



Evaluation Management Response

Evaluation title: [Evaluation of CGIAR Platform for Big Data in Agriculture](#), 2021

Date Management Response provided to Advisory Services Shared Secretariat: 4 February 2022

The overall response to the evaluation:

The Platform for Big Data team appreciates the collaborative ethos with which the evaluation team conducted this review. We view many of their findings as confirmation of central hypotheses of the Platform for Big Data: data standards and open science infrastructure, digital partnerships, technical communities of practice, and applied digital innovation can build powerful new capabilities for accelerating impact in agricultural research for development; CGIAR has a critical leadership role to play. The team agrees with the evaluators' recommendations, wholly or in principle.

The evaluators' recommendations encompass the new research portfolio and CGIAR as an organization. Two primary vehicles are proposed for follow-on actions: the new cross-cutting research Initiative "Harnessing digital technologies for timely decision-making across food, land, and water systems" (Digital Transformation Initiative, hereafter) and the CGIAR System (in particular, the Digital Services unit). The two vehicles are still coming fully into being as the new portfolio ramps up, and the Digital Services unit is fully constituted. Once fully operational, each of these vehicles is expected to complement the other. They will collectively help "make the digital revolution central to our way of working" as called for in the 2030 Research and Innovation Strategy. For example, we envision that the Digital Services unit will lead the design and development of e-infrastructure, analytics platforms, curating data and digital assets, and establishing data management standards. In contrast, the Digital Transformation Initiative will lead the design of research processes, identify demands from research Initiatives, co-develop digital innovation and data analytics use-cases within those Initiatives' Theories of Change, and iteratively provide feedback and contribute to the further development and provision of enabling digital services. Both will benefit from building internal solid business partnerships and collaborative design with CGIAR Entities and Research Initiatives.

The Platform team, the Digital Transformation Initiative, the Digital Services team, and the evaluators share the view that One CGIAR presents an opportunity to elevate digital strategy and governance in our organization and that the Platform for Big Data offerings and [strategic research on digital transformation in food, land, and water systems](#) provide a valuable point of departure. On behalf of the Executive Management Team, we offer the following consolidated comments and proposed actions.

Persons-in-charge for Follow-up to Management Response: Khuloud Odeh, Global Director for Digital Services; and Jawoo Koo, Initiative Design Team Lead, "Harnessing Digital Technologies for Timely Decision-making Across Food, Land, and Water Systems" (Digital Transformation Initiative).

RECOMMENDATIONS and ACTIONS:			
<p>Recommendation 1 (copied from the Evaluation Report):</p> <p>Prioritize specific digital solutions for specific data (domains) aligned with agricultural research needs to demonstrate the value of the answer that (big) data can provide to support CGIAR’s key priorities:</p> <p>1.1 Develop a harmonized framework for modeling with a focus on given geography to strengthen feedback loops between results of CGIAR field trials and the design of policy instruments (guidelines, standards, notifications, circulars, and directives) through support to appropriate authorities.</p> <p>1.2 Integrate e-infrastructure design and development efforts with efforts to demonstrate infrastructure usability.</p> <p>1.3 Design a learning program tasked with identifying verifiable metrics to evaluate a big data pilot intervention at a dedicated site, preferably embedded within a regional network of NARES partners.</p>			
Management Response	<i>Fully accepted</i> <input checked="" type="checkbox"/>	<i>Partially accepted</i> <input type="checkbox"/>	<i>Not accepted</i> <input type="checkbox"/>
Management Response (commentary):	<p>A majority of these recommendations build on Platform work to date.</p> <p>Linking digital solutions (and their attendant data) to specific research domains and supporting modeling across diverse disciplines (genetic resources, breeding informatics, large-scale agronomy/agroecology, foresight, and the socioeconomic and environmental contexts of agriculture) will be essential for building unified analytics capabilities and delivering the multidisciplinary research of the 2030 Research and Innovation Strategy. Achieving this will be a matter of setting and observing data standards, leveraging analytics, building community and capacity, building more integrated digital infrastructure for modeling and big data analytics, and establishing data and digital governance for our organization.</p>		
Brief explanatory statement if the recommendation is rejected or partially accepted: n/a			

Management Follow-up					
Actions to be implemented	Responsible ¹	Timeframe	Is additional funding required to implement the recommendation		If further funding required – how much and what is to be done if no funds available?
1.1 Leverage multiple models and data to support policymakers and an array of decision-makers, working across One CGIAR initiatives.	Digital Transformation Initiative	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
1.2 Co-design, test, and refine science infrastructure with initiatives, external partners, and Digital Services	Digital Services	2022-2030	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
1.3 Develop a big data pilot intervention co-designed with partners and an explicit learning agenda.	Digital Transformation Initiative	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

¹ Both “Digital Services” and “Digital Research Initiative” will be closely working together to implement all action areas. The identified party for each action area will take the lead, in coordination with the other.

Recommendation 2 (copied from the Evaluation Report):

Prioritize and advance the Interoperability agenda, building on CGIAR's wide variety of datasets:

2.1 Develop mechanisms (communication or else) to demonstrate interoperability benefits with data integration (i.e., relevant to CGIAR mandate use cases).

2.2 Develop easy-to-use knowledge management (KM) tools from a wide variety of datasets to meet interoperability requirements.

2.3 Allocate more resources to metadata standardization (without replicating models already available) with appropriate semantic annotations, metadata on data quality and meta quality (e.g., FAIR description and metrics), sharing metadata and data services within an interoperable manner. This should build on existing standards and ontologies developed by international bodies, e.g., the Open Geospatial Consortium (OGC) and World Wide Web Consortium (W3C).

2.4 Add the semantic ontological knowledge base (semantic engine) in addition to the semantic enrichment of metadata from harmonized vocabulary and ontological terms, i.e., providing semantic reasoning along the keyword searching discovery capacity. Concretely, developing common definitions and standards of variables, to the extent possible, and keeping them the same over time, where feasible, is critical. These definitions should incorporate best practices in Data Stewardship as outlined by Plotkin (2014) and be monitored and maintained over time.

2.5 Develop a well-thought-out and inclusive plan for designing visual analytics that is appropriate to CGIAR domains, and primarily at the basis of the geographical and temporal aspects (date and reference period) for the Platform but also in combination with semantic queries results. Engage users for feedback.

2.6 Develop the data analytics using the interoperable services provided and with an awareness of the knowledge structure.

2.7 Develop and implement a plan to empirically assess the Data and Meta-Data quality, completeness, usefulness, and shape of the data using analytical tools during upload and over time: quality of data and meta-data is critical for the adoption and use.

2.8 Conduct/commission a study on the role and integration of specific e-infrastructures, including existing CGIAR services (for example, CGSpace), becoming more known as the reference point to look for CGIAR publications metadata.

2.9 Strengthen the feedback loop: (i) develop and implement a plan to track outcomes of data and other digital artifacts developed or accessed through the Platform in terms of measurable impacts of the gathered data over time to the extent possible (ii) record end-user usage, results from data analytics methods, with feedback to the knowledge structuration, i.e., usage and results as dynamic metadata and 3rd type of the Open science aspects complementing publications and datasets, e.g., scripts, models, and software (models as statistical or machine learning but also biophysical models, crop

models) and, (iii) track systematically and continuously usage analytics to evaluate the impact in terms of usability for CGIAR researchers and outside for each new launch and facilities provided, then, to be able to incorporate feedback and lessons to refine these facilities accordingly. This monitoring is also useful for the Quality of Science (e.g., views and download metrics).

2.10 Consider several 'Vs' (Volume, Value, Variety, Velocity, and Veracity) of big data in adopting and/or developing measures that go beyond FAIR to help add value to data along the continuum from storage to analysis and reporting/publishing. Such an approach would facilitate the development of measures for each of the 'Vs' and improve monitoring over time.

Management Response	<i>Fully accepted</i> <input checked="" type="checkbox"/>		<i>Partially accepted</i> <input type="checkbox"/>		<i>Not accepted</i> <input type="checkbox"/>
Management Response (commentary):	A majority of these recommendations build on Platform work to date. Overall, they should be oriented by a process better to define the desired future state of our organization and implemented according to unifying digital governance in support of the organization's strategy. One CGIAR presents an opportunity to do this.				
Brief explanatory statement if recommendation is rejected or partially accepted: n/a					
Management Follow-up					
Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
2.1 Continue to develop analytic pipelines for common use-cases leveraging re-usable CGIAR data, and promote these through communications channels.	Digital Services	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

<p>2.2 Build on and support tools easing research data annotation and management to ensure CGIAR research data is Findable, Accessible, Interoperable, and Reusable (FAIR)</p>	<p>Digital Services</p>	<p>2022-2030</p>	<p>Yes <input type="checkbox"/></p>	<p>No <input checked="" type="checkbox"/></p>	
<p>2.3 Task a team with a clear mandate to oversee research data quality and implementation of data standards.</p>	<p>Digital Services</p>	<p>2022-2030</p>	<p>Yes <input checked="" type="checkbox"/></p>	<p>No <input type="checkbox"/></p>	<p>The commenters recommend hiring or reassigning two full-time data analysts supporting the Data Science lead, who can help Center data managers implement organizational data standards, review data quality, and support Center biostatistical units. If no funds are available, this mandate could conceivably be given to a voluntary data governance committee, but it would have less capability to oversee or support.</p>
<p>2.4 Task a team with a clear mandate to oversee research data quality and implementation of data standards.</p>	<p>Digital Services</p>	<p>2022-2030</p>	<p>Yes <input checked="" type="checkbox"/></p>	<p>No <input type="checkbox"/></p>	<p>The Platform recommends hiring or reassigning two full-time data analysts supporting the Data Science Lead, who can help Center data managers withimpleanizational data standards, review data quality, and support Center biostatistical units. If no funds are available, this mandate could conceivably be given to a voluntary data governance committee, but it</p>

					would have less capability to oversee or support.
2.5 Develop at least one visual analytics service supporting cross-cutting CGIAR research themes, and keepment one or more commonly used visualization tools for CGIAR research supporting semantic queries to accommodate visual analytics across the diversity of CGIAR research domains.	Digital Services	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
2.6 Develop data analytics services leveraging interoperable data in support of One CGIAR initiatives.	Digital Services	2022-2030	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
2.7 Develop and implement a plan to empirically assess the Data and Meta-Data quality.	Digital Services	2022	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	The Platform recommends hiring or engaging data analysts or biostatistical experts to assess and support research data quality.
2.8 Inventory CGIAR e-infrastructures for research and evaluate their fitness-for-purpose in light of	Digital Services	2022	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

<p>requirements of researchers, partners, and users and the desired future state of the organization. Use this information to rationalize e-infrastructure investments.</p>					
<p>2.9 Develop more integrated CGIAR e-research infrastructure to establish better feedback between research data and the impact of data use and re-use, including research data and publication repositories, performance management systems, and project management tools.</p>	Digital Services	2022-2024	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
<p>2.10 Develop measures that go beyond FAIR to help add value to data along the continuum from storage to analysis and reporting/publishing.</p>	Digital Services		Yes <input type="checkbox"/>	No <input type="checkbox"/>	

Recommendation 3 (copied from the Evaluation Report):					
Strengthen the conceptualization (Theory of Change; ToC) of how the impact of agricultural development can be increased by embracing big data and ICT approaches to solve development problems faster, better, and at a greater scale:					
3.1 Develop a ToC that articulates clearly how big data analytics can enable CGIAR research to lead to development outcomes.					
3.2 Ensure cross-cutting themes (gender and youth) are addressed more systematically and driven by a clear strategy with specific and adapted engagement mechanisms.					
3.3 Reach outside of CGIAR and/or other agri-food organizations including other sectors advanced in the digitalization process to explore what works in big data platforms/ digital transformation, etc.					
Management Response	<i>Fully accepted</i> <input checked="" type="checkbox"/>		<i>Partially accepted</i> <input type="checkbox"/>	<i>Not accepted</i> <input type="checkbox"/>	
Management Response (commentary):	The Platform-led strategic research on digital transformation in food, land, and water systems provides a valuable point of departure for two of these recommendations. The cross-cutting themes will be developed by the cross-cutting Digital Transformation research initiative and Digital Services.				
Brief explanatory statement if recommendation is rejected or partially accepted: n/a					
Management Follow-up					
Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
3.1 Implement and continue to refine the draft Theory of Change from the “Strategic Research” report.	Digital Transformation Initiative	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

3.2 Systematically and strategically address gender and youth inclusion and co-creation in data analytics and digital innovation efforts.	Digital Transformation Initiative	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
3.3 Build on extensive consultative research in the “Strategic Research” report to identify and incorporate relevant good practice from other organizations or sectors.	Digital Services	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

Recommendation 4 (copied from the Evaluation Report):

Raise CGIAR Entities’ engagement to ensure technology solutions uptake: this can be achieved by an inclusive governance system, leveraging existing tools and incentives:

4.1 Give more power to CGIAR Entities at the decision-making level for example all participating Entities can be represented and have a voice in the Platform steering committee.

4.2 Use incentives i.e., building in a Peer-Reviewed Journal for data and meta-data, encouraging scientists through internal performance management to include their data in publications, etc.

4.3 Clarify through effective communication the mandate (avoid overpromising) and mission of the Platform or similar future initiatives. Use with caution the word ‘Big Data’. The CGIAR system is characterized much more by the variety of its data rather than its size, yet its infrastructure and capability have the potential to grow into a platform that can collect and hold ‘big data’ in the perceived “classical” sense.

Management Response	<i>Fully accepted</i> <input type="checkbox"/>	<i>Partially accepted</i> <input checked="" type="checkbox"/>	<i>Not accepted</i> <input type="checkbox"/>
Management Response (commentary):	While we agree in principle, these specific recommendations appear to be more rooted in stakeholder perceptions of the Platform that may have been shared with the evaluators rather than in the particular actions of the Platform and what was learned from them. Specific actions suggested below build on this experience.		
<p>Brief explanatory statement if recommendation is rejected or partially accepted:</p> <p>We are agreed that responsive, inclusive governance is essential, as long as the size of boards and steering committees are kept to an effective and manageable number of representatives. This principle will be applied towards the forthcoming governance bodies supporting Digital Services units and sub-units.</p> <p>The Platform tested multiple incentives, including data sprints and participation in special journal editions, and found that elevating data sharing and standards to the level of policy and strategy—and then integrating this into detailed performance metrics—will be critical for success. The Digital Services will build on these efforts, taking a human-centered (design thinking) approach to the digital and data transformation to ensure that digital and data solutions delivered by the unit are identified, co-designed, and responds to all stakeholders and intended users - add value, solve a problem and provide a delightful user experience. This inclusive and engaging approach should lead to increased adoption.</p> <p>The Platform has always used and promoted a working definition of “big data” that emphasizes the potential power of available, interoperable data across domains, independent of the relative ‘bigness’ of the data. Several CGIAR research domains or methods (e.g., high throughput phenotyping, various types of geospatial analysis) do indeed move into “big data” territory. In the future, the big data approach will become an enabler to uncover new sources and untraditional data sources to develop new data sets to inform research and innovation, such as real/ semi real-time data, mobile network data, social, geospatial, and data from machine learning/ text/image analysis, web scraping, and more. The development of big data-enabled methods will be an essential complement to the portfolio.</p> <p>Specific actions reflecting this view are suggested below.</p>			

Management Follow-up					
Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
			Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
4.1 Develop inclusive, responsive, and functional digital governance for research.	Digital Services	2022	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
4.2 Mainstream research data sharing, standards, and good management practice in the organization, particularly through performance metrics.	Digital Services	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
4.3 Model good practice and communications regarding “big data” analytics	Digital Transformation Initiative	2022-2024, and renew for subsequent cycles of Initiatives	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

Recommendation 5 (copied from the Evaluation Report):

Build a new harmonized and interoperable analytical environment in CGIAR based on accumulated knowledge from the experience of the Platform’s implementation:

5.1 Develop a computing workflow for how data will be organized, transformed, and visualized to support the identification of a robust monitoring framework that would enable the contribution or attribution of policy changes to AR4D. Include stakeholders in the design from the beginning.

5.2 Consider the Platform’s implementation experience (lessons learned, successes, and failures) and the 2021 Strategic Research on Digital Transformation assessment to inform efforts to centralize research data management and stewardship under One CGIAR. One CGIAR can build on CoP-initiated discussions on constraints and potential ways forward.

Management Response	Fully accepted <input checked="" type="checkbox"/>	Partially accepted <input type="checkbox"/>	Not accepted <input type="checkbox"/>
Management Response (commentary):	<p>We agree with the recommendations.</p> <p>5.1: Multiple Initiatives have expressed their needs for a purpose-built computing workflow, and their visions largely align with the recommendation. Digital Service will provide technical support to design the application architecture, procure the subscription of commercial data, and deploy the workflow on a cloud-based infrastructure to support the Initiative’s AR4D impacts.</p> <p>5.2: Centralized research data management and stewardship will be a crucial element of One CGIAR as a globally trusted and respected research organization. Digital Services will coordinate with One CGIAR Research Delivery and Impact Division to ensure high-quality standards are applied to the AR4D activities that involve digital innovations (e.g., evaluation of digital tools to collect data, responsible data management, and ethical use of data and research tools). Continued support on the technical Communities of Practice will be instrumental to cultivating the culture of shared learning, organizational peer-review and quality control, and collaborative research.</p>		
Brief explanatory statement if recommendation is rejected or partially accepted: n/a			

Management Follow-up					
Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
5.1 Develop an analytic environment serving CGIAR researchers, and leverage tighter integration between research data and publication repositories, performance management systems, and project management tools to better understand the digital contributions to impact (capacity, policies, and innovations).	Digital Services	Iteratively, 2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
5.2 Integrate learning and recommendations from the 2021 Strategic Research into action planning and secure Board and Council approval for a One CGIAR digital strategy. Formalize linkages with internal Communities of Practice to ensure digital governance that	Digital Services	2022	Yes <input checked="" type="checkbox"/>	No	Digital Services will convene interlinked data governance groups: a research data governance body and an enterprise data and digital governance council. CGIAR depends on voluntary technical communities of practice to manage the breadth and depth of domain expertise guiding our organization. These groups have grown out of common interest and the need for technical collaboration. They were crucial groups

<p>encompasses the breadth and depth of CGIAR domain expertise.</p>					<p>informing the development of 2021 Strategic Research. They will continue to be an organizational asset for mainstreaming digital strategy, promoting innovation in research methods, and ensuring scientific rigor in the respective research areas. Some of these communities' costs would be covered for optimal functions, and their relationship with formal digital governance would be better defined.</p> <p>If no funding is available, they will continue, but ad hoc and subject to the vagaries of funding and other work demands.</p>
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Recommendation 6 (copied from the Evaluation Report):

Improve grant scheme management, monitoring, and governance to foster the Platform's (or successors') relevance to contribute to solving agriculture development challenges:

- 6.1 Allocate more resources to deal with the high number of received proposals; enhance/create stronger feedback mechanisms throughout the process to document achievements and lessons learned.
- 6.2 Strengthen the link between funded projects and CGIAR digital facilities. For example; use selected projects as use cases to test new CGIAR capabilities.
- 6.3 Strengthen trust and ownership among CGIAR Entities by creating tighter and more transparent governance structures around grants' selection.
- 6.4 Rebalance distribution of grants between CGIAR Entities while ensuring the relevance of innovations selected.

6.5 In line with CGIAR’s Gender and Diversity and Inclusion (GDI) strategy, ensure diversity in the decision-making body, for example through including youth in the grant selection committee.

6.6 Ensure collaboration with national innovation ecosystems to diversify applications and to harness the capacities of such innovation ecosystems for national-level advancement of big data for agriculture and AR4D.

6.7 Build a tailored monitoring and evaluation system to track results and for timely decisions.

Management Response	<i>Fully accepted</i> <input type="checkbox"/>	<i>Partially accepted</i> <input checked="" type="checkbox"/>	<i>Not accepted</i> <input type="checkbox"/>
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Management Response (commentary):	(See below, as we partially accept the recommendations)
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Brief explanatory statement if recommendation is rejected or partially accepted:

While we agree in principle—and also agree with the implication that grants for piloting digital innovations can be an essential enhancement to how CGIAR cultivates innovations—these specific recommendations appear to be more rooted in stakeholder perceptions of the Platform that may have been shared with the evaluators in light of the broader institutional context, rather than the specific actions of the Platform. Historically CGIAR has been a diffuse organization working to build trust and unified functioning across Entities (i.e., Centers and the System Organization). One common perception encountered by the Platforms and CGIAR Research Programs was that large Centres monopolized opportunities. The Platform team worked assiduously to overcome this perception, build trust and create equitable opportunities. Moving forward, the unified structures and functions of the One CGIAR will move us beyond the historical challenges of diffusion and competition among entities. They will provide the operating environment for a genuinely integrated and equitable approach to governing and managing resources for digital innovation.

For the specific purpose of sourcing, fostering, and scaling digital innovations, the platform’s finding (substantiated by current literature) is that it is not good practice to presuppose where good ideas will come from. Instead, a good practice is to invite all potential solutions to a problem and then engage an independent selection body with the right mix of domain expertise and diversity of view to decide on awards. Such a process prioritizes the quality and potential impact of the innovations themselves over any specific entity.

Digital Services aims to build on this experience, creating a unit specifically dedicated to supporting data and digital innovation in the portfolio, in close coordination and co-design with new research initiatives.

Specific actions suggested below build on this experience.

Management Follow-up					
Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
6.1 Allocate more resources to deal with the high number of received proposals; enhance/create more robust feedback mechanisms throughout the process to document achievements and lessons learned.	Digital Services	2022-2030	Yes	No <input checked="" type="checkbox"/>	The “large number of proposals” was generated in a grant process under the earlier portfolio. In the future, Digital Services aims to build on this experience, creating a unit specifically dedicated to supporting data and digital innovation in the portfolio, close coordination, and co-design with new research initiatives.
6.2 Strengthen the link between funded projects and CGIAR digital facilities. For example, use selected projects as use cases to test new CGIAR capabilities.	Digital Services	2022-2030	Yes	No <input checked="" type="checkbox"/>	Digital Services aims to build on this experience, creating a unit specifically dedicated to supporting data and digital innovation in the portfolio, close coordination and co-designing new research initiatives.
6.3 Model good practice for implementing processes designed to source, foster, and scale digital innovation—communicate	Digital Services	2022-2030	Yes	No <input checked="" type="checkbox"/>	Digital Services aims to build on this experience, creating a unit specifically dedicated to supporting data and digital innovation in the portfolio, close coordination and co-designing new research initiatives.

widely, often, and clearly to manage any misperception.					
6.4 Apply good practice and inclusive governance in selection, fostering, and scaling of digital innovations, and communicate widely, often, and clearly to manage any misperceptions.	Digital Services	2022-2030	Yes	No <input checked="" type="checkbox"/>	Digital Services aims to build on this experience, creating a unit specifically dedicated to supporting data and digital innovation in the portfolio, close coordination and co-designing new research initiatives.
6.5 Strengthen inclusive governance related to selection, fostering, and scaling of digital innovations, including youth in the grant selection committee.	Digital Services	2022-2030	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Digital Services aims to build on this experience, creating a unit specifically dedicated to supporting data and digital innovation in the portfolio, in close coordination and co-design with new research initiatives.
6.6 Co-design innovation challenges with stakeholders in national innovation ecosystems to diversify applications and to harness the capacities of such innovation ecosystems for national-level advancement of big data for agriculture and AR4D.	Digital Transformation Initiative	2022-2024	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

6.7 Build a tailored monitoring and evaluation system for digital innovation grants to track results and for timely decisions leveraging project data and performance management systems.	Digital Services	2022-2030	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
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Recommendation 7 (copied from the Evaluation Report):

Develop a One CGIAR (research) digital capability model and ensure the funding for a long-term digital plan with successive phases and a clear mandate building on the Strategic Research on Digital Transformation assessment:

7.1 Adopt a mission-driven digital innovation process under One CGIAR.

7.2 Develop integrated cross-cutting and cross-modal analytics capabilities. For this purpose, One CGIAR can build on CoP-initiated discussions on constraints and potential ways forward.

Management Response	<i>Fully accepted</i> <input checked="" type="checkbox"/>	<i>Partially accepted</i> <input type="checkbox"/>	<i>Not accepted</i> <input type="checkbox"/>
Management Response (commentary):	<p>Fully agreed, and we share some additional details:</p> <p>See the One CGIAR digital capability model developed as part of the referenced report that may serve as a valuable point of departure: (https://cgspace.cgiar.org/handle/10568/113555).</p> <p>The Platform team recommends building on the hard-won brand recognition of the Inspire Challenge, which we have always promoted widely as CGIAR’s signature digital innovation grant process. The evaluators found that the Inspire Challenge was widely respected and models how CGIAR can effectively bridge institutions for building responsible digital agriculture innovation ecosystems.</p> <p>The Platform team and One CGIAR task teams for Data and Transitional Digital Capabilities for Research have continued to build on recommendations for designing and implementing the</p>		

		unified analytics capabilities. One CGIAR will need to deliver the multidisciplinary research in the 2030 Research and Innovation Strategy.			
Brief explanatory statement if recommendation is rejected or partially accepted: n/a					
Management Follow-up					
Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
7.1 Adopt a mission-driven digital innovation process under One CGIAR.	Digital Services	2022-2030	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Scaling good practice across the organization would be accelerated by having a centrally managed digital innovation grant fund with a dedicated team to manage the process. Digital Services aims to create a unit specifically dedicated to supporting data and digital innovation in the portfolio, in close coordination and co-design with new research initiatives, exploring new funding and finance partnerships for sourcing, fostering, and scaling digital innovations.
7.2 Develop integrated cross-cutting and cross-modal analytics capabilities. For this purpose, leveraging CGIAR digital communities	Digital Services	2022-2030	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	This task will require a dedicated budget for Digital Services to develop (i.e., co-design, test, maintain) e-infrastructure for research Initiatives to build data analytics capabilities. Note

<p>of practice for design, fostering good practice, and scaling across the organization.</p>					<p>that the design of cross-cutting analytic infrastructure is not within the scope of these research Initiatives. Once operational, Initiatives will be invited to co-design and buy into shared services.</p> <p>CGIAR technical communities of practice (i.e., crop modeling, data-driven agronomy, geospatial data, socioeconomic data, ontology, and the information and data management) are voluntary groups grown out of common interest and need for technical collaboration. For their optimal function, some of the costs of running these communities and perhaps small amounts of the grant money will help accelerate the development and adoption of digital methods and more unified research analytics. Up to around \$100,000 per year per community has proven effective.</p> <p>If no funding is available, technical communities will continue as an ad-hoc and entirely voluntary basis, and Digital Services will need to convince initiatives to 'buy in' to its expertise and offerings before the value of these has been demonstrated with fewer incentives available to help spark research collaboration and co-design.</p>
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Recommendation 8 (copied from the Evaluation Report):

Lead the way in hosting open data and providing analytic tools for CGIAR and its partners as well as increasing data and funding (by showing its value):

8.1 Reach out and work with international bodies and invest in the development and adoption of standards. Commission a study to map and explore open APIs required for a variety of analytical tools to interface with the data.

Management Response	Fully accepted <input checked="" type="checkbox"/>	Partially accepted <input type="checkbox"/>	Not accepted <input type="checkbox"/>
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Management Response (commentary):	Fully agreed. Leading the way on open and FAIR data, ethical and responsible use of data and analytic methods (including machine learning), and growing the value of CGIAR data through re-use, and tracking the impact of doing so will require elevating this to a strategic and policy level, implementing and mainstreaming this approach with researchers, and investing in and building common e-infrastructures. Digital Services will drive digital strategy and scale across CGIAR and partner organizations. Digital Transformation Initiative will model good practice, develop use-cases, and share the learning.
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Brief explanatory statement if recommendation is rejected or partially accepted: n/a

Management Follow-up

Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
8.1 Reach out and work with international bodies and invest in developing and adopting standards. Commission a study to map	Digital Services	2022-2024, iterating and learning through	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

and explore open APIs required for a variety of analytical tools to interface with the data.		successive initiative cycles			
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<p>Recommendation 9 (copied from the Evaluation Report):</p> <p>Develop data synthesis tools that are amenable for use by decision-makers to support data co-curation.</p> <p>9.1 CGIAR should support blended learning preferably embedded with a regional network of NARES to build capacity to advance data interoperability and reuse based on use cases curated at dedicated sites. Lessons from the Agronomy and Ontologies CoP can be consolidated to support continuous learning through engagement with data and analytics.</p>			
Management Response	<i>Fully accepted</i> <input checked="" type="checkbox"/>	<i>Partially accepted</i> <input type="checkbox"/>	<i>Not accepted</i> <input type="checkbox"/>
Management Response (commentary):	<p>Fully agreed, and we suggest breaking this recommendation out into more distinct actions based on the Platform's experience. The continuity of the Agronomy and Ontologies CoPs, for example, is still uncertain.</p> <p>The recommendations regarding learning would benefit from some examples of cost-effective models for implementation. The Platform developed content and implemented several workshops directly and found that the costs and the diversity of needs made it challenging to create scalable models. Ultimately the most cost-effective and scalable approach to capacity building was found in a pilot "Data Science Academy" implemented via the online learning service Coursera, which features fully university-accredited courses across a vast array of subjects and competency levels.</p>		
<p>Brief explanatory statement if recommendation is rejected or partially accepted: n/a</p>			

Management Follow-up					
Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
9. Develop data synthesis tools that are amenable for use by decision-makers to support data co-curation.	Digital Services	2022-2030	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
9.1 Develop a big data pilot intervention, co-designed with partners and with an explicit learning agenda.	Digital Transformation Initiative	2022-2024 (iterating and learning through successive initiative cycles)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
9.1.1 Complement learning from specific pilots with remote learning offerings/certificated online courses.	Digital Services	2022-2030	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
9.1.2 Leverage CGIAR digital communities of practice for design, fostering good practice, and scaling across the organization.	Digital Services	2022-2030	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	CGIAR technical communities of practice are voluntary groups grown out of common interest and need for technical collaboration. For their optimal function, some of the costs of running these communities and perhaps small amounts of the grant money will help accelerate the

					<p>development and adoption of digital methods and more unified research analytics. Up to around \$100,000 per year (requiring a split between coordination and mini-grants) per community has proven effective.</p> <p>If no funding is available, these communities will continue on an entirely voluntary and ad-hoc basis.</p>
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<p>Recommendation 10 (copied from the Evaluation Report):</p> <p>CGIAR develops a data curation and transformation dashboard to enable CGIAR and partners to access tools and technical support to undertake data harvesting, data harmonization, and visualization.</p> <p>10.1 The impact of a data dashboard in monitoring data quality, generating anonymized datasets, and reporting on progress towards Sustainable Development Goal outcomes and the publishing of research results is likely to impact positively on the CGIAR Quality of Science (QoS).</p>			
<p>Management Response</p>	<p>Fully accepted <input checked="" type="checkbox"/></p>	<p>Partially accepted <input type="checkbox"/></p>	<p>Not accepted <input type="checkbox"/></p>
<p>Management Response (commentary):</p>	<p>Fully agreed, and we note that this effort will build on Platform investments as well as those of the System Organization’s Programs Unit and well-advanced design work conducted by the Platform and One CGIAR Task Teams for Data and Transitional Digital Capabilities for Research.</p> <p>Digital Services will lead the design and development processes, working closely with the Portfolio Performance Unit. At the same time, Digital Transformation Initiative will liaise with Research Initiatives to identify demands, develop use-cases, test with critical stakeholders, conduct impact assessment research, and provide feedback iteratively to continue improving the dashboard.</p>		

Brief explanatory statement if recommendation is rejected or partially accepted:					
Management Follow-up					
Actions to be implemented	Responsible	Timeframe	Is additional funding required to implement recommendation		If further funding required – how much and what is to be done if no funds available?
10.1 Implement a data dashboard for monitoring data quality, generating anonymized datasets, and reporting on progress towards Sustainable Development Goal outcomes and the publishing of research results in order to support CGIAR Quality of Science (QoS) and Quality of Research for Development (QoR4D).	Digital Services	2022-2030	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	