



Deliverable D1.15

2nd GDI quarterly implementation report

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06/12/2023	0v1	Mercedes Steiner (ELIXIR Hub)	Copy shared with the GDI-MB for review
15/12/2023	0v2	Melissa Konopko (ELIXIR)	Processed comments from internal review.
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1. Executive Summary

The European Genomic Data Infrastructure (GDI) is a deployment project, co-funded by the Digital Europe programme. GDI's main objective is to realise the data infrastructure required by the 1+MG initiative to share high-quality genotypic and phenotypic data across borders, the 1+MG Virtual Cohort. Countries participating have committed to reach a concrete operational level before the end of the project (progressing across different phases: onboarding, deployment or operational) which will require them to fulfil technical and non-technical requirements.

In addition, the establishment of required technical capacity in each Node has been identified as a critical factor for the success of the project and the long-term sustainability of the data infrastructure and the initiative.

This document presents the results of the initial European Genomic Data Infrastructure monitoring activities laid out in [D⁺1.12](#) that are initially focussed on:

- **the deployment of the technical expertise** required to deploy and operate the European Genomic Data Infrastructure to share access to data across borders, building the technical capacity to run the infrastructure beyond the end of the project, and,
- **the evolution of the European Genomic Data Infrastructure Nodes.** GDI Nodes will transition across different phases in their journey to be fully operational and integrated into the European Genomic Data Infrastructure.
- **identifying capacity-building actions required to target onboarding.** We acknowledge the different access to skills and resources each GDI Node has which implies that GDI Nodes will evolve and reach operational readiness at different speeds. We will use the information collected from GDI Nodes to identify gaps and opportunities to build capacity across the nodes both at the technical level and not technical levels to accelerate the journey across the different phases. In this case, we will focus on the onboarding phase.

These monitoring processes and tools aim to support GDI Nodes in their journey by assessing their progress on a quarterly basis and providing them with useful guidance and recommendations to reach their individual and project objectives, summarised in the commitment to have **6 Nodes technically operational by 2024**. This will be extended to **15 Nodes by 2026** with three additional Nodes reaching deployment and two more Nodes reaching onboarding.

A summary of the information collected every quarter will be presented to the 1+MG Group (in addition to being shared with project participants) in order to gather the contributions and support of the 1+MG Group on the direction of travel and their assistance in removing any roadblocks that could be identified.

The information presented here corresponds to the status of the Nodes by M12.

¹ <https://zenodo.org/record/7576210#.ZEYoBuzMJqs>



The current scope and content of the quarterly report could be updated if there is a need to modify it to better support the countries in their commitments or to facilitate reaching the overall project's initiatives. For instance, monitoring of the volume of data available in the European Genome Dashboard or via the 1+MG infrastructure could be implemented in the near future.

B1MG² has released the first full version of the 1+MG Framework <https://framework.onemilliongenomes.eu/> which is a useful resource to build capacity and facilitate the dissemination of the 1+MG recommendation and guideline coming from the project support the implementation (B1MG, GDI, GoE, EHDS,.....). The first official release in November 2023 is comprised mainly of B1MG outputs, but this alone could help GDI members to navigate recommendations and understand how the different components work together and align with the EHDS. The framework will now be updated and maintained by GDI, thus incorporating the latest resources that support the vision of the 1+MG initiative.





2. Contribution towards project outcomes

With this deliverable, the project has reached or the deliverable has contributed to the following project outcomes:

Outcomes	Contributed
<p>Outcome 1</p> <p>Secure federated infrastructure and data governance needed to enable sustainable and secure cross border linkage of genomic data sets in compliance with the relevant and agreed legal, ethical, quality and interoperability requirements and standards based on the progress achieved by the 1+MG initiative.</p>	Yes
<p>Outcome 2</p> <p>Platform performing distributed analysis of genetic/genomic data and any linked clinical/phenotypic information; it should be based on the principle of federated access to data sources, include a federated/multi-party authorisation and authentication system, and enable the application of appropriate secure multi-party and/or high-end computing, AI and simulation techniques and resources.</p>	Yes
<p>Outcome 3</p> <p>Clear description of the roles and responsibilities related to personal data and privacy protection, for humans and computers, applicable during project lifetime and after its finalisation.</p>	No
<p>Outcome 4</p> <p>Business model including an uptake strategy explaining the motivation, patient incentives and conditions for all stakeholders at the different levels (national, European, global) to support the GDI towards its sustainability, including data controllers, patients, citizens, data users, service providers (e.g., IT and biotech companies), healthcare systems and public authorities at large.</p>	No





<p>Outcome 5</p> <p>Sustained coordination mechanism for the GDI and for the GoE multi-country project launched in the context of the 1+MG initiative.</p>	<p>No</p>
<p>Outcome 6</p> <p>Communication strategy – to be designed and implemented at the European and national levels.</p>	<p>No</p>
<p>Outcome 7</p> <p>Capacity building measures necessary to ensure the establishment, sustainable operation, and successful uptake of the infrastructure.</p>	<p>Yes</p>
<p>Outcome 8</p> <p>Financial support to the relevant stakeholders to enable the extension, upgrade, creation and/or physical connection of further data sources beyond the project consortium or to implement the communication strategy and for capacity-building.</p>	<p>No</p>





3. Methods

The methods and processes to gather the monitoring information were established in [D³1.12](#). In this report, we will present and analyse the data initially collected as part of the periodic reporting exercise.

4. Description of work accomplished

Project participants and GDI Nodes were asked to provide the monitoring information related to the deployment of the technical expertise and the self-evaluation of the Node status.

4.1 Monitoring of the technical expertise deployment - Q3 results

4.1.1 Deployment of technical expertise at the GDI Node Level - Q3

As anticipated in Q2, the Q3 results are still influenced by the initial ramp-up of the project and the use of in-kind resources by Pillar II participants (not captured by the report), which is not uncommon in the initial phases of EC projects of this magnitude. As a result, the data show that only **33.7%** of the expected technical expertise to be in place on average during the duration of the project was deployed in the first three-quarters of the project. This number is also affected by the fact that only **86.5%** of the Nodes were reporting utilisation of project resources during Q3.

Project participants have reported delays in recruitment which is expected to still have an effect in the forthcoming reports while the technical experts get fully deployed across all GDI Nodes.

We have noted that the trend of lack of deployment of resources is ongoing and we will continue to monitor in the coming reports. There is a planned Work Package 5 meeting in Q1 2024 which should help give Nodes clarity on what Pillar II will provide and what is expected from them. In particular, countries targeting operational have received 2FTEs to engage in the European level implementation. We anticipate this will support Nodes in technical expertise recruitment. If this trend continues by June 2024, we will need to consider alternatives to address the situation, reallocating resources to relevant project activities supporting 1+MG ambition, for example:

- Support additional countries in joining GDI.
- Increase involvement of Nodes in WP6 to build data management capacity across all Nodes to accelerate the flow of data in compliance with the 1+MG Framework (<https://framework.onemilliongenomes.eu/ehds-data-lifecycle>)
- Guidelines/processes to prepare primary use data for secondary use, data quality aspects
- Federated/Distributed analytics Governance
- Making legacy data (<https://dashboard.onemilliongenomes.eu/>) data available for 1+MG (including synthetic data generation)

³ <https://zenodo.org/record/7576210#.ZEYoBuzMJqs>

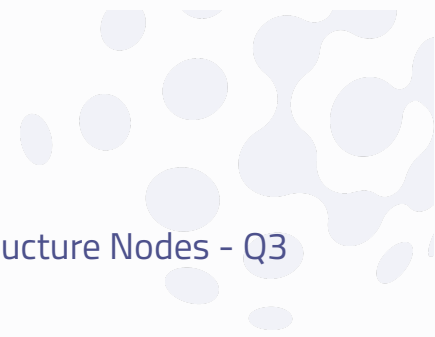


- Additional activities in order to accelerate nodes deployment

Table 1 Deployment of technical expertise across GDI Nodes

Technical expertise deployment Pillar II		By M12		Based on inputs from 86.5%
GDI Node	Operational Readiness (target)	Baseline FTEs	Actuals FTEs	Actuals / Baseline
Belgium	Operational	4.0	0.2	5%
Czech Republic	Operational	4.0	1.0	26%
Denmark	Operational	4.0	1.4	35%
Estonia	Operational	4.0	2.5	63%
Finland	Operational	4.7	2.6	57%
France	Operational	4.0	0.1	4%
Germany	Operational	4.0	0.8	19%
Italy	Operational	3.9	0.6	15%
Luxembourg	Operational	4.3	0.8	20%
Portugal	Operational	4.0	2.5	63%
Slovenia	Operational	4.0	1.7	43%
Spain	Operational	5.0	0.5	9%
Sweden	Operational	4.5	4.2	93%
The Netherlands	Operational	5.0	1.8	37%
Norway	Operational	4.0	0.6	15%
Bulgaria	Deployment	1.8	0.0	0%
Latvia	Deployment	2.0	1.5	74%
Lithuania	Deployment	2.0	0.3	14%
Croatia	Onboarding	1.0	0.1	11%
Ireland	Onboarding	1.0	0.7	67%
Total:		71.1	24.0	33.7%





4.2 Monitoring the evolution of the European Genomic Data Infrastructure Nodes - Q3 results

- The main purpose of the GDI Nodes Operational Readiness gathering of data is to monitor the Nodes' journey and to identify capacity-building actions that will help Nodes meet their targets by the end of the project.
- The Nodes have begun to define their timeline for advancement along the defined path towards operational readiness in the upcoming D3.2. However, as of the writing of this report, only 58% of countries have updated their expected timeline from the original dates given during the proposal stage. Indicative timelines have been established for countries that have not provided a new roadmap based on the original data given at the onset of the project.
- There are two different views provided from the collected data, detailed in the following sections: 4.2.1: The level of operational readiness and 4.2.2: the overall percentage of progress across all indicators.
- Further analysis of the overall progress has been provided to identify capacity-building and other actions required to support nodes to reach the onboarding stage and beyond, as indicated by the Node roadmap.

4.2.1 GDI Node Operational Readiness level - Q3 results

- The GDI Node Operational Readiness level shows the expected phase Nodes should have attained by the time that the data is collected: Onboarding, Deployment and Operational, and where the GDI Nodes see themselves (self-evaluation) at the time of providing the information.
- At this point, no Node has attained the Onboarding level, although 7 Nodes have committed to reaching it at this point. However, several Nodes have made significant progress with France and Sweden completing 100% of the Non-technical Onboarding indicators (see Annexe I). Thirteen countries have reported that they have now completed 50% of the steps required or more, bringing them into a position to complete the steps in the next two quarters.
 - The Spanish Node has aimed to complete the Onboarding stage by this point, but their data has not been shared despite being active in the project. The coordinator has approached the country's representatives in the project to get clarity on the situation. A meeting will take place during December 2023 among the institutions representing Spain in the projects to clarify the roles and responsibilities towards the project.



Table 2 GDI Nodes Operational Readiness level by M12

GDI Node Operational Readiness	Start date	2022-11		Overall status: No expectations for nodes to reach onboarding yet	
		Duration	48		
By Month		12 2023-10			
Operational Phase (2026)	GDI Node	Vanguard Node?	Expected Phase	Current Phase	Management Board comments and recommendations
Operational	Belgium	Yes	TBD	TBD	N/A
Operational	Czech Republic		Onboarding	TBD	N/A
Operational	Denmark		TBD	TBD	N/A
Operational	Estonia		TBD	TBD	N/A
Operational	Finland	Yes	Onboarding	TBD	N/A
Operational	France		Onboarding	TBD	N/A
Operational	Germany		TBD	TBD	N/A
Operational	Italy		Onboarding	TBD	N/A
Operational	Luxembourg	Yes	Onboarding	TBD	N/A
Operational	Portugal		TBD	TBD	N/A
Operational	Slovenia		TBD	TBD	N/A
Operational	Spain	Yes	Onboarding	TBD	N/A
Operational	Sweden	Yes	Onboarding	TBD	N/A
Operational	The Netherlands	Yes	TBD	TBD	N/A
Operational	Norway	Yes	TBD	TBD	N/A
Deployment	Bulgaria		TBD	TBD	N/A
Deployment	Latvia		TBD	TBD	N/A
Deployment	Lithuania		TBD	TBD	N/A
Onboarding	Croatia		TBD	TBD	N/A
Onboarding	Ireland		TBD	TBD	N/A
	Phases (Metrics)		Plan	Actual	
	Onboarding		7	0	
	Deployment		0	0	
	Operational		0	0	
	TBD		13	20	

Note: Data is based on a preliminary roadmap, pending Pillar II finalisation of the roadmap for each GDI Node which is forthcoming in D3.2. The roadmap has been updated based on information received as of M12.

4.2.2. GDI Node general progress indicator - Q3 results

The GDI Node general progress indicator view, provides us with a metric that looks at all the individual steps across all the phases of the GDI Node Operational Readiness and calculates an



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indicator of progress (%) based on how each individual question, regardless of its level, has been answered, assigning a score as follows:

- 1.0 if the step has been met,
- 0.5 if the step has been met partially or,
- 0.0 if not met or not reported



Table 3 GDI Node general progress indicator and comparison with previous quarter data

M12 - Q3							
	GDI Node Operational Readiness	Step Phase Type					
M12 Reporting Complete	Operational Phase (2026)	GDI Node / Step	Expected Phase	Current Phase	Progress indicator: (Yes =1, Partially =0.5)	Previous Quarter	Change since previous quarter
yes	Operational	Belgium	TBD	TBD	28%	25%	3%
yes	Operational	Czech Republic	Onboarding	TBD	18%	0%	18%
yes	Operational	Denmark	TBD	TBD	37%	13%	24%
yes	Operational	Estonia	TBD	TBD	13%	6%	7%
yes	Operational	Finland	Onboarding	TBD	38%	16%	22%
yes	Operational	France	Onboarding	TBD	21%	0%	21%
yes	Operational	Germany	TBD	TBD	22%	22%	0%
yes	Operational	Italy	Onboarding	TBD	21%	16%	5%
yes	Operational	Luxembourg	Onboarding	TBD	21%	18%	3%
yes	Operational	Portugal	TBD	TBD	37%	15%	22%
yes	Operational	Slovenia	TBD	TBD	16%	0%	16%
no	Operational	Spain	Onboarding	TBD	0%	0%	0%
yes	Operational	Sweden	Onboarding	TBD	44%	40%	4%
yes	Operational	The Netherlands	TBD	TBD	35%	25%	10%
yes	Operational	Norway	TBD	TBD	28%	24%	4%
yes	Deployment	Bulgaria	TBD	TBD	4%	0%	4%
yes	Deployment	Latvia	TBD	TBD	9%	7%	2%
yes	Deployment	Lithuania	TBD	TBD	10%	0%	10%
yes	Onboarding	Croatia	TBD	TBD	9%	0%	9%
yes	Onboarding	Ireland	TBD	TBD	3%	3%	0%
95%							9%

For a breakdown of progress within the Onboarding indicators, see Annexe I. Progress has been made from the last report (Mg) for all countries that have completed the reporting. This includes four countries (Denmark, Finland, France, and Portugal) that show a greater than 20% increase in overall



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advancement since the last report. And, well-aligned with the levels of technical expertise deployment seen in Table 1, several countries have noted that further advancements can be made once local experts have been hired.

4.2.3. GDI Node general progress indicator - Capacity building actions

At this point in the project, no Node has planned to achieve a stage beyond Onboarding, so support for advancement is focussed on these indicators. Looking at the information provided by the Nodes, clear actions emerge to build capacity both across Technical and non-technical requirements (see [Annexe II](#)). As done for each Node's total, a "yes" answer is considered 100% complete, a "no" is 0% and "partially" is 50%:

- Steps with 0-25% completion across all Nodes
 - **Compliance and stress tests drafted and refined in the context of 1+MG requirements**
 - **Action:** A workshop was completed during the Pillar II technical workshop in Rome October 9-11. [Results can be found here](#) and were shared with the Nodes to support future progress. We will continue monitoring progress on this indicator and use the planned WP3 meeting to reinforce the support to Nodes to complete this step.

- Steps with 26-40% completion across all Nodes
 - **Have developed a national genomic plan or similar that secures long-term funding that matches the target implementation level.**
 - **Action:** GDI Coordination to call a workshop to share experiences once new countries have joined, making use of task 1.6 National mirror groups support
 - **Have deployed and validated an instance or PoC or an upgraded version incorporating additional use cases**
 - **Action:** The detailed explanation of this indicator requires that the proof of concept has been implemented and tested. Most Nodes indicated that they have met most of the requirements, outside of the testing. This matches the fact that no Nodes have completed their drafting of compliance and stress tests as indicated above. Dissemination and implementation of the results of the Rome stress & compliance test workshop should help here, however, it won't have immediate effects as it requires technical development to take place in each Node. We will keep monitoring progress on this indicator and use planned Pillar II meetings of WP3 meetings to reinforce the support to Nodes to complete this step.

- Steps with 41-50% completion across all Nodes



- **API use cases considered, specifications drafted and implementation in progress**
 - **Action:** In general, the Nodes are in a state where they are drafting their use cases and what will be required to meet them, with some Nodes working on hiring someone to manage this. Planning a Q1 WP5 face to face meeting to understand the needs and expectations of the Nodes to meet their use cases.
- **Decision on services and components utilised**
 - **Action:** October workshop in Rome moved this forward. The planned Q1 F2F (mentioned above) should support this as well.
- **Security mitigation, management, and reporting system being drafted.**
 - **Action:** Will share best practices from Nodes that have completed this step, both as a document in a private repository and as a presentation in a forthcoming meeting.
- **Load of synthetic data, functionalities demonstrated in development environment**
 - **Action:** Many Nodes have partially completed this, loading the data into a test environment, but functionalities still need to be tested. This follows the above issues of needing to complete compliance testing and will be supported by the incorporation of the output from the Rome workshop.

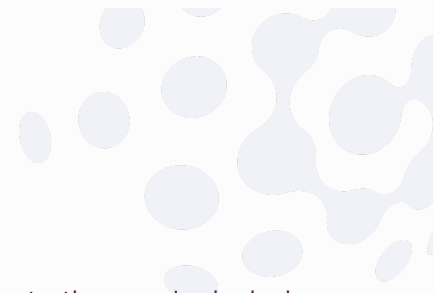
5. Results

- Use of resources shows a negative trend that needs to be monitored, if the trend is confirmed after the next review meeting the coordinator will make recommendations to the General Assembly after discussion with the Management Board.
- Within the Nodes that were expected to reach the Onboarding stage, the two most commonly incomplete indicators are the compliance and stress tests and the related indicator of a validated and deployed instance of the PoC. Recent outputs should support advancement in these identified gaps. However, it is not expected to have an immediate effect as it requires technical activities to take place in each node, so we will keep monitoring the indicator and reinforce the support during the planned Pillar II / WP3 meetings.
- Additional capacity-building actions have been identified.

6. Discussion

While some GDI Nodes have raised questions about the fact that a concrete phase can't be attained without fulfilling both technical and non-technical steps, we understand that this is a stage of the model that would prompt internal discussion within the GDI Nodes, not only at the technical level but at the strategic level too, which is crucial to ensuring the infrastructure can be deployed and operated in the long term.





7. Conclusions & Impact

Use or resources trend needs to be followed up and potential actions in addition to the one included in the preliminary analysis in section [4.1.1](#) could be identified to ensure resources are properly utilised to establish a sustainable infrastructure in case the trend is confirmed in the next two reports.

Identified technical capacity-building actions (section [4.2.3](#)) could be accommodated as part of the current plans for the annual Pillar 2 retreat while non-technical ones would be tackled in a separate workshop organised by the coordinator with the support of the team looking after the national mirror groups in WP1.

8. Next steps

The next gathering of information from Nodes will take place in February 2024



Annex I. GDI Node general progress indicator table - Onboarding Summary

M12 - Q3										
	GDI Node Operational Readiness	Step Phase Type								
M12 Reporting Complete	Operational Phase (2026)	GDI Node / Step	Expected Phase	Current Phase	Progress indicator: (Yes = 1, Partially = 0.5)	Previous Quarter	Change since previous quarter	Onboarding Overall Progress	Onboarding Tech Progress	Onboarding NonTech Progress
yes	Operational	Belgium	TBD	TBD	28%	25%	3%	68%	63%	83%
yes	Operational	Czech Republic	Onboarding	TBD	18%	0%	18%	50%	44%	67%
yes	Operational	Denmark	TBD	TBD	37%	13%	24%	77%	75%	83%
yes	Operational	Estonia	TBD	TBD	13%	6%	7%	41%	31%	67%
yes	Operational	Finland	Onboarding	TBD	38%	16%	22%	77%	75%	83%
yes	Operational	France	Onboarding	TBD	21%	0%	21%	64%	50%	100%
yes	Operational	Germany	TBD	TBD	22%	22%	0%	68%	63%	83%
yes	Operational	Italy	Onboarding	TBD	21%	16%	5%	64%	56%	83%
yes	Operational	Luxembourg	Onboarding	TBD	21%	18%	3%	64%	56%	83%
yes	Operational	Portugal	TBD	TBD	37%	15%	22%	86%	94%	67%
yes	Operational	Slovenia	TBD	TBD	16%	0%	16%	50%	44%	67%
no	Operational	Spain	Onboarding	TBD	0%	0%	0%	0%	0%	0%
yes	Operational	Sweden	Onboarding	TBD	44%	40%	4%	95%	94%	100%
yes	Operational	The Netherlands	TBD	TBD	35%	25%	10%	68%	75%	50%
yes	Operational	Norway	TBD	TBD	28%	24%	4%	73%	75%	67%
yes	Deployment	Bulgaria	TBD	TBD	4%	0%	4%	14%	6%	33%
yes	Deployment	Latvia	TBD	TBD	9%	7%	2%	27%	13%	67%
yes	Deployment	Lithuania	TBD	TBD	10%	0%	10%	32%	13%	83%
yes	Onboarding	Croatia	TBD	TBD	9%	0%	9%	27%	25%	33%
yes	Onboarding	Ireland	TBD	TBD	3%	3%	0%	9%	0%	33%
95%							9%	53%	48%	67%



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Annex II. GDI Node general progress indicator table - Onboarding

B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	
M12 - Q3																											
M12 Reporting Complete	Operational Phase (2026)	GDI Node / Step	Expected Phase	Current Phase	Onboarding Overall Progress	Step Phase Type																					
						1.1.1		1.1.2		1.1.3		1.1.4		1.2.1		1.2.2		1.3.1		1.4.1		1.5.1		1.6.1		1.7.1	
						Onboarding		Onboarding		Onboarding		Onboarding		Onboarding		Onboarding		Onboarding		Onboarding		Onboarding		Onboarding		Onboarding	
Technical		Non Technical		Non Technical		Non Technical		Non Technical		Technical		Technical		Technical		Technical		Technical		Technical		Technical		Technical			
						API use cases considered, specifications drafted and implementation in progress		Have started to build national capacity (ELSI, data quality, technical infrastructure functions) for the deployment of the 1+MG node and to support data flow.		Have developed the 1+MG NMG or equivalent structure to contribute to the 1+MG Initiative.		Have developed a national genomic plan or similar that secures long-term funding that matches the target implementation level.		Decision on services and components utilised		Software development best practises identified and implemented at the node		Security mitigation, management, and reporting system being drafted.		Compliance and stress tests drafted and refined in context of 1+MG requirements		Have deployed or made available the initial physical infrastructure for the evaluation of the current PoC, or an upgraded version incorporating additional use cases		Have deployed and validated an instance or PoC or an upgraded version incorporating additional use cases		Load of synthetic data, functionalities demonstrated in development environment	
yes	Operational	Belgium	TBD	TBD	68%	Partially	Yes	Yes	Partially	Partially	Partially	Yes	No	Yes	Partially	Yes											
yes	Operational	Czech Republic	Onboarding	TBD	50%	Partially	Yes	Yes	No	Partially	Yes	Partially	No	Partially	Partially	No											
yes	Operational	Denmark	TBD	TBD	77%	Yes	Yes	Yes	Partially	Partially	Yes	Yes	Partially	Yes	Partially	Partially											
yes	Operational	Estonia	TBD	TBD	41%	Partially	Yes	Yes	No	No	Yes	No	No	Partially	Partially	No											
yes	Operational	Finland	Onboarding	TBD	77%	Yes	Yes	Yes	Partially	Yes	Partially	Yes	No	Yes	Partially	Yes											
yes	Operational	France	Onboarding	TBD	64%	Partially	Yes	Yes	Yes	Partially	Yes	Partially	No	Yes	Partially	No											
yes	Operational	Germany	TBD	TBD	68%	Partially	Yes	Yes	Partially	Partially	Yes	Partially	No	Yes	Partially	Yes											
yes	Operational	Italy	Onboarding	TBD	64%	Partially	Yes	Yes	Partially	Yes	Partially	Partially	Partially	Partially	No	Partially											
yes	Operational	Luxembourg	Onboarding	TBD	64%	Partially	Yes	Yes	Partially	Partially	Partially	Partially	No	Yes	Partially	Yes											
yes	Operational	Portugal	TBD	TBD	86%	Yes	Yes	Yes	No	Yes	Yes	Yes	Partially	Yes	Yes	Yes											
yes	Operational	Slovenia	TBD	TBD	50%	Partially	Yes	Yes	No	Yes	Partially	No	No	Yes	No	Partially											
no	Operational	Spain	Onboarding	TBD	0%																						
yes	Operational	Sweden	Onboarding	TBD	95%	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partially	Yes	Yes	Yes											
yes	Operational	The Netherlands	TBD	TBD	68%	Partially	Yes	Partially	No	Partially	Yes	Yes	Partially	Yes	Partially	Yes											
yes	Operational	Norway	TBD	TBD	73%	Yes	Partially	Yes	Partially	Yes	Yes	Partially	No	Yes	Partially	Yes											
yes	Deployment	Bulgaria	TBD	TBD	14%	No	Partially	Partially	No	Partially	No	No	No	No	No	No											
yes	Deployment	Latvia	TBD	TBD	27%	Partially	Partially	Yes	Partially	Partially	No	No	No	No	No	No											
yes	Deployment	Lithuania	TBD	TBD	32%	Partially	Yes	Yes	Partially	Partially	No	No	No	No	No	No											
yes	Onboarding	Croatia	TBD	TBD	27%	Yes	No	Yes	No	No	No	No	No	No	Partially	Partially											
yes	Onboarding	Ireland	TBD	TBD	9%	No	Partially	Partially	No	No	No	No	No	No	No	No											
95%					Yes	53%	30%	70%	80%	10%	30%	50%	30%	0%	55%	10%	40%										
					No		15%	10%	5%	45%	20%	30%	40%	75%	30%	35%	40%										
					Partially		55%	20%	15%	45%	20%	30%	30%	25%	15%	55%	20%										
					Total		58%	80%	88%	33%	55%	60%	45%	13%	63%	38%	50%										



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Annex III. GDI Node general progress indicator table - Deployment

M12 - Q3					2.1.1	2.1.2	2.2.1	2.2.2	2.3.1	2.3.2	2.4.1	2.5.1	2.6.1	2.7.1	2.8.1	2.9.1
M12 Reporting Complete	GDI Node Operational Readiness		Step Phase Type		Deployment	Deployment	Deployment	Deployment	Deployment	Deployment	Deployment	Deployment	Deployment	Deployment	Deployment	Deployment
	Operational Phase (2026)	GDI Node / Step	Expected Phase	Current Phase	Non Technical	Non Technical	Technical	Non Technical	Non Technical	Technical	Technical	Technical	Technical	Technical	Technical	Technical
					Storage and network capacity needs achieved ad hoc by hosting institution	Common software development best practises employed	Minimal set of APIs for the five functionalities	Have built national capacity (ELSI, data quality, data standards, technical infrastructure functions) for the deployment of the 1+MG node	Network and storage meets reliability, robustness, performance, security, and capacity requirements	Deployment of 1+MG national node for connection to the staging environment with synthetic data loaded	Implementation & successful performance of compliance and stress tests of node in isolation	Have completed the initial data load of synthetic data and linking to staging version of 1+MG European Infrastructure	Deployment of 1+MG national node but it is not yet connected to the 1+MG Infrastructure	Communication established with user portal and 1+MG Infrastructure	Have finalised the initial deployment of national 1+MG production node enabling data access across borders in a staging environment	Production version ready to be deployed into production within the wider GDI
yes	Operational	Belgium	TBD	TBD	Partially	No	Partially	Partially	No	No	No	No	No	No	No	No
yes	Operational	Czech Republic	Onboarding	TBD	Partially											
yes	Operational	Denmark	TBD	TBD	Partially	Yes	No	Partially	Yes	No	No	No	No	No	No	No
yes	Operational	Estonia	TBD	TBD	No	No	No	No	No	No	No	No	No	No	No	No
yes	Operational	Finland	Onboarding	TBD	Yes	Yes	Yes	Partially	Partially		Partially	No	No	No	No	No
yes	Operational	France	Onboarding	TBD												
yes	Operational	Germany	TBD	TBD												
yes	Operational	Italy	Onboarding	TBD												
yes	Operational	Luxembourg	Onboarding	TBD	No	No	No	No	No	No	No	No	No	No	No	No
yes	Operational	Portugal	TBD	TBD	Yes	Partially	Partially	No	No	Yes	No	No	No	No	No	No
yes	Operational	Slovenia	TBD	TBD	No	No	No	No	No	No	No	No	No	No	No	No
no	Operational	Spain	Onboarding	TBD												
yes	Operational	Sweden	Onboarding	TBD	Yes	Yes	Partially	Partially	Yes	No	No	No	Partially	No	No	No
yes	Operational	The Netherlands	TBD	TBD	Yes	Yes	Partially	Partially	No	No	No	Partially	No	Yes	No	No
yes	Operational	Norway	TBD	TBD	No	Partially	Partially	No	No	No	No	No	Partially	No	No	No
yes	Deployment	Bulgaria	TBD	TBD												
yes	Deployment	Latvia	TBD	TBD	No	No	No	No	No	No	No	No	No	No	No	No
yes	Deployment	Lithuania	TBD	TBD	No	No	No	No	No	No	No	No	No	No	No	No
yes	Onboarding	Croatia	TBD	TBD												
yes	Onboarding	Ireland	TBD	TBD												
95%				Yes	20%	20%	5%	0%	10%	5%	0%	0%	0%	5%	0%	0%
				No	65%	70%	70%	75%	85%	95%	95%	95%	90%	95%	100%	100%
				Partial	15%	10%	25%	25%	5%	0%	5%	5%	10%	0%	0%	0%



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Annex IV. GDI Node general progress indicator table - Operational

M12 - Q3					3.1.1	3.2.1	3.3.1	3.4.1	3.5.1	3.6.1	3.7.1	3.8.1	3.9.1	3.?.?	3.?.?
M12 Reporting Complete	GDI Node Operational Readiness		Step Phase Type		Operational	Operational	Operational	Operational	Operational	Operational	Operational	Operational	Operational	Operational	Operational
	Operational Phase (2026)	GDI Node / Step	Expected Phase	Current Phase	Technical	Technical	Technical	Technical	Technical	Technical	Technical	Technical	Technical	Non Technical	Non Technical
					Periodic review of security of existing infrastructure to make sure it complies with current best practice	APIs assessed against users needs and feedback, updates scheduled	Periodic auditing and revision of network and storage capacity to ensure stakeholders needs are met	Compliance and stress tests regularly reviewed to ensure correspond to updated requirements and use cases	Deployment of national 1+MG Infrastructure node (production) enabling data access across borders when agreement allowing it are in place	Continuous support to Node interoperability, development, and security	Continuous 1+MG infrastructure developments to meet use cases needs	Evaluate and support technical solutions tested and and proposed by pillar III based on explicit use cases requirements	Node meets technical KPIs	Continuous Capacity building at European level	Continuous support to EU users via node helpdesk (ELS), data quality, data standards, technical Infrastructure functions)
yes	Operational	Belgium	TBD	TBD	No	No	Partially	No	No	No	No	No	No	No	No
yes	Operational	Czech Republic	Onboarding	TBD											
yes	Operational	Denmark	TBD	TBD	Yes	No	No	No	No	No	No	No	No	No	No
yes	Operational	Estonia	TBD	TBD	No	No	No	No	No	No	No	No	No	No	No
yes	Operational	Finland	Onboarding	TBD											
yes	Operational	France	Onboarding	TBD											
yes	Operational	Germany	TBD	TBD											
yes	Operational	Italy	Onboarding	TBD											
yes	Operational	Luxembourg	Onboarding	TBD	No	No	No	No	No	No	No	No	No	No	No
yes	Operational	Portugal	TBD	TBD	No	No	No	No	No	No	No	No	No	No	No
yes	Operational	Slovenia	TBD	TBD	No	No	No	No	No	No	No	No	No	No	No
no	Operational	Spain	Onboarding	TBD											
yes	Operational	Sweden	Onboarding	TBD											
yes	Operational	The Netherlands	TBD	TBD											
yes	Operational	Norway	TBD	TBD											
yes	Deployment	Bulgaria	TBD	TBD											
yes	Deployment	Latvia	TBD	TBD											
yes	Deployment	Lithuania	TBD	TBD	No	No	No	No	No	No	No	No	No	No	No
yes	Onboarding	Croatia	TBD	TBD											
yes	Onboarding	Ireland	TBD	TBD											
95%				Yes	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
				No	95%	100%	95%	100%	100%	100%	100%	100%	100%	100%	100%
				Partial	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%



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