance of Science Organisations. Among the elements which limited participation, the data referred to actors' concerns about losing their individual visibility, cost-ben-

157 The data points to the fact that an actor's sense-making and use of the DWIH strongly depends on their points of departure. These differ between the DWIH's key stakeholders in terms of having their own resources, international outreach and more generally their key mission.

158 The aspect of marginal importance, however, does not necessarily have a negative connotation but may rather reflect a functionally divided ecosystem.

159 This reinforces the findings of Lubell (2003), who observes that stakeholders are likely to participate in collective action in those cases where the effectiveness of the instrument is perceived (belief-systems). In other words, stakeholders are more likely to participate and use the DWIH if there is a perceived value attached to the instrument.

efit considerations and different priorities. These findings reaffirm the assertions made in chapter 7 regarding the institutionalisation of the DWIH: strong organisational interests are at stake and actors predominantly act strategically (however, a general willingness to support the instrument was also observed). The following sections discuss instrumentation effects in more detail.

Table 26 Overview: Rationales for Participation

DWIH	
Maximise (and Reinforce) Own Impact	(1) Increasing international visibility (2) Access to resources (3) Opportunities for strategic (re-) positioning (4) Thematic fit and synergies to own work (5) Precautionary reasons
Sense of Collectivity	(1) Support for the general idea (2) Maximise the impact of the wider (science) landscape (3) Responsibility
Systemic Aspects	(1) Institutional expectations (2) Nested organisational embeddedness (membership in Alliance)
Limits to Participation	(1) Concerns about visibility (2) Cost-benefit considerations (3) Different priorities

Source: created by the author.

8.7.1. Interim Analysis of Case Study (I): Instrumentation Effects

This chapter presented the empirical data that forms the basis of the German case study, which is a manifestation of the representation model. This section attempts to draw conclusions and provide an interpretation of the DWIH's instrumentation. The data indicates that the instrumentation effects that were encountered over time consolidate each other and reinforce

the (gradual) institutionalisation of the DWIH. Despite initial struggles during the DWIH’s establishment, the (gradual) institutionalisation of the instrument has been reinforced by the appropriation of key stakeholders (see Table 27).

Table 27 Instrumentation Effects: DWIH, Germany

DWIH	
Aggregation Effect	* Strong stakeholder involvement and severe struggles among key players in the genesis that ultimately led to the creation of the DWIH
	* Inertia & longevity of the instrument despite a critical audit
Representation Effect	* Stable (political) framing of DWIH as facilitating foreign policy goals
Appropriation Effect	Affirmation of new competences
	* Instrument serves as a platform for AA to expand their portfolio
	* Instrument is strategically used by actors to approach new topics
	Reformulations
	* Shift of power due to the reorganisation (DAAD in charge of the network)
	Resistance
	* Development of the instrument is constrained by strong actor preferences

Source: created by the author.

8.7.1.1. Aggregation Effects

The trajectory of the instrument reflects aggregation effects, which are most evident from the DWIH’s longevity and inertia (Lascoumes & Simard, 2011, p. 14). Despite certain critical junctures and pressures, such as audit exercises and governmental struggles, the instrument remains firmly in place. This can be explained by an aggregation effect. The theoretical premise assumes that aggregation effects occur if a heterogeneous group of actors group is brought together to work on a particular topic. Despite them having different initial positions, learning activities take place which lead to an alignment of preferences for the sake of the instrument. In

the case of the DWIH, the data provided evidence of this in relation to the tug of war which occurred between actors, as well as the different positions and perceptions regarding how the DWIH should be used. The DWIH's establishment reflected a process which is characterised by nested governance structures and strong stakeholder preferences. However, these tensions were overcome, and actors situated themselves in relation to this new instrument and adapted their initial positions.

This can be seen to explain the instrument's resistance to change. In addition, to underline this aggregation, the data aligns with Ravinet's findings that *"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"* (2011, p. 38). This applies to the case of the DWIH as during its establishment, there were intense discussions and disagreements concerning its core themes. While Swissnex was used as an inspiration for the DWIH (given the policy transfer which took place), the DWIH had to find its role and context-specific functions beyond this 'shell'; furthermore, actors had to find their ways of using the instrument (and they did this in complex and distinct ways, as is described earlier in this chapter).

8.7.1.2. Representation Effects

In addition, representational effects were observed. The DWIH are used as a platform for political goals, which have remained relatively stable and which frame the instrument to a certain degree. This is in line with previous studies (Epping, 2020) and suggests that a representation effect can be observed. More specifically, the core notions and objectives that are attached to the DWIH remain unchanged: the DWIH contribute to wider political and foreign affairs goals and are seen as instruments which facilitate Germany's international visibility abroad. This way of framing has been relatively stable; nevertheless, over time layering and slight modifications to these initial objectives have been observed, which could probably be seen as expressions of politically relevant themes at the time. Furthermore, it reflects the key assumption that instruments are subject to changing goals over time. In combination, these aspects can be interpreted as a representation effect since the DWIH firmly constitute and have been acknowledged as an instrument that promotes foreign policy goals. Accordingly, for key stakeholders, the DWIH seem to have a direct cognitive effect. Moreover, the DWIH's international reputation can also be considered to

have grown; this is most evident from the data which suggests that closing down the DWIH would be considered a loss of face.

8.7.1.3. Appropriation Effects

What is more, the data provides evidence of distinct appropriation effects by its key actors. More specifically, a degree of professional mobilisation was observed, which created a new context: the AA proposed establishing the instrument in order to expand their portfolio and acquire new competences. Similarly, the DWIH's establishment reflected a process which was characterised by nested governance structures and strong stakeholder preferences. Some of the key actors also aimed to acquire new competences and power. In addition, the data points to instrumentation effects, such as reformulations and resistance; the reorganisation of the DWIH led to a fundamental shift in power among key actors and the DAAD took on a more prominent role (overseeing the day-to-day management of the network, while officially heading the DWIH locations; this was an earlier goal of the DAAD). Furthermore, the establishment of the DWIH also reflected resistance: the development of the instrument was constrained by strong actor preferences and mistrust between key stakeholders, as well as actors who did not want to give up their initial positions. This underlines structural elements and key principles of the German science and innovation policy landscape, such as autonomy and institutional differentiation (Edler et al., 2010; Simon & Knie, 2010).

In addition, the DWIH seem to have constructed a new frame of reference, which constitutes its own legitimisation. This has not been conceptualised in scholarly literature; however, it can be considered a distinct effect. Some actors use the DWIH as a new arena in which to conduct strategic activities and address new topics. In some cases, new patterns of interactions and new commitments have arisen due to this new arena. The instrument has brought (and continues to bring) together a range of different actors with differing perspectives and wishes, which are projected onto the DWIH. While this issue was of marginal importance for some actors, those same actors also emphasised that new forms of cooperation with other (national) actors had emerged or that they addressed topics which were not their key focus in order to support the DWIH.

Hence, new commitments were established. This aligns with the findings of Selznick (1966), who was quoted in Mayntz & Scharpf (1995, p. 42) as

follows: *organisations might over time, though created as instruments, create their own value for actors and members*¹⁶⁰. In the words of Le Galès, they are subject to interpretation by their main actors and fuel institutionalisation dynamics (2011): the DWIH create their own contexts, and actors use them in line with their own agendas (leaving aside wider political objectives). In a similar vein, it became evident that the DWIH are held together by wider support for the concept. This creates a new frame of reference and indicates that a common interpretation of the instrument has developed among actors. Key actors perceive themselves as being part of a common enterprise that aims to push the international visibility of the general science and innovation landscape. This shows that new configurations of actors emerge and that they also create new interaction patterns.

Furthermore, the data shows that the potential closure of the DWIH is viewed as significant, not in relation to actors' individual positions, but rather for the science and innovation landscape as a whole. This suggests that a common narrative and added value has evolved in relation to the DWIH. This common idea seems to be a driver for the DWIH's institutionalisation. In some cases, actors even supported activities because of a collective interest, even if the topics were not related to their core themes. To conclude, it can be observed that distinct effects can be attributed to the instrument or have been created by the instrument. Examples of these instrumentation effects include the creation of a new arena for actors to position themselves (ministries and other actors), a new context which enabled a sense of collectivity to emerge, and a new platform for the cooperation of heterogeneous actors. However, inertia tendencies and resistance to change were also encountered. The DWIH's institutionalisation can therefore also be explained by distinct appropriation effects.

160 "daß Organisationen zwar als Instrumente geschaffen werden mögen, dann jedoch in der Regel für ihre Mitglieder und für Akteure in ihrer Umwelt einen Eigenwert gewinnen" (Mayntz and Scharpf (1995, p. 42)).

