

SURVEY RESULTS

Acceptance of Gaia-X

Results of a quantitative survey
on behalf of the Gaia-X Federation Services Project

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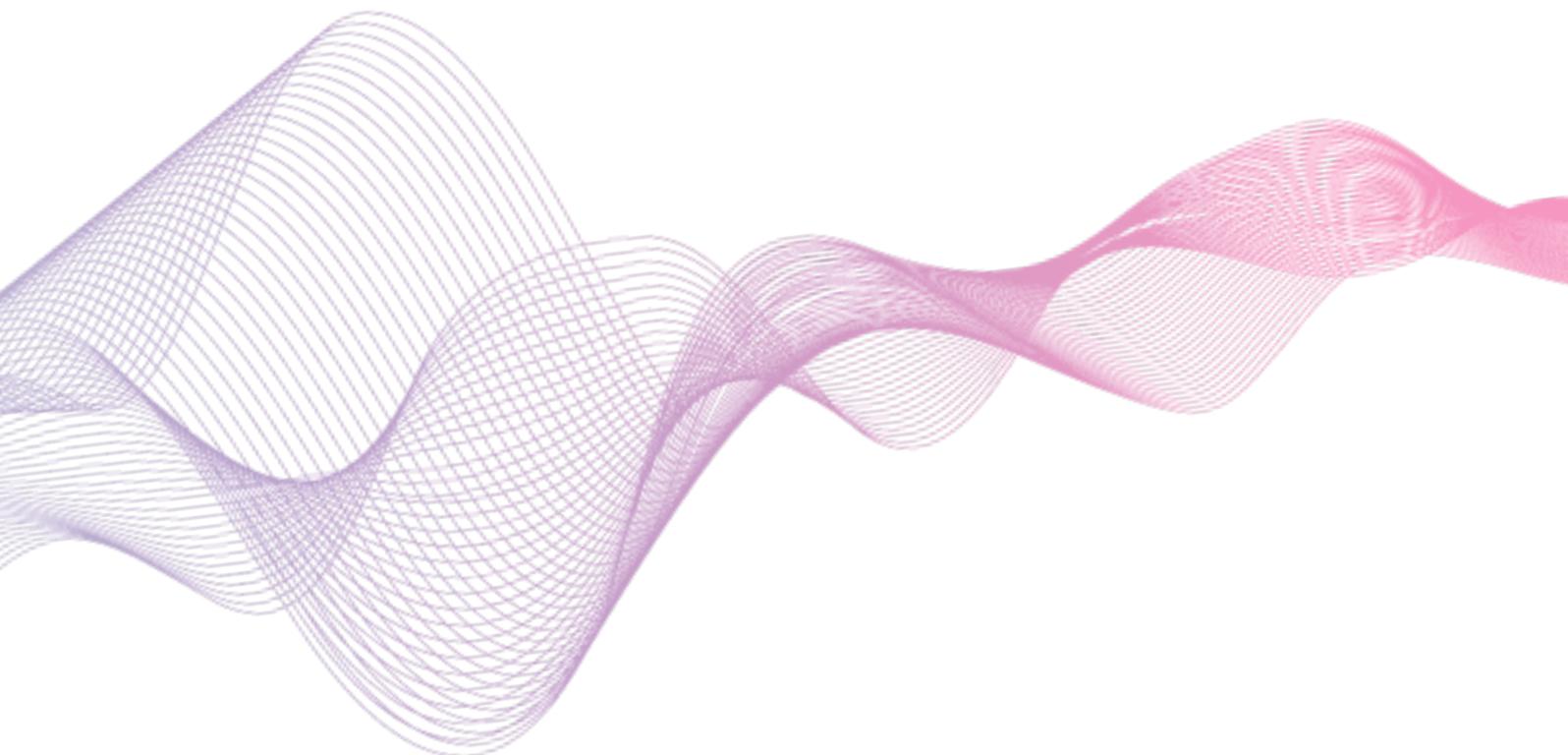


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1. Foreword

Dear Reader,

The German federal government officially launched Gaia-X at the end of 2019. Shortly afterwards, the German and French governments launched a European digital project of unprecedented scale. The aim was to enable innovative, data-based business models while strengthening Europe's digital sovereignty. Four years later, a lot has happened: the Gaia-X Association based in Brussels has been established, eleven Gaia-X projects funded by the German government and a multitude of other flagship projects in all EU countries have been launched, the architecture and foundations of Gaia-X have been decided in numerous meetings, and the Gaia-X Association services are available.

Despite these achievements, Gaia-X remains a mystery to many. Misunderstandings about Gaia-X's performance promise create false expectations. Gaia-X cannot be bought over the counter, nor is it a ready-made software product that is up and running after a quick download. Nevertheless, it is worth joining the initiative.

Gaia-X requires an investment from companies that want to create value from the concept and position their business for the future. The results of the study show that **we, as the Gaia-X community, still have some convincing to do in order to make clear the added value that justifies a commitment on the part of interested companies.**

Working in complex digital ecosystems cannot be mapped out in a few months; it requires iterative processes, many agreements and a demand-driven adaptation of the technical foundations in constant exchange with the Gaia-X community. As public funds are used to build the foundations, we want to emphasise the open-source idea and invite people to actively participate in Gaia-X. **To do this, we need to involve our experts even more, provide information to interested parties and create easy access to the use of software components.**

Now that the basic components of Gaia-X are clear to everyone, it is time for the implementation phase, which will be accompanied by intensive community building. With this acceptance study, we want to contribute to making Gaia-X more widely available and help it achieve the greatest possible market acceptance.

Enjoy reading the results of our survey!

Andreas Weiss

Head of Digital Business Models at eco – Association of the Internet Industry



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2. Executive Summary

On behalf of the Gaia-X Federation Services Project, coordinated by eco – Association of the Internet Industry, this study explored the benefits that Gaia-X can unfold for companies and what understanding of the project currently prevails.

The study results show that the respondents perceive Gaia-X to be very positive overall and that there is **broad acceptance of the Gaia-X project**.

The main findings at a glance:

- High acceptance and understanding of the added value of Gaia-X in the active expert community
- Co-operation between actors of different sizes is perceived as positive; no power imbalance between small and medium-sized enterprises (SMEs) and corporations discernible
- Competition concerns do not currently play a role in the development of Gaia-X federations; co-operation potentials outweigh possible concerns
- Transparent rules are perceived as an important enabling framework, but the compliance mechanisms associated with them need further sharpening and explicit communication.
- Many stakeholders still perceive the initial resources required to get involved in the Gaia-X community as too high.
- For many, the concept of decentralisation is still fraught with uncertainty and leaves many questions about its concrete implementation unanswered.

Based on these findings, the following recommendations for action are derived:

1. Focus on concrete business models and application areas
2. Tailor information and communication to the target group
3. Highlight and communicate openly accessible resources, such as the Gaia-X Federation Services, to the community.
4. Clarify the Gaia-X regulatory framework and compliance mechanisms
5. Support community building and leverage expertise.

3. Introduction

Gaia-X was launched in 2019 to develop a digital ecosystem for Europe that enables digital sovereignty. It aims to strengthen the European digital economy by reducing the existing dependence on non-European cloud providers. A digital ecosystem in this context is understood as a network of developers, providers and users of digital products and services, combined with transparency, broad access and vital exchange¹. In public discussion, the point of demarcation from non-European actors is often emphasised, which is why Gaia-X is not infrequently labelled as a purely political project with little benefit for businesses. This is accompanied by the assumption that companies will use established providers rather than services from the Gaia-X context in the future. It is almost forgotten in the debates that Gaia-X is not a classic hyperscaler. It is intended to be a decentralised space open to all, in the spirit of the European idea. A space where companies can develop innovative services and products, driven by data, while respecting certain (European) values and rules. Non-European companies are not excluded from this space, as long as they play by the rules.

In parallel with the public debate, the first prototype applications have been developed - with substantial funding. These have been developed by consortia of a wide range of companies, including cloud providers, data suppliers, (AI) developers, research institutions and also consultancies in areas such as health, mobility or smart city/smart region. Similarly, Gaia-X Federation Services have been developed under the project management of eco – Association of the Internet Industry.

In order to find out what benefits Gaia-X can unfold for companies and what the current understanding of the project is, this quantitative study on the acceptance of Gaia-X was initiated. The aim of the study is to gain a better understanding of the current state of information in order to best respond to the needs of the community and to bridge information gaps. The main target group of the survey were companies and organisations active in the Gaia-X context, as well as NGOs. However, companies and organisations that are not yet actively involved in Gaia-X were also surveyed in order to not only consider the Gaia-X network perspective. The methodological approach is described in detail in Chapter 3.

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4. Methodical approach

The study combined an empirical-qualitative and an empirical-quantitative research design. Essentially, desk research² and guided interviews were used as qualitative methods, as well as a quantitative survey with attendant analysis and evaluation techniques such as inductive coding.³ The qualitative investigation served to prepare the quantitative survey. In **the first step**, a research framework with a set of criteria (see Fig. 1) was developed to find out what promotes or hinders the use of digital ecosystems such as Gaia-X, i.e., what influences acceptance. The criteria were extracted from the relevant specialist literature⁴ as part of the desk research and transferred to the Gaia-X context.



Fig. 1: Developed set of acceptance criteria

In a **second step**, questions for the guideline-based expert interviews were derived from the criteria.⁵ The aim of the expert interviews was to check the developed criteria regarding their relevance for the Gaia-X context as well as the focus of the study – especially considering that Gaia-X is still developing, i.e. it is not yet a fully developed digital ecosystem. Two representatives of companies already operating in the Gaia-X context were interviewed.

Based on the results of the expert interviews, questions for the quantitative survey were derived in **the third step**. The quantitative survey was conducted via an online tool from 10 October to 1 November 2022. 184 people responded to the invitation to participate. The respondents were asked about their demographics, their level of experience in the field of digital ecosystems and their level of information about Gaia-X in various question blocks. In some question blocks, free text fields were provided in which the respondents could answer in more detail on selected aspects. An overview of the main findings is presented in the following chapters.

1 BMWi 2019, p. 2.

2 The literature used, including references, can be found in Section 6, Sources

3 In inductive coding, categories emerge from the material/data, not from existing theories and models.

4 A selection of literature and other sources can be found in an index at the end of the document.

5 The individual criteria are named and briefly explained in the presentation of results.

5. Presentation of the results

5.1 Respondent sample

The majority of respondents are small and medium-sized enterprises (SMEs), followed by companies that are part of a corporate group and companies that are larger than SMEs (See Fig. 2). A significant proportion of respondents indicated that they belonged to the category “Other companies and organisations”. This category includes the research sector, public administration, interest groups, associations and societies as well as public-private partnerships (PPP). Start-ups form the smallest group among the respondents.

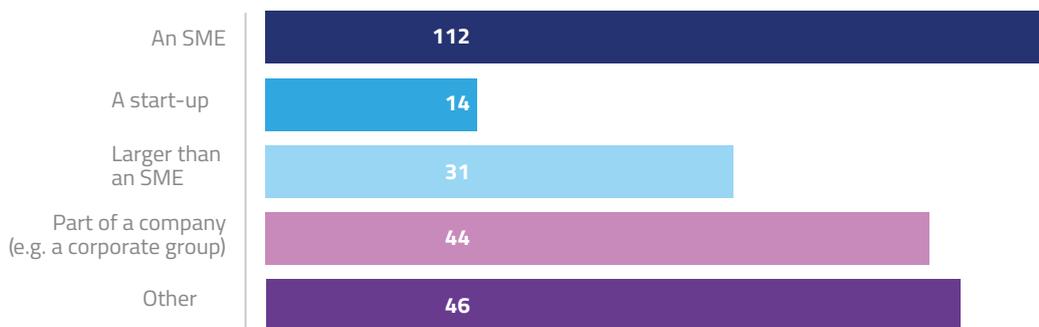


Fig. 2: Type of company of the respondents (multiple selection; N=184)

The companies and organisations from which the respondents came are mainly providers of a service/product, in roughly equal parts (AI) developers or data providers (see Fig. 3). When multiple answers were given, the most common combination was service/product provider and data provider, and provider and (AI) developer. However, these combinations are not surprising, given the proximity in terms of content. Only a few respondents are pure cloud providers. Other includes respondents as co-developers, research and integration partners, and consultants.

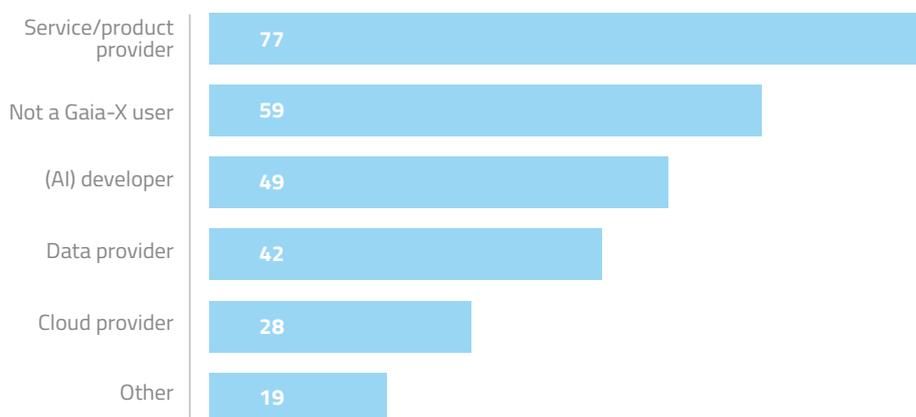


Fig. 3: Role of the respondent's company (multiple choice; N=184)

A total of 49 respondents indicated that they are not users of Gaia-X. Reasons given by respondents in the free text answers included not (yet) seeing the added value, unclear (technical) requirements for participation, not being able to finance the use of Gaia-X for SMEs, or doubting the future viability of Gaia-X as a digital ecosystem. Although this group of respondents does not use Gaia-X, large parts of the questionnaire were answered, indicating either an interest in Gaia-X or an attempt to express criticism of Gaia-X.

Overall, the majority of respondents have experience with cloud services, with most using both European and non-European services (See Fig. 4).

The respondents are mainly active in the following domains of the German Gaia-X hub: Public Sector, Mobility and Industry 4.0/SME (see Fig. 5). Some of the respondents are active in several domains. The most frequently mentioned combinations are Mobility and Smart City/Smart Region, Public Sector and Mobility, and Mobility and Industry 4.0/SME. In terms of content, the combinations do not seem unusual, but reflect the current trend in the development of data-based products/services. In addition, with Catena-X, the Mobility Data Space and Gaia-X4FutureMobility, there are three major projects and project groups in the area of Mobility.

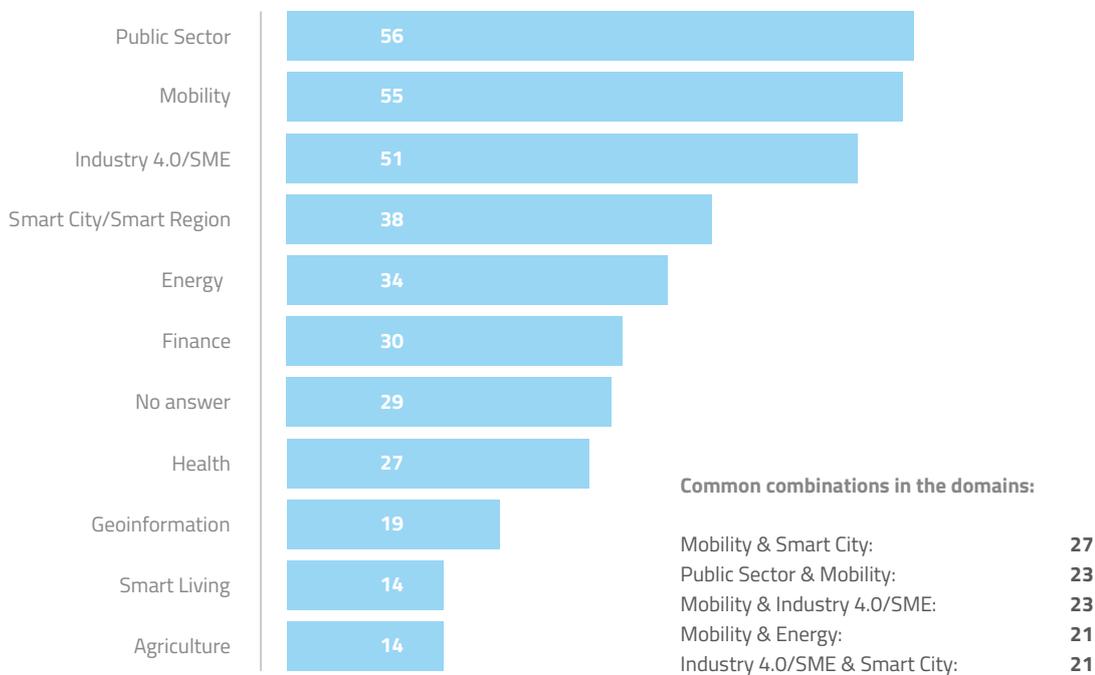


Fig. 5: Domain of the respondent's company (multiple selection; N=184)

Regarding the self-assessment of the company's status in relation to Gaia-X, the picture is mixed. Slightly more than a third said they had a precise idea of Gaia-X. Less than a third of the respondents said they had no experience of working in digital ecosystems such as Gaia-X. About ten percent of the respondents said they had already developed market-ready products in such an environment (see Fig. 6).

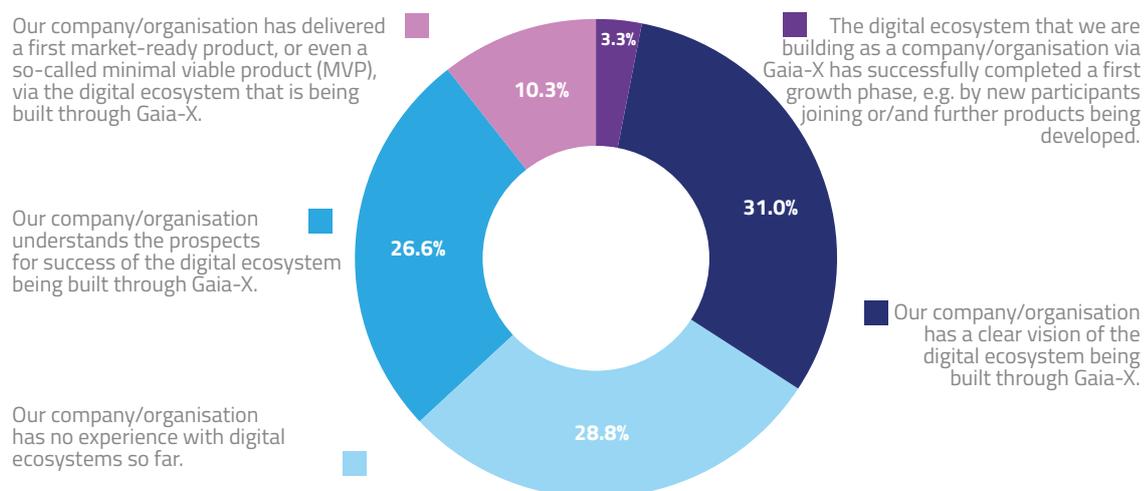


Fig. 6: Self-assessment of the company's status in relation to Gaia-X (N=184)

6 For the goals and activities of the individual domains in the German Gaia-X Hub, see <https://www.bmwk.de/#id2845488>

7 To the Gaia-X hubs: <https://gaia-x-hub.de/aufgaben/>

5.2 Result of the overarching questions

5.2.1 Understanding of Gaia-X is basically present

First, the respondents were asked to provide information on their understanding of Gaia-X. The majority of respondents see Gaia-X as a technical and institutional framework for the development of data-based services and products. A large majority saw Gaia-X as a technical framework and institutional framework for the development of data-based services and products. The results suggest that the common misconception of Gaia-X as a European cloud provider is not prevalent among respondents. A significant group of respondents see Gaia-X as a digital platform that implements EU compliance rules. The perception of Gaia-X as a research project and a complex regulatory system is also prevalent among many respondents.

Overall, there is a basic understanding among the respondents of what constitutes Gaia-X: the interplay of technical and organisational aspects. This suggests that previous communication about what Gaia-X is has been largely successful.

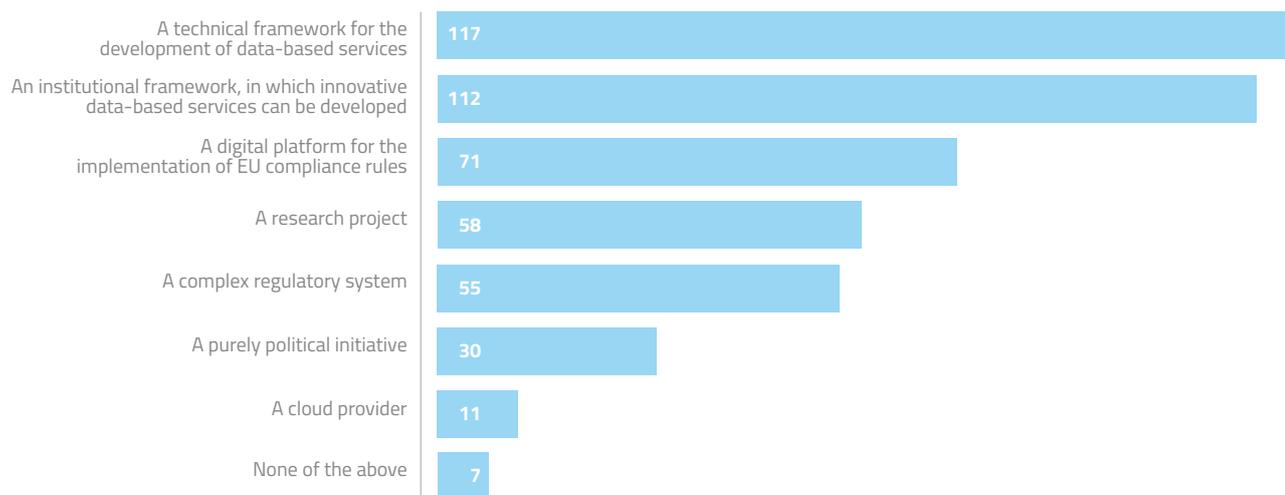


Fig. 7: Understanding of Gaia-X (multiple choice; N=184)

5.2.2. Great interest in Gaia-X, but more passive than active

The majority of respondents show interest in the development of Gaia-X by visiting websites such as gaia-x.eu or gxfs.eu, among others, and consuming content there. A large group of respondents attends conferences such as the Gaia-X Summit or GXFS Connect or is involved in the context of a Gaia-X Hub. It is noticeable that only a small group of respondents has participated in Gaia-X hackathons. Hackathons are used to present results from the Gaia-X working groups and to work collaboratively on existing technical problems. The format is mainly aimed at participants with a technical background, which is probably why there is a higher inhibition threshold to participate.

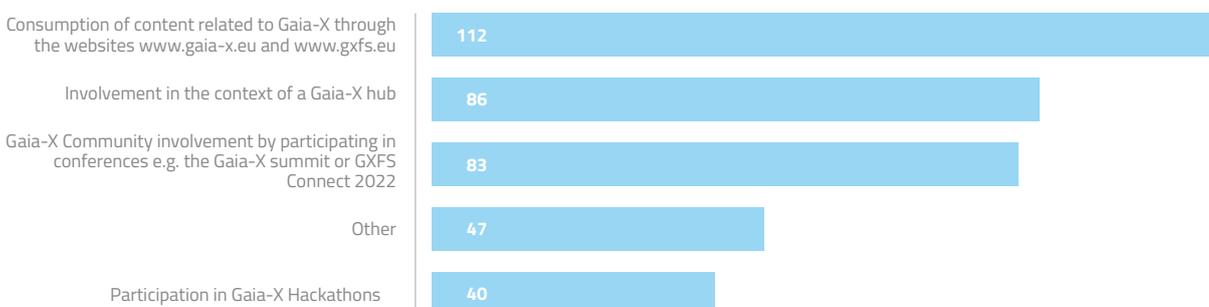


Fig. 8: Type of participation in the design of Gaia-X (multiple choice; N=184)

5.2.3. Gaia-X guiding principles such as data protection, sovereignty and self-determination are reasons to participate in Gaia-X

Official publications repeatedly mention guiding principles that the development of Gaia-X as an open digital ecosystem follows. According to the initiators of Gaia-X, these guiding principles are based on European values⁸ and are, therefore, more political in nature. At the same time, however, they also represent aspects that are easy to understand in terms of content, which is important for people in the field, and thus another reason to participate in Gaia-X.

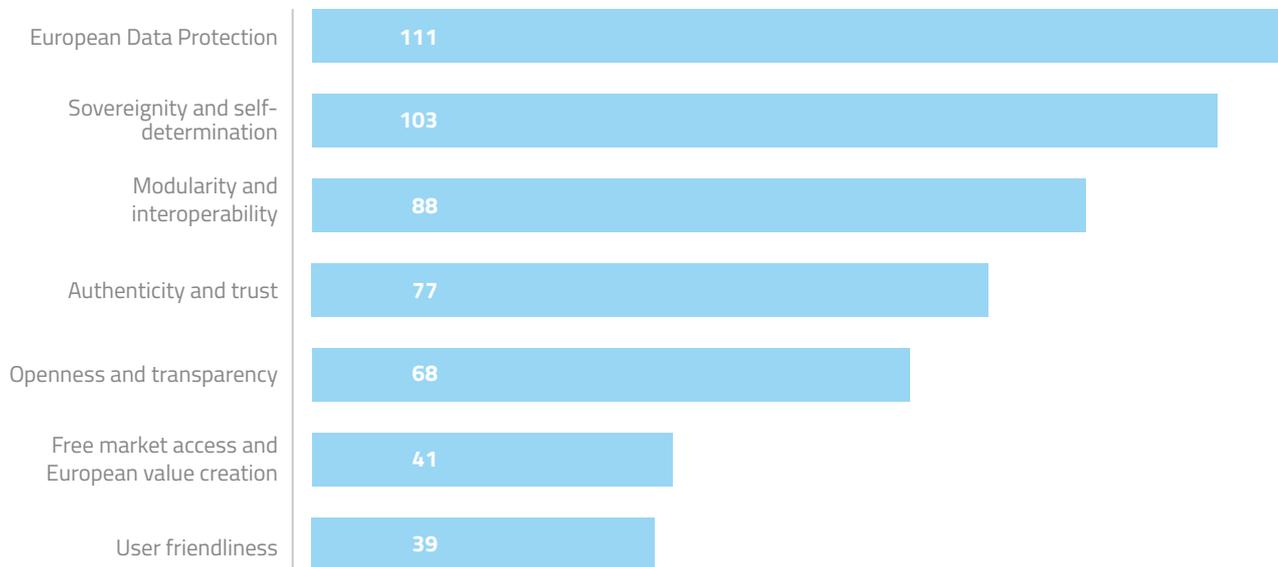


Fig. 9: Important guiding principles in digital ecosystems (multiple choice - maximum three mentions; N=184)

The most important aspects mentioned by the respondents were European data protection, i.e. compliance with the EU's General Data Protection Regulation (GDPR) and the aspects of sovereignty and self-determination. Especially the latter seems unsurprising, as (digital) sovereignty is intensively discussed in public and has become a core concept for the digital economy in Europe in the past five years.

Aspects such as modularity and interoperability, e.g. through standards and open interfaces, authenticity and trust, e.g. through certification systems, as well as openness and transparency are further mentioned by respondents. The latter means that Gaia-X is committed to the Open Source philosophy, i.e. the source code of the technical architecture is open and components can be added and adapted at any time. The fact that these guiding principles are more technical in nature and, therefore, more difficult to assess in terms of relevance may be one reason for this choice. The respondent's views on free market access and European added value are relevant to the question of how accepted Gaia-X is. These are in line with the respondents' answers on the understanding of Gaia-X: Gaia-X is not seen as a purely political project. The need to ensure data portability to avoid lock-in effects was mentioned in the survey under user-friendliness. Compared to the previous guiding principles, this guiding principle was perceived as the least important by the respondents.

⁸ See, e.g. BMWi 2019; ZEVEDI 2022, pp. 10.

5.2.4. The added value of Gaia-X is apparent to experts, but not yet widely available to all companies.

In this section of the survey, the aim was to explore the perceived added values of Gaia-X. Just under half of the respondents stated that they recognised the added value of Gaia-X for their company. It is striking that the agreement comes largely from companies and organisations that are active in the domains of SMEs/Industry 4.0 and Mobility or are (AI) developers.

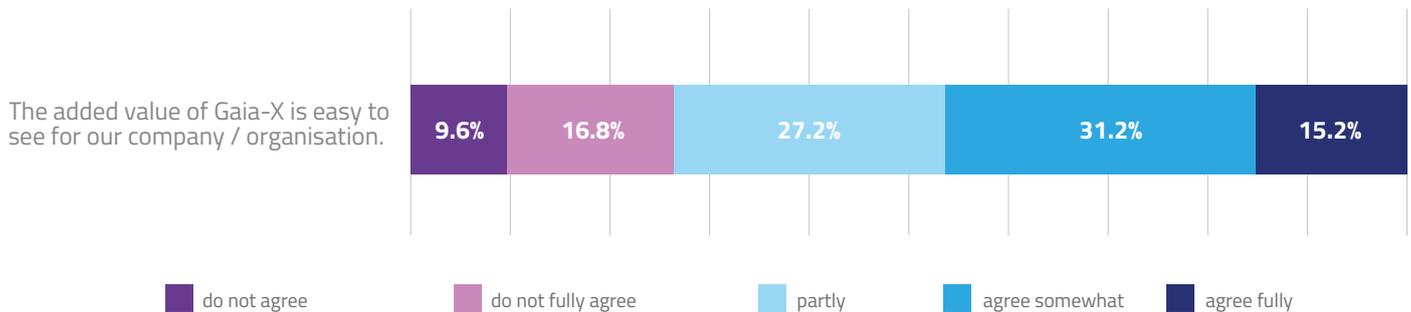


Fig. 10: Added value of Gaia-X for companies

In addition, respondents who attend conferences in the Gaia-X environment, consume information on Gaia-X, or are involved in Gaia-X hubs were more likely to say they recognise the added value of Gaia-X. It is interesting to note that digital sovereignty and data protection were frequently mentioned as added values in the free text fields, which corresponds with the answers of the previous question on relevant guiding principles. Fewer respondents mentioned innovation and the development of data-based services as important added values.

There are two ways to assess these results. On the one hand, it is clear that the efforts made so far in relation to Gaia-X development are paying off for those companies/organisations that are active in the Gaia-X context. These “experts” recognise the added value of Gaia-X, which also results in a high acceptance of Gaia-X among this target group.

On the other hand, the results also make clear that about a quarter of the respondents do not currently recognise the added value of Gaia-X. According to the free text answers, the economic added value is unclear to this group of respondents, Gaia-X as a digital ecosystem is too abstract, and rules are too complex and hard to understand.

The findings underline that further efforts and targeted communication measures are needed to advance the acceptance of Gaia-X outside expert circles and on a broad scale.

5.3 Selected results of the question clusters

5.3.1. Companies with high Gaia-X affinity recognise equal opportunities

This part of the survey aimed to identify how equal opportunities are perceived by the participants in the Gaia-X ecosystem.

66 percent of respondents with a solid knowledge of the technical framework and the institutional framework of Gaia-X agree with the statement that Gaia-X fulfils equal opportunities requirements in its current state of development (see Fig. 11). The level of agreement is similarly high among respondents who are (AI) developers, are active in the domains of SMEs/Industry 4.0 and mobility, or are classified as other companies/organisations (see Fig. 12). These companies or “experts” also do not see the participation of non-European companies in Gaia-X as problematic, as long as they adhere to the rules defined in Gaia-X.

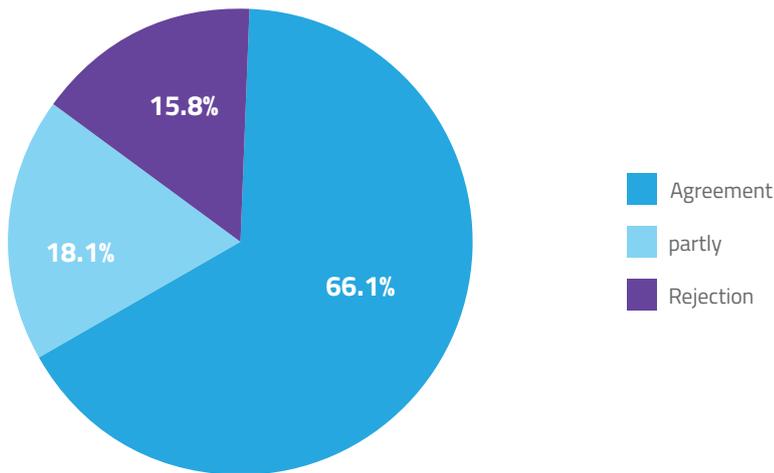


Fig. 11: Overall evaluation of the question cluster 'Equal opportunities' according to combination 'Institutional Framework & Technical Framework'

5.3.2. Gaia-X growth is seen as too slow, participation too costly

In this section, respondents were asked about their attitudes towards the growth of Gaia-X. Rapid growth of a digital ecosystem is only possible if companies can easily join and participate in the ecosystem. Growth refers to both the number of members in the ecosystem as well as the number of products/services and resources provided in the ecosystem.

Overall, the participation and use of the Gaia-X digital ecosystem was acknowledged by the respondents with mixed feedback (see Fig. 13). The respondents' answers to the entire question cluster were distributed rather evenly across the answer scale.

On the one hand, almost half of the respondents were able to participate without any difficulties, and only about a quarter of the respondents had partly good and partly negative experiences or major difficulties with participation in the Gaia-X digital ecosystem (see Fig. 14). The respondents who had fewer problems with participation came from the area of companies that stated they were data suppliers, data providers and (AI) developers.

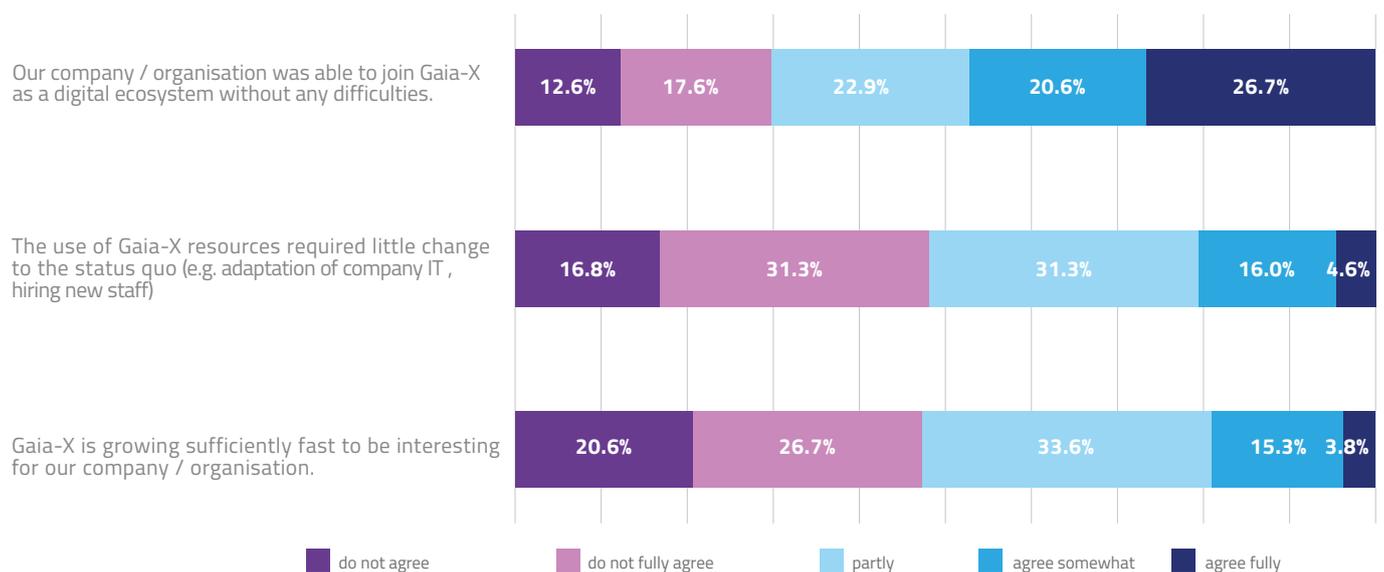


Fig. 14: Results for the 'Participation in Gaia-X' question cluster

A majority of respondents noted that the use of Gaia-X resources required only a little reorganisation within the company. Naturally, participation in a new initiative involves a certain initial effort and is therefore not to be considered unusual in the context of Gaia-X. Nevertheless, expansion is only possible if there are uncomplicated rules for joining and use and a high level of standardisation and automation.

5.3.3. Cooperation at Gaia-X is seen as very positive, competition concerns do not prevail

In this section, interviewees were asked about their perception of the balancing act between co-operation and competition in the Gaia-X framework. Digital ecosystems require co-operation and competition at the same time by developing marketable services/products from shared resources. The basis for this is formed by rules that are observed by all. Competition is the rule between companies, co-operation is rather new – especially in a digital ecosystem.

A large majority of respondents (73%) consider co-operation to be very important, but a majority (60%) also state that the development of competitive products/services is the most important aspect of Gaia-X use (see Fig. 15). This means that from the respondents’ point of view, co-operation with other actors, possibly also competitors, does not hinder the development of competitive applications as of today.

At Gaia-X, cooperation with other companies / organisations is an important factor for our company / organisation.

For our company / organisation, the development of competitive products / services in Gaia-X use is in the foreground.

The cooperation in a digital ecosystem like Gaia-X does not hinder competition between participants.



Fig. 15: Results for the question cluster 'Cooperation and Competition'

The high level of agreement with regard to co-operation and competition is found in almost all companies/organisations and domains surveyed (see Fig. 16). Only the answers of the “non-users of Gaia-X” and those not assigned to a domain deviate somewhat.

The positive assessment of the co-operation opportunities in Gaia-X should be judged against the background that many of those who are active in Gaia-X as of today are participating in the context of research projects and consortia and are jointly developing initial applications in this collaborative setting. Competing data-based service offerings in the context of Gaia-X federations are not to be expected until the next stage of Gaia-X development.

5.3.4. Flexibility and robustness (still) insufficient; at the same time, decentralisation is perceived as an expense factor

This section asked how the flexibility and robustness of Gaia-X was perceived by the respondents. Here, the concept of decentralisation plays an important role. Gaia-X promises to enable self-sovereign management of groups of companies in so-called federations with its decentralised approach. Common rules and governance provide the framework for this co-operation. The development status of Gaia-X in terms of flexibility and available resources and members is assessed in a mixed way by the respondents (See Fig. 17).

Gaia-X is sufficiently flexible to provide resources for our company/organisation in an appropriate way, e.g. for the development of services/products.

Gaia-X has sufficiently capable participants, resources etc. to be interesting for our company/organisation.

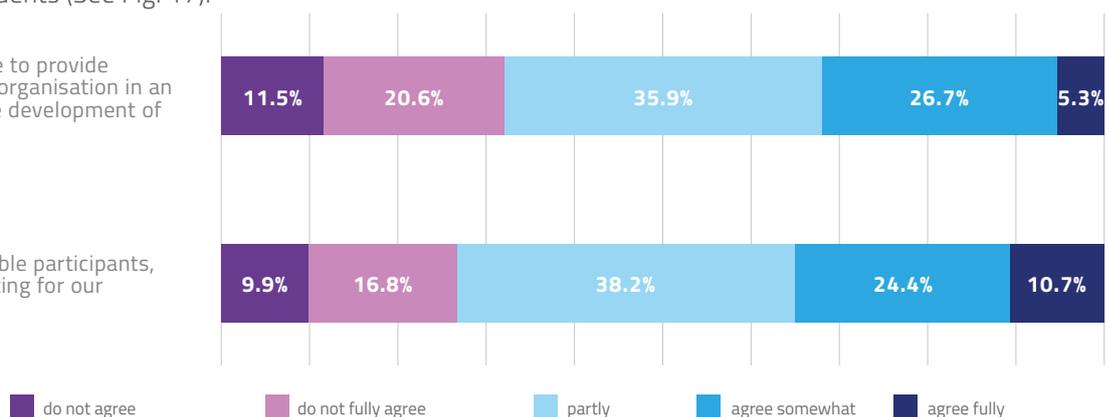


Fig. 17: Results for the question cluster 'Flexibility and Robustness'

The very evenly distributed result may indicate mixed experiences of the respondents on the one hand, or indecisiveness with regard to the answer options on the other hand. This indecisiveness in the assessment of this aspect of Gaia-X could also result from the fact that the respondents do not (cannot) yet have sufficient experience with Gaia-X, as the ecosystem is still being developed.

The respondents' opinion on the benefits of decentralisation and the costs of conversion is mixed. The respondents are divided into three groups of similar size (see Fig. 18): One third answered "partly" and seem to be undecided about the possible benefits of decentralisation; another third of the respondents see decentralisation as a promising approach, while an equally large part does not see the benefits. An evaluation of the free-text questions here shows that decentralisation causes uncertainties among the respondents (for example: "There are no uniform rules in the decentralised system").

In order to deal with the decentralised and flexible approach, potential participants need easily accessible and understandable information on the resources available in the ecosystem. This point is particularly agreed upon by companies that have indicated that they are data providers, (AI) developers, service providers, as well as the other "Gaia-X experts" who regularly inform themselves and play a role in shaping developments (see Fig. 18 and Fig. 19).

5.3.5. Rules form an important basis for self-organised, decentralised Gaia-X ecosystems

In this section, we explore respondents' views on rules and compliance in the Gaia-X ecosystem. Digital ecosystems are organised by their members themselves, based on rules. This also creates the necessary stability to maintain the digital ecosystem based on the sovereignty of the actors.

From the respondents' point of view, the majority of the rules that serve as a basis for Gaia-X compliance do not hinder the development of products/services (See Fig. 20). However, a larger group gives their answer as partly, which suggests a possible uncertainty. The majority of respondents (just under 50%) consider the economic potential for self-organisation and decentralisation to be great. Against the background of the previous section on flexibility and robustness (see above all the analysis of Fig. 18 in section 4.3.4), however, this assessment should be seen in relation to the aspect of self-organisation.

For the entire question cluster, there are no strong swings towards agreement or disagreement overall, but rather a relatively equal distribution of answers, even among the "Gaia-X experts" (Fig. 21).



Fig. 20: Results for the 'Self-organisation and stability' question cluster

5.3.6. Compliance forms the basis for trust in the Gaia-X ecosystem

A decentralised and flexible system like Gaia-X will only be used if companies have sufficient trust in the system and its participants. This trust is created in Gaia-X through rules, compliance with which is comprehensibly monitored. Certifications and labels will play a role here in the future.

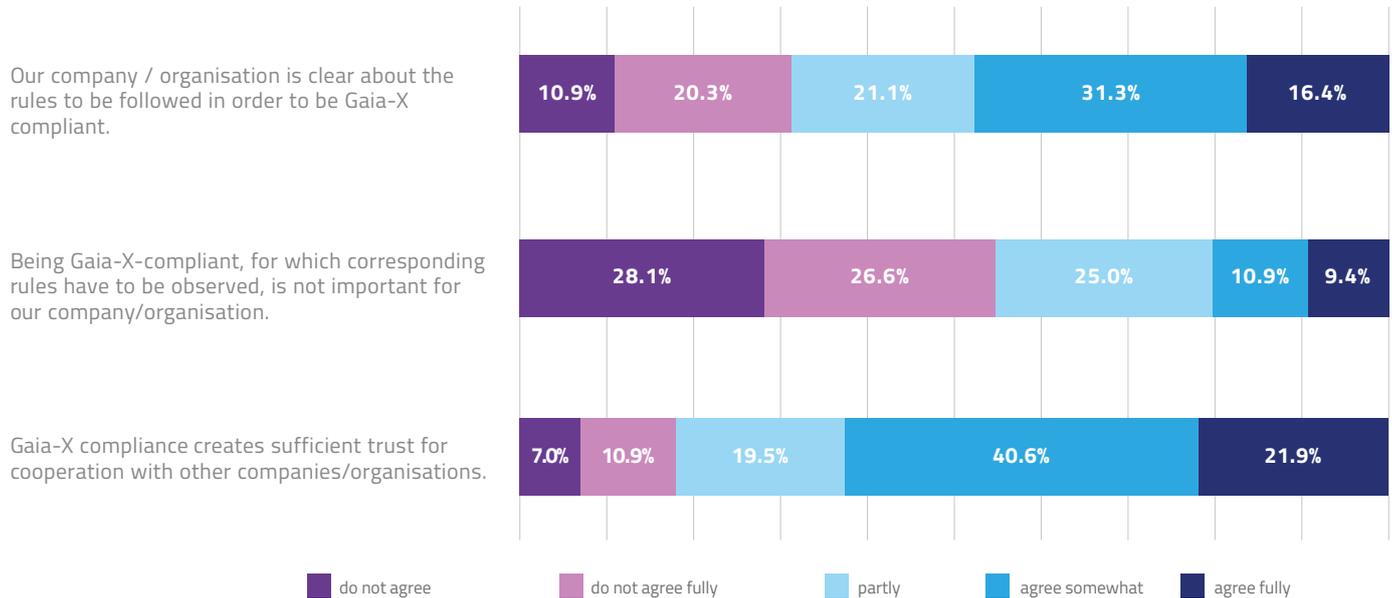


Fig. 22: Results for the question cluster 'Trust'

The majority of respondents rate Gaia-X compliance as important, desirable and confidence-building (see Fig. 22). However, there is a lack of clarity among the respondents regarding the question of which rules underlie a compliance assessment in the context of Gaia-X as it stands today, which is also confirmed by the free-text answers. Some of the respondents see additional costs caused by achieving Gaia-X compliance, which have not yet been offset by any economic benefit. In addition, some respondents note that their current customers do not require Gaia-X compliance. Overall, there seems to be a need for clarification here – also, for example, with regard to the interaction with industry-specific compliance requirements.

In the individual analysis, it is noticeable that Gaia-X compliance is particularly important for companies that are active in the domains of SMEs/Internet 4.0 and the public sector. Especially from the perspective of SMEs and the public sector, the result suggests that automated monitoring of compliance requirements can reduce workload and create trust in a digital ecosystem.

All respondents see Gaia-X compliance as an important basis for trust in the digital ecosystem and, thus, as a basis for co-operation. Even companies that have not used Gaia-X so far rate the aspect of trust through compliance as very important. In summary, the survey results suggest that co-operation is not possible without trust and that compliance procedures create trust.

5.3.7. Pooling of resources enables savings for companies, but this is not (yet) achieved in Gaia-X

In digital ecosystems, companies bundle and combine resources with each other that they could not provide on their own. This allows new types of business models to be developed and savings to be made in the development of products. This section aimed to explore resource use and pooling in the Gaia-X context. The majority of respondents indicated that the use of Gaia-X resources does not yet reduce the cost of developing services or products for the participating companies (see Fig. 24).

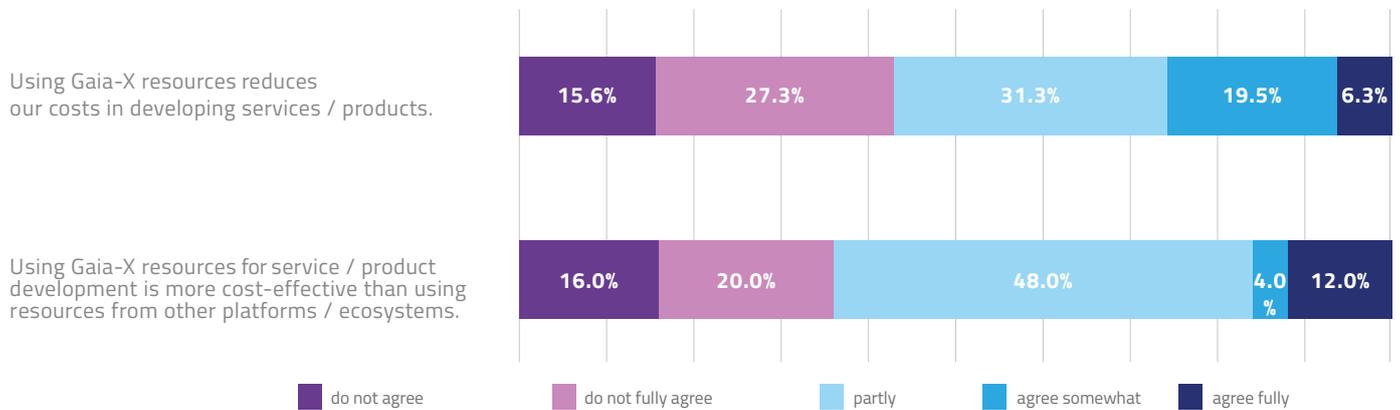


Fig. 24: Results for the question cluster 'Pooling of resources I'

Currently, resources provided by other platforms and ecosystems are still perceived as more cost-effective by some respondents, while almost half of the respondents could not clearly answer the question.

A large majority of respondents do not yet consider the products/services developed in the Gaia-X environment to be marketable (See Fig. 25). Especially companies that are active in the SME/ Industry 4.0 domain find that products/services provided via Gaia-X are not developed to the point where they can be easily used. This is certainly also directly related to the respondents' assessment of the ease of use based on universally valid and agreed rules for achieving Gaia-X compliance (see also the analysis of Fig. 22 in section 4.3.6).

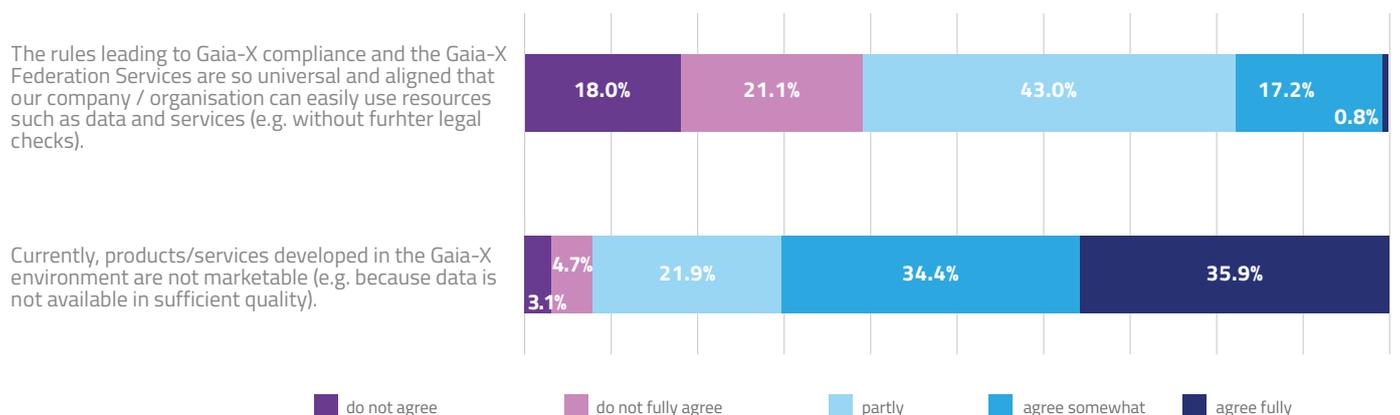


Fig. 25: Results for the question cluster 'Pooling of resources II'

5.3.8. Gaia-X Federation services are perceived as important and helpful, but support in their application is necessary

Cross-cutting resources to support, e.g. identity management, build trust and can reduce costs for participants in a digital ecosystem. Appropriate governance is needed to develop and maintain cross-cutting resources. In this section, the study, therefore, explored how helpful overarching resources such as the Gaia-X Federation Services (GXFS) are.

The Gaia-X Federation Services are not important for our company / organisation.



The Gaia-X Federation Services facilitate the development of products / services.



The Gaia-X Federation Services are suitable, so that our company/organisation can easily use them for products/services.



do not agree do not agree fully partly agree somewhat agree fully

Fig. 26: Results for the question cluster 'Cross-cutting resources'

The majority of respondents were positive about the Gaia-X Federation Services (see Fig. 26). For example, the federation services are important for more than half of the respondents, and almost 41% of the respondents are of the opinion that the federation services facilitate the development of products/services. Service providers, (AI) developers and data suppliers, in particular, attribute a high benefit to the Gaia-X federation services. Respondents only reported mixed experiences and assessments on the topic of user-friendliness and ease of use. The respondents who were less positive about the federation services referred mainly to the fact that the services were not yet fully available in their free text answers. Respondents also stated that they did not clearly see the benefits of the GXFS or that they would rather rely on alternatives.

5.4. Summarising assessment

Overall, the study suggests that there is a general acceptance for Gaia-X in the market. The results suggest that especially those respondents who have dealt extensively with Gaia-X can clearly assess the initiative and identify its added values. For example, the majority of respondents perceive Gaia-X to be **a technical framework with an institutional framework**. Few still consider it a pure research project. The political context is less important from the respondents' point of view than the collaboration of different actors in digital ecosystems.

The study also suggests that small and medium-sized enterprises (SMEs) do not see themselves at a disadvantage in the digital ecosystem compared to larger companies. Accordingly, the **co-operation** between the participants was also assessed as functioning well and being successful.

Due to the current Gaia-X projects, which are often still engaged at the research level with public funding, there is still little free **competition** in the current ecosystem as far as the development of services is concerned, so there are no concerns about competition between participants in a federation.

According to the interviewees, the decentralised self-organisation of many actors envisaged by Gaia-X can succeed if clear **rules** are established and compliance with them is monitored.

In addition, comprehensible and **transparent rules** are perceived as an enabler that enables **flexibility** with simultaneous **robustness** of the Gaia-X ecosystems. Here, the study findings suggest that there is still potential for the expanded provision of information on the functionalities and compliance mechanisms in Gaia-X ecosystems.

Active participation in Gaia-X is **not** yet considered **sufficiently low-threshold** by the respondents. According to the respondents, more can be done here to create low-threshold offers and participation.

The concept of **decentralisation** is still fraught with uncertainty for many of the respondents, while the majority emphasises co-operation as a particularly attractive aspect in Gaia-X. Respondents stated that a stable set of rules must be the basis for co-operation and self-organisation in the Gaia-X ecosystem; derived from this, there is also a desire for certifiable Gaia-X compliance.

Information on the availability of **cross-cutting resources** developed in the Gaia-X context is seen by respondents as an important step.

Some respondents also mentioned **the lack of internal resources** as an obstacle to active participation in Gaia-X. Respondents also perceive the growth of the digital ecosystem as too slow. According to the respondents, Gaia-X has not yet acquired sufficient resources and participants to be interesting for all companies and to justify initial joining costs in the form of, for example, personnel resources.

In summary, it can be said that information gaps and uncertainties do not cloud the overall picture of a fundamental acceptance of Gaia-X among the respondents.

6. Recommendations for action

The fundamental goal must be that Gaia-X expands and grows so that the ecosystem “lives” and develops the necessary dynamics. During this growth period, the target requirements for a high acceptance of Gaia-X must be addressed at all times, for which the results of this study provide initial indications. Based on the classification and assessment of the responses concerning acceptance, recommendations for action can be derived as to which activities should be carried out in the Gaia-X context in the future.

The study results reveal information gaps and uncertainties that should be considered in the further communication around Gaia-X. Specifically, the study identifies the following areas where a sharpening of communication measures should take place:

Resources required for participation in Gaia-X perceived as too high

The respondents stated that participation in Gaia-X is associated with high entry costs, e.g. due to personnel expenditure and long-term competence building. These perceived barriers could influence the acceptance of Gaia-X in the future, especially if this also means that the benefits of the ecosystem for participants are not achieved due to insufficient outreach.

Compliance rules still unclear

Precisely because rules and compliance monitoring are assessed as decisive for trust in the context of Gaia-X, there is still potential for expansion here. Many respondents are unsure when exactly they can call themselves “Gaia-X compliant”.

The following recommendations for action can be derived from these findings:

1. Putting concrete projects, business models and application areas in the foreground

By providing further information on the work results in Gaia-X flagship projects and other funded projects, added values can be illustrated in the best possible way and new companies can be motivated to participate in Gaia-X.

2. Adapt information offers and communication measures to the target group

While the Gaia-X experts in the survey already stand out with their broad knowledge and active participation, some respondents noted larger knowledge deficits or greater reservations about Gaia-X. In order to become successful in the market in the long term and to win over a critical mass of companies for the initiative, communication offers tailored to the target group can help to inspire as many stakeholders as possible to participate in Gaia-X.

3. Highlight openly accessible resources, such as Gaia-X federation services, and communicate them to the community

In order to reduce barriers to entry, overarching basic services and resources can enable quick and efficient entry into a digital ecosystem such as Gaia-X. This possibility of low-threshold use of existing service components for building Gaia-X federations should be given even greater focus. The concrete application of these services can also be supported by workshops for specific target groups.

4. Clarify Gaia-X rules and compliance mechanisms

Currently, the Gaia-X rules and their added value are not yet clear to everyone. Nevertheless, they are assigned a high value in terms of creating trust. To counteract this discrepancy, Gaia-X rules and compliance processes should be communicated clearly and in a way that is easy to understand. Plans for certifications and labels should also be communicated transparently and made accessible to reflect an important unique selling point of Gaia-X.

5. Support community building and use expert knowledge

Gaia-X thrives on an active community that makes a large part of its results available as open source. Many players in the Gaia-X ecosystem now have a wealth of knowledge about Gaia-X, its functionalities and service components. This wealth of experience should also be used to inspire new companies to use Gaia-X. For example, mentoring programmes could help here. For example, mentoring programmes could help to facilitate an entry into the Gaia-X world, to use scaling effects more quickly and to emphasise added values more strongly through concrete experiences.

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