A DATA ACTION FRAMEWORK

DATA TO SUPPORT THE IMMUNISATION AGENDA 2030:

A GLOBAL STRATEGY TO LEAVE NO ONE BEHIND

CONTENT

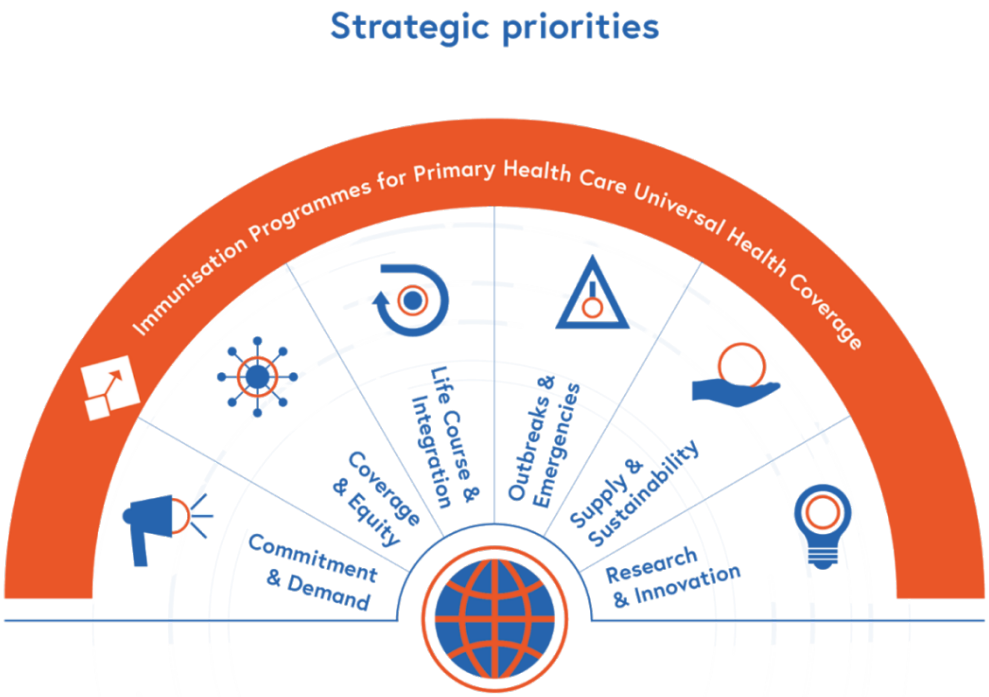
INTRODUCTION TO IA2030

Immunisation is the foundation of the primary health care system and an indisputable human right. It is also one of the best health investments money can buy. Yet despite tremendous progress, far too many people around the world—including nearly 20 million infants each year—have insufficient access to vaccines. In some countries, progress has stalled or even reversed, and there is a real risk that complacency will undermine past achievements. To address these challenges over the next decade, a new global vision and strategy, co-created by countries and development partners, has been endorsed by the World Health Assembly.

The Immunisation Agenda 2030 (IA2030) is structured according to the framework of vision and related impact goals in figure 1 below:

FIGURE 1. IA2030 Overarching Structure

Furthermore, the strategy includes seven specific strategic priorities (SP) that can be used to further categorise and delineate key activities needed to deliver on the broader impact goals:



Strategic Priority 1:
Immunisation Programmes for Primary Health Care/Universal Health Coverage

Goal: Effective, efficient and resilient immunization services are accessible to all people as an essential part of primary health care, and thereby contribute to universal health coverage.

Objectives:

- Reinforce and sustain strong leadership, management and coordination of immunization programmes at all levels.
- Ensure the availability of an adequate, effective, sustainable health workforce.
- Build and strengthen comprehensive vaccine-preventable disease surveillance as a component of the national public health surveillance system, supported by strong, reliable laboratory networks.
- Secure high-quality supply chains for vaccines and related commodities and effective vaccine management, within the primary health care supply system.
- Strengthen immunization information within a robust health information system, and promote use of high-quality, “fit-for-purpose” data for action at all levels.
- Establish and maintain a well-functioning vaccine safety system involving all stakeholders.

Strategic Priority 2:
Commitment & Demand

Goal: Immunization is valued and actively sought by all people, and health authorities commit to ensuring that immunization is available as a key contributor to enjoyment of the highest attainable standard of health as a fundamental right.

Objectives:

- Build and sustain strong political and financial commitment for immunization at all levels.
- Ensure that all people and communities value, actively support and seek out immunization services.

Strategic Priority 3:
Coverage & Equity

Goal: Everyone is protected by full immunization, regardless of location, age, socioeconomic status or gender-related barriers.

Objectives:

- Extend immunization services to regularly reach “zero dose” and underimmunized children and communities.
- Advance and sustain high and equitable immunization coverage nationally and in all districts

Strategic Priority 4:
Lifecourse & Integration

Goal: All people benefit from recommended immunizations throughout the life-course, effectively integrated with other essential health services

Objectives:

- Strengthen immunization policies and service delivery throughout the life-course, including for appropriate catch-up vaccinations and booster doses.
- Establish integrated delivery points of contact between immunization and other public health interventions for different target age groups.

Strategic Priority 5:
Outbreaks & Emergencies

Goal: Immunization programmes can (1) anticipate, prepare for, detect and rapidly respond to of vaccine-preventable and emerging disease outbreaks, and (2) ensure immunization service delivery during acute emergencies and among communities affected by conflict, disaster and humanitarian crisis.

Objectives:

- Ensure preparation for, detection of and rapid, high-quality response to vaccine preventable disease outbreaks.
- Establish timely and appropriate immunization services during emergencies, and in communities affected by conflict, disaster and humanitarian crisis.

Strategic Priority 6:
Supply & Sustainability

Goal: All countries have a reliable supply of appropriate and affordable vaccines of assured quality, and sustainable financing for immunization programmes

Objectives:

- Build and maintain healthy global markets across all vaccine antigens.
- Ensure sufficient financial resources for immunization programmes in all countries.
- Increase immunization expenditure from domestic resources in aid-dependent countries, and when transitioning away from aid, secure government funding to achieve and sustain high coverage for all vaccines.

Strategic Priority 7:
Research & Innovation

Goal: Innovations to increase the reach and impact of immunization programmes are rapidly made available to all countries and communities.

Objectives:

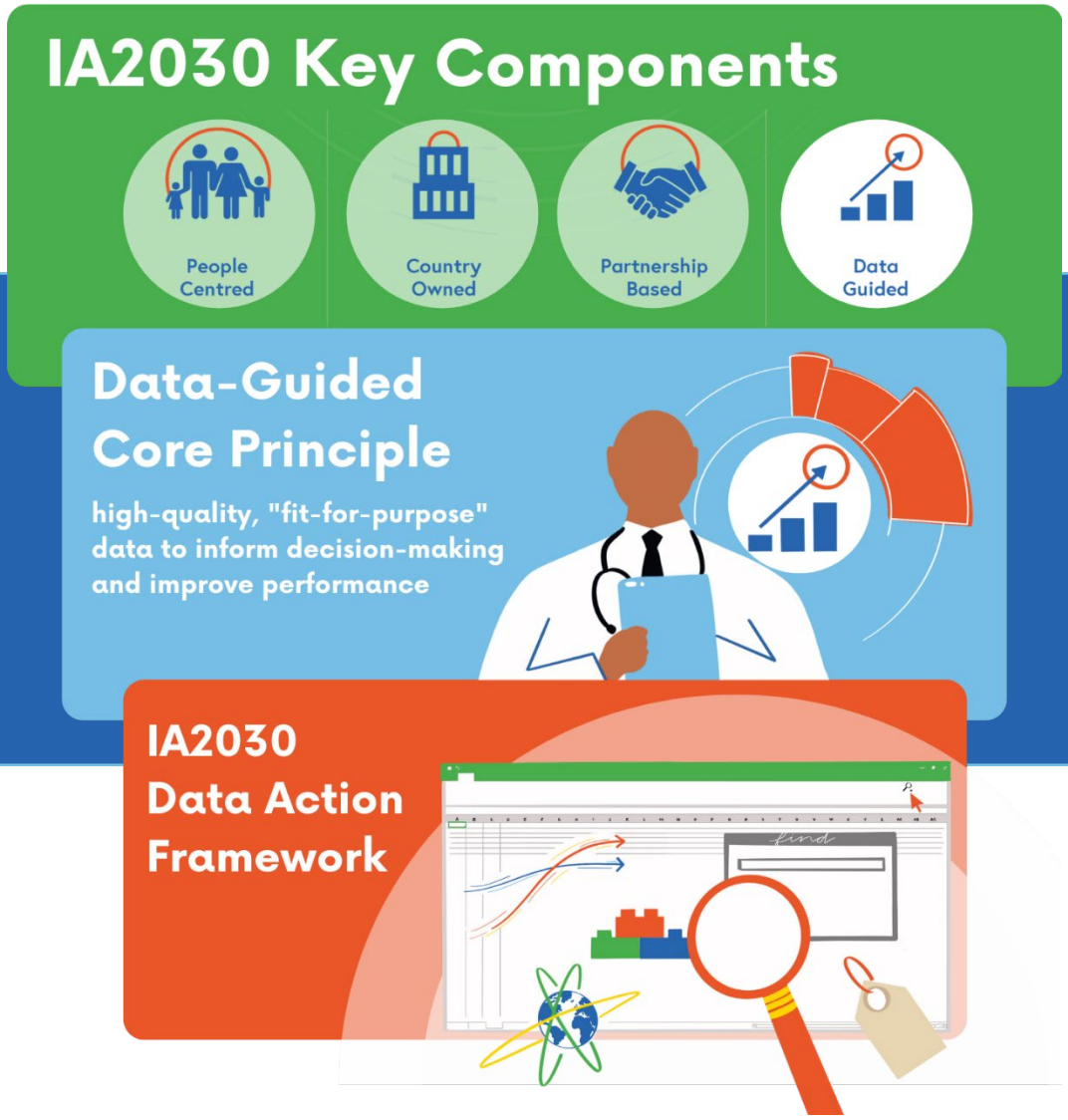
- Establish and strengthen capacity at all levels to identify priorities for innovation, and to create and manage innovation.
- Develop new vaccines and technologies, and improve existing products and services for immunization programmes.
- Evaluate promising innovations and scale up innovations, as appropriate, on the basis of the best available evidence.

While the IA2030 provides a strong high-level strategic approach for the entire immunisation ecosystem, further detail is needed to align global-level prioritisation of resources, allow for more targeted regional direction, and enable countries to have more specificity on what needs to be implemented at the national and subnational levels.

THE IMPORTANCE OF DATA TO IA2030: DATA-GUIDED CORE PRINCIPLE

The IA2030 is underpinned by four key elements: It puts people at the centre, is led by countries, is implemented through broad partnerships, and is data enabled and guided. The IA2030 strategy systematically applies these elements across each of the SPs.

FIGURE 2. Data-Guided Core Principle Overview



IA2030 states that data that is high quality, or "fit-for-purpose," will be used to track progress, improve immunisation programme performance, and form the basis of decision-making at all levels.

This data-guided approach will be applied across all IA2030 SPs, all vaccines throughout the life course, and all immunisation programme domains. This includes not only traditionally data-focused areas—monitoring of vaccination coverage and disease surveillance—but also other areas where data utilisation is evolving, such as immunisation financing, human resource management, and demand generation.

The Global Vaccine Action Plan (GVAP) 2011–2020 established the first global monitoring and evaluation framework for immunisation, and raised awareness of the need for quality data. However, a review of GVAP concluded that data were not sufficiently tied to the actions of programmes or other stakeholders.[1] Drawing lessons from GVAP and the work of the Strategic Advisory Group of Experts (SAGE) Working Group on the Quality and Use of Global Immunization and Surveillance Data,IA2030 has included the Data-Guided Core Principle to encourage a greater focus on using data to inform actions and decision-making based on evidence. The Data Action Framework outlined below provides a road map for the immunisation ecosystem to synchronise around prioritised actions necessary to maximise the use of data to meet immunisation goals.

The Data-Guided Core Principle underpins use of data for immunisation programme planning and management at all levels from the community to global level, as well as for IA2030 monitoring and evaluation. The principle is intended to:

- **stimulate a continuous quality improvement process,** i.e., tracking of progress, assessing root causes of success and failure, informing evidence-based decision-making, and empowering actions to continuously improve immunisation programme performance); and
- **measure progress and drive actions** to achieve IA2030 objectives and goals.

As a core principle, data are required to not only monitor progress towards the goals of the IA2030, they also are a critical component in the design, deployment, and monitoring of immunisation programmes that will achieve impact at every level: global, regional, national, and subnational. To enhance country ownership, which is vital to the success of the IA2030, strategies will need to be tailored to respond to the country variation in population, geographic size, resources, and the conditions in which people live, with consideration of subnational differences. In IA2030, more flexibility may be required to account for changing circumstances in order to respond effectively to emerging challenges. IA2030 data-guided work clarifies roles and responsibilities so that the agenda can be implemented nationally, regionally, and globally, and it improves the use of data to prompt action to ensure accountability

https://www.who.int/immunization/global_vaccine_action_plan/GVAP_review_lessons_learned/en/

The Data-Guided Core Principle needs to be embedded in all aspects of immunisation programme work. This requires significant shifts in the emphasis of:

- **data use,** in addition to data quality, as an indispensable prerequisite for designing or implementing any information system at all levels of immunisation programmes;
- a **"whole-system approach"** that goes beyond the implementation of tools and technological solutions to include people, governance, and processes;
- innovative **workforce development** strategies that improve data-use capacity throughout a programme;
- alignment of information systems and **digital innovations** with local context and programme needs, and scale-up based on the readiness and priorities of each country, including health management information system (HMIS), electronic immunisation registry (EIR), logistics management information system (LMIS), geographical information system (GIS), adverse event following immunisation (AEFI) surveillance, and civil registration and vital statistics system (CRVS);
- use of all existing data for programme planning and decision-making, i.e., **data triangulation;**
- more use of **predictive analytics**, in addition to retrospective analysis, to anticipate immunity gaps, maintain vaccine supply, predict **comprehensive vaccine-preventable disease** (VPD) outbreaks, and ensure strong demand for immunisation services; and
- moving to **VPD surveillance systems**, supported by strong laboratories and information systems.

DATA STRATEGY WORKING GROUP

In order to support a coordinated, strategic approach to identifying data-related priorities in support of IA2030 and to deliver on the emphasis of the Data-Guided Core Principle, a set of immunisation and data partners came together to form the Data Strategy Working Group. The mandate of the IA2030 Data Strategy Working Group was to develop a multiyear Data Action Framework to support immunisation programmes, partners, and stakeholders through actionable recommendations to achieve the goals of the IA2030 and the Data-Guided Core Principle.

The Data Strategy Working Group leveraged existing work done by the Strategic Advisory Group of Experts (SAGE) Working Group on the Quality and Use of Immunization and Surveillance Data and others to develop a Data Action Framework, which includes an actionable set of priorities for data, and to establish global goals and recommendations for the next ten years. The purpose of these data-related recommendations is to:

- help enable the data-guided delivery of the IA2030 strategy;
- reduce time spent on annual planning cycles and streamline yearly discussions for data-related strategic investments; and
- support the development of an ecosystem-wide data work plan with prioritisation and timing aligned with funding cycles to support countries in adopting and implementing the data-related recommendations.

The Data Action Framework has been developed in line with five key principles:

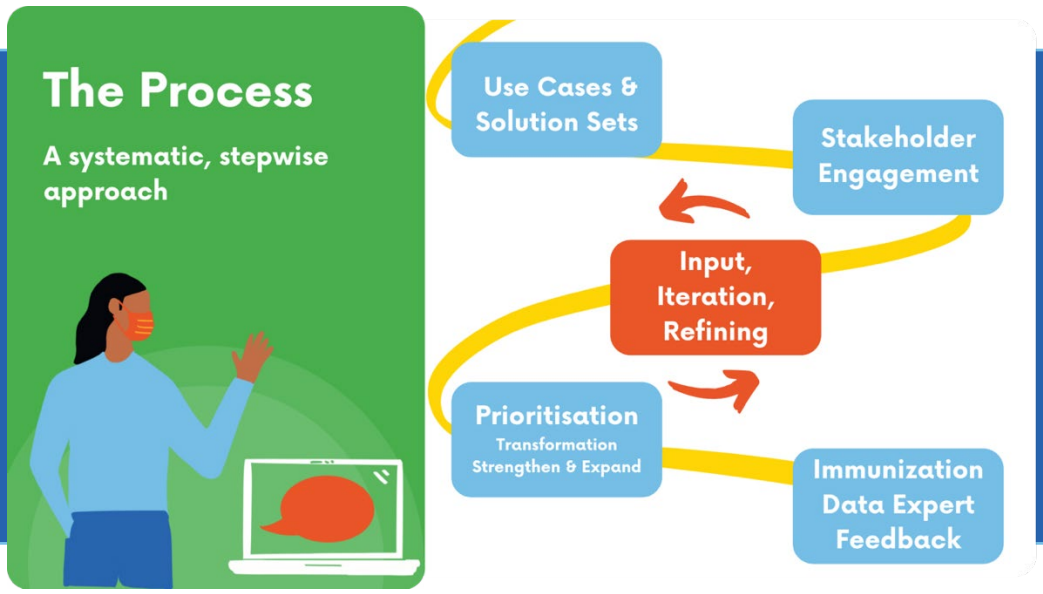
- Prioritise data as a tool for improving immunisation programme performance, not data for data's sake.
- Be specific and actionable, not just theoretical. Include ways to identify current work, future work, and potential funding opportunities, and integrate related documents and publications.
- Ensure relevance at all levels, including subnational, national, regional, and global.
- Be inclusive of country level and regional perspectives throughout the process.
- Strive for forward thinking about how this work should be approached so as to anticipate and respond to future trends.

The Data Action Framework is intended for use by the following stakeholders for the purposes of planning, resource allocation, alignment, and implementation:

- government immunisation programme planners and implementers (e.g., subnational Expanded Programme for Immunisation (EPI) managers)
- donors and funders (e.g., Gavi Alliance, Bill and Melinda Gates Foundation (BMGF), Centers for Disease Control and Prevention (CDC))

- global technical partners (e.g., World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), US CDC, international nongovernmental organisations (INGOs))
- regional technical partners (regional officers of above organisations) and regional-specific entities (e.g., Africa CDC)
- country technical partners (country officers of above organisations), commmunity service organizations (CSOs, and research institutes)
- country-level nonhealth decision-makers (e.g., national statistics office, finance and planning, interior ministry)
- broader primary health care primary health care (PHC) stakeholders (e.g., ministries of health (MOHs) outside of immunisation)
- senior MOH officials (EPI and VPD surveillance)

FIGURE 3. Data Strategy Working Group Process Overview



The Data Strategy Working Group took a systematic, stepwise approach to generate the content of the Data Action Framework, which included regular and integrated stakeholder engagement. The primary steps of this approach were as follows:

1. Use of the IA2030 Strategic Priorities and Strategic Objectives as a foundational starting point.
2. Identification of data-specific "use cases" for each of the strategic priorities and their respective strategic objectives for actors at three levels: global, national, and subnational. Use cases were defined by completing the statement: "If (actor) had access to fit-for-purpose (type of data), they would be able to (behavior or decision- making)." While we did not have regional-level participation in this process, it was intended and noted throughout where regions would engage, including aligning actions with regional plans and ensuring regional participation on any ongoing work group.
3. The work group then identified a set of existing "bottlenecks" for each of the use cases. Bottlenecks were defined as challenges within the enabling environment of the data-use

cycle in which data is produced, collected, made available, accessed, synthesised, analysed, and applied, as well as direct determinants that actually "touch" data points themselves, along with their production, collection, availability, and use.

4. The group next developed a "solution set" responsive to addressing each bottleneck and designed to deliver on the use cases previously identified. This resulted in a master set of "data actions" to be implemented at the global, national, and subnational levels.
5. Stakeholder engagement was a critical feature of this process, and through sessions held with the BID (Better Immunization Data) Learning Network and eScholars Network, input was deliberately solicited and incorporated into content generation.
6. Based on feedback from the Working Group, the data actions were then mapped to the building blocks identified in a Theory of Change (see more information below): assessment and improvement planning, governance, people, tools, and evidence. The result was a set of organised, streamlined actions that could be taken to allow data to enable relevant parties to achieve the goals of the IA2030.
7. Given the substantial set of content generated in the process, the Data Strategy Working Group engaged in a prioritisation exercise to ensure that a more discrete set of "future forward" actions could be defined. Content was segmented into two categories: "transformational," and "strengthen and expand." These actions were then prioritised by the full group according to those the group felt were transformational and those the group felt needed to be strengthened and expanded.
8. This set of transformational actions at the global level was vetted in a series of stakeholder workshops with national- and subnational-level immunisation data experts via the BID Learning Network and the eScholars Network. These experts provided input on the global-level actions and assisted with identifying and aligning the national- and subnational-level actions.
9. The final focus was on these transformational actions and making sure they truly captured full stakeholder input—as well as using them as the basis for developing a Global Learning and Planning Accountability Framework (GLPF)—that will guide global partners in their implementation over the IA2030 period.

THEORY OF CHANGE & THEORY OF ACTION

The Data Action Framework leverages a theory of change from the report entitled A Global Framework to Strengthen Immunization and Surveillance Data for Decision-Making (2018). The report has been widely used and adapted by the immunisation community (including SAGE) to categorise and further validate key activities designed to improve the availability of high-quality, fit-for-purpose data and the use of data for decision-making to manage and continuously improve immunisation programme efficiency and outcomes. In this Theory of Change, there are five primary building blocks from which activities should be planned to make data more available and fit-for-purpose, which will result in better immunisation programme outcomes. They are:

1. **Assessment and improvement planning**: Establish a continuous cycle of assessment and improvement of immunisation, surveillance data, and systems and processes for continuous quality improvement.
2. **Governance:** Establish clearly defined policies, processes, and responsibilities for the collection and use of data, and the design of information systems. Within the area of governance, there are several fundamental factors that enable collection of high-quality data, as well as access and use:
    a. leadership and political will to establish processes for reporting and data-quality improvement;
    b. accountability for clearly defined terms of reference and deliverables, and mechanisms for monitoring;
    c. standards and user-friendly guidance for tools and processes, including feedback;
    d. coordination structures or mechanisms to facilitate efficient communication and work across units;
    e. sharing access of data and information with those who need it for planning and decision-making; and
    f. resources allocated to support all aspects of data collection/management.

3. **People:** Empower health personnel to use immunisation and surveillance data for better decision-making. This includes data skills and capacity building.
4. **Tools:** Invest in user-centred and sustainable tools and information systems. This includes digital data systems, such as HMIS, EIR, LMIS, and GIS.
5. **Evidence:** Document, evaluate, and share knowledge on ways to improve immunisation and surveillance data and their use.

The Theory of Change building blocks should not be considered independent, but as complimentary enablers that serve as building blocks on which to structure the key actions within the Data Action Framework. Additionally, they serve as the basis on which to build a Theory of Action in order to model delivery and operationalisation of the Data Action Framework. The Theory of Action is intended to be flexible and adaptable, given the evolving nature of the immunisation ecosystem over the IA2030 period.

FIGURE 4. Data Theory of Change

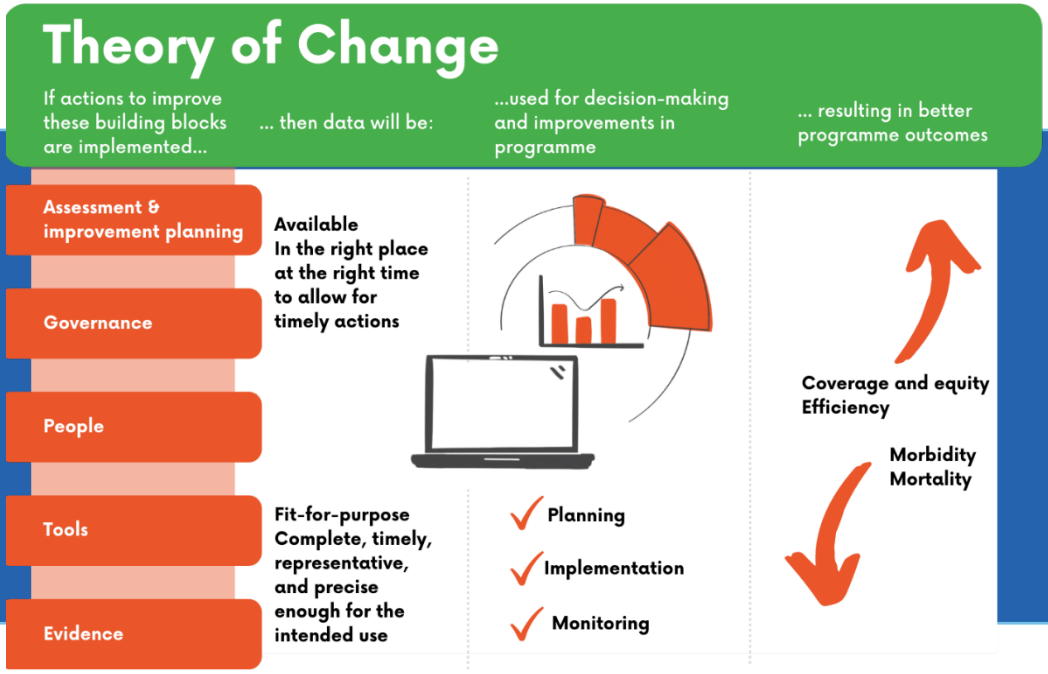
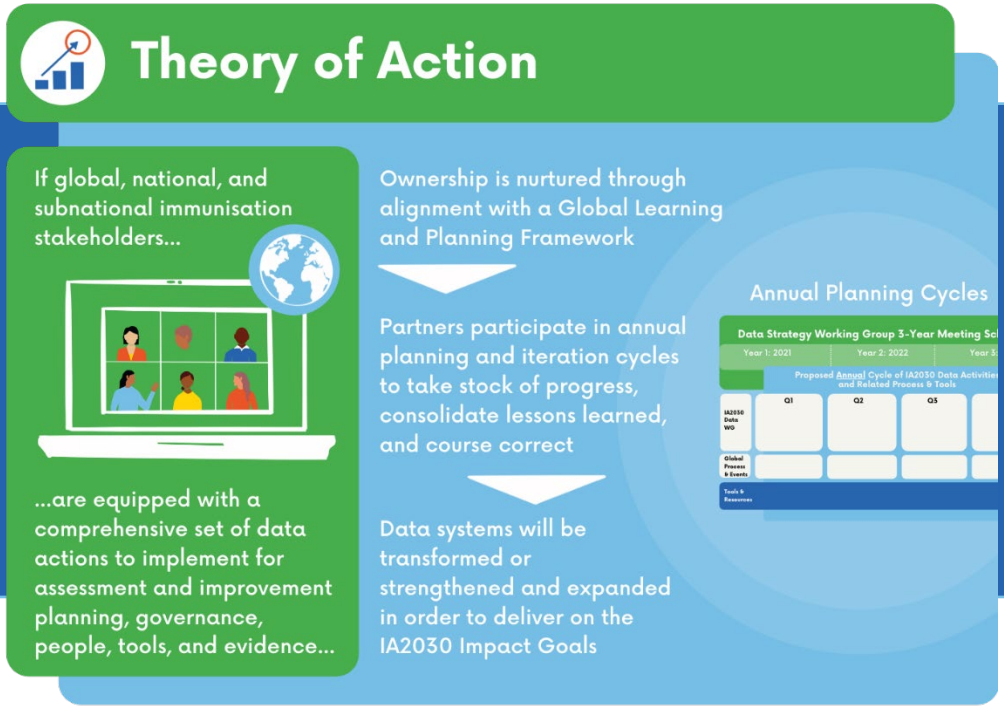


FIGURE 5. Data Theory of Action



IA2030 DATA ACTION FRAMEWORK

The result of the aforementioned processes, a Data Action Framework, is a broad set of data actions that can be implemented by partners at the global, national, and subnational levels. The Framework itself includes a number of organising principles and categories so users can analyse and distill the content to serve different immunisation purposes. The following graphic (figure 6) and table (table 1) depict the metadata terms available for the full Data Action Framework database.

FIGURE 6. Data Action Framework

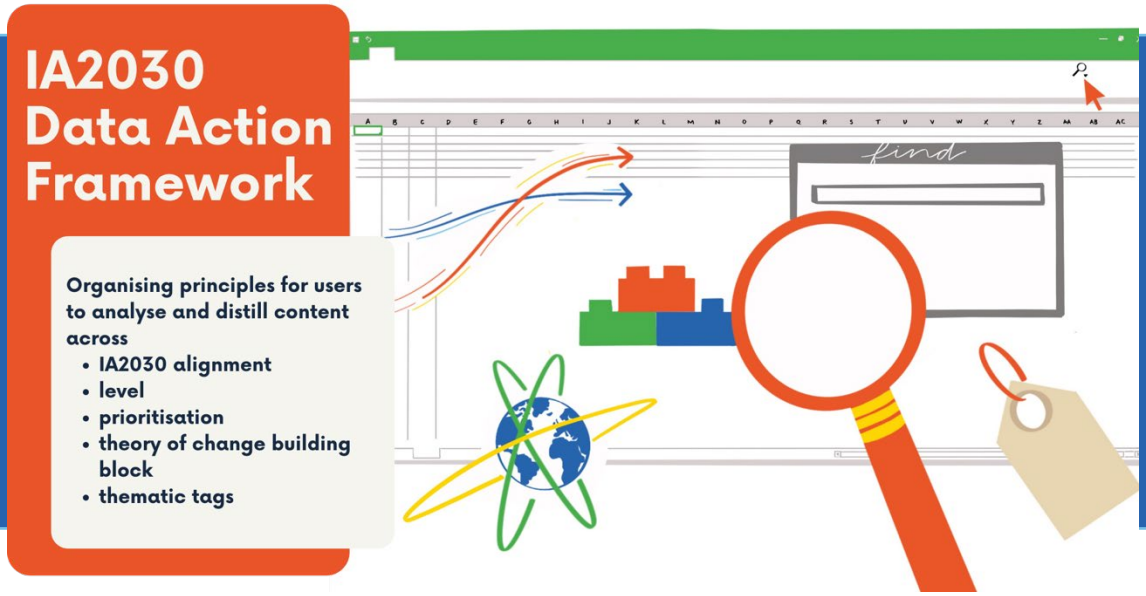


TABLE 1. Data Action Framework Metadata Tags

IA2030 ALIGNMENT	STRATEGIC OBJECTIVES	STRATEGIC PRIORITIES	
PRIORITISATION	TRANSFORMATIONAL	STRENGTHEN & EXPAND	
LEVEL	GLOBAL	NATIONAL	SUBNATIONAL
THEORY OF CHANGE BUILDING BLOCK	ASSESSMENT & IMPROVEMENT	PLANNING	GOVERNANCE
	PEOPLE	TOOLS	EVIDENCE
THEMATIC TAGS	ACCOUNTABILITY	COORDINATION	DATA CULTURE
	DATA SHARING	DATA VISUALISATION	DEMAND
	DISSEMINATION	EQUITY	EVALUATION
	EVIDENCE	FINANCIAL	PLANNING
	GUIDANCE	INTEGRATION	INTEROPERABILITY
	LEADERSHIP	LIFE COURSE	POLICY
	OUTBREAKS & EMERGENCIES	PRIVACY	REAL-TIME DATA
	SKILLS	STOCK & SUPPLY	TARGET POPULATION
	TECHNOLOGY	TRAINING	TRIANGULATION
	ZERO DOSE		

The broader IA2030 structure evolved in response to the COVID-19 pandemic. There was increased focus on: immunisation as a global priority; collective action to rebuild essential services and systems, while reducing the number of "zero-dose" children and communities; and life course approach and guidance. As the IA2030 structure evolved, the Data Action Framework followed suit.

As noted previously, IA2030 provides a framework containing seven SP areas. Data are required to help measure progress towards all of the SPs, yet each SP has its own relationship to the application and use of data. The following is an overview of the ways in which the Data Strategy Working Group focused on data across the SPs:

1. **Immunisation Programmes for Primary Health Care/Universal Health Coverage:** As an overarching Strategic Priority, data-related actions focus on sustainable data systems and ways to connect systems across health domains, and on information sharing for decision-making.
2. **Commitment & Demand:** This Strategic Priority focuses on building the political will and financial commitments for immunisations, as well as ensuring that people and communities value and seek out immunisations. The data actions to support this SP focus on collecting and using data relevant to tailor immunisation programmes to the local context; understand and address vaccine hesitancy; and support communication technologies designed to increase demand.
3. **Coverage & Equity:** Focused on reaching zero-dose and underimmunised communities, data actions support this Strategic Priority by streamlining and improving the ways in which vaccine coverage data are collected, reported, and used, and how coverage and

equity is monitored and addressed. Immunisation data systems will be expanded subnationally to map and track zero-dose and underimmunised populations and specific marginalised groups to ensure that they are covered by the immunisation programme.

4. **Life Course & Integration:** This Strategic Priority focuses on strengthening immunisation policies and service delivery across all age groups. Data supports this SP to more effectively identify target populations, accurately monitor the coverage of multidose vaccines across the life course, and connect data systems across a variety of routine health service delivery platforms.
5. **Outbreaks & Emergencies:** Focused on ensuring detection of and rapid response to VPD outbreaks, as well as immunisation programme monitoring during times of crises, the data focus for this SP includes actions related to accurate tracking of immunisation of displaced people and migrants and target setting for these groups.
6. **Supply & Sustainability:** Data actions focus on aspects of the vaccine marketplace, including financial resources and immunisation expenditures in aid-dependent countries. This SP also includes data for vaccine forecasting, upgrading data systems to better allocate resources within national immunisation programmes, monitoring the use of resources, and forecasting vaccine, demand, supply, and pricing.
7. **Research & Innovation:** Data-related aspects of this Strategic Priority focus on evidence of unmet data needs or monitoring processes to improve decision-making, and collecting, sharing and using data on the effectiveness and value of innovations to inform development, execution and scale-up, as well as supporting country programs to establish and strengthen capacity at all levels to identify priorities for innovation, and to create and manage innovation.

DATA FIT FOR THE FUTURE: CATEGORIES FOR DATA ACTIONS

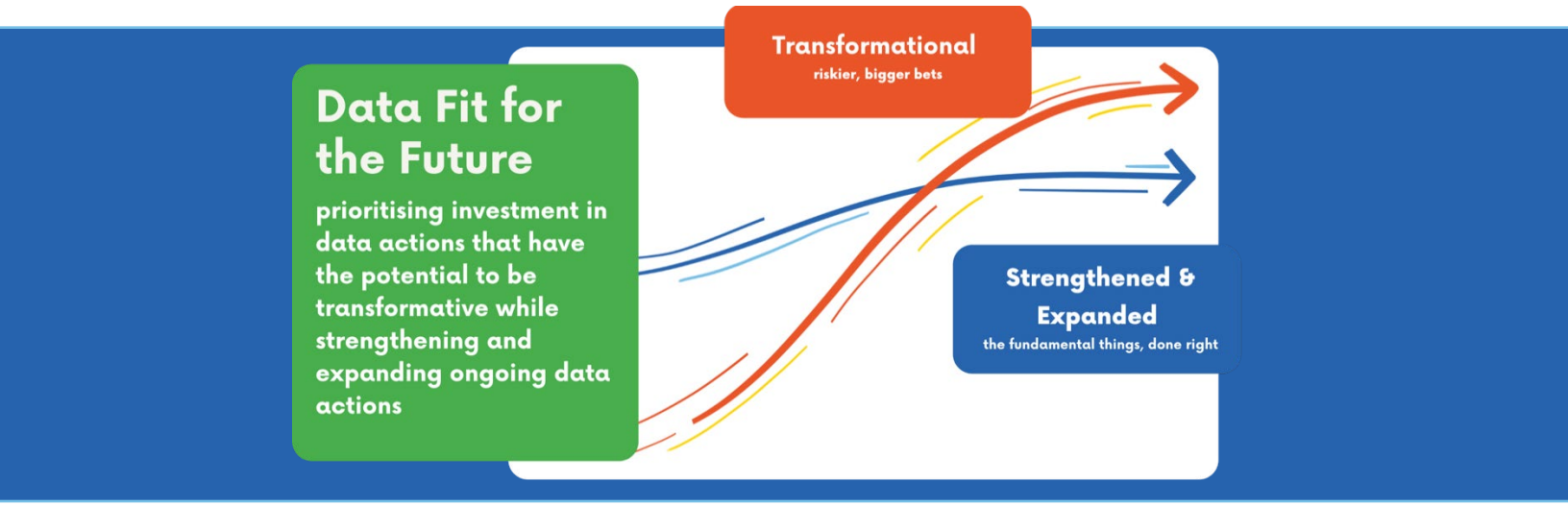
The Data Action Framework creates two major categories of actions for consideration:

Transformational: Those data actions that are future forward and, if invested in by partners, have the potential for significant and novel impact in the use of data for immunisation goals, particularly for life course and zero-dose objectives.

Strengthened and Expanded: These data actions are, by and large, currently underway with proven success, and with continued focus and resources can be further enhanced and eventually scaled.

The actions represent range from those actionable in the immediate near term and those that require a more long term approach. Key to implementing the Data Action Framework will be partner prioritization of these activities across the IA2030 period. Taken together, these categories and related actions create a future framework for data to deliver on the impact goals of IA2030.

FIGURE 7. Future Forward Data Model



A. Transformational Actions

Given the ten-year time horizon of the IA2030 Agenda, it is critical that related implementation plans anticipate the future and prepare for it. As data is a rapidly evolving field, **future thinking** is particularly critical with data-related actions to support the Immunisation Agenda. Preparing an action plan fit for the future requires an answer to the question, "What are the activities related to data that would be truly 'transformational,' to the immunisation ecosystem?" The following **enablers** will maximise the potential for these transformational actions to deliver impact:

- alignment with regional plans
- national and subnational correlation and support
- representation from those impacted by the actions (user-centred)
- alignment across global level on policy, investment, and actions
- global guidance that is actionable, agile, easy to amend, feasible, and user-centred in order to be implemented and transformative
- a focus on dissemination, accessibility, and creating awareness at all levels

The following transformational actions focus on the global level, with the belief that as actions are prioritised for resourcing, regional plans can align for their context, and national and subnational levels will need to prioritise what is most important for their setting.

FIGURE 8. Gobal Level Transformational Data Actions

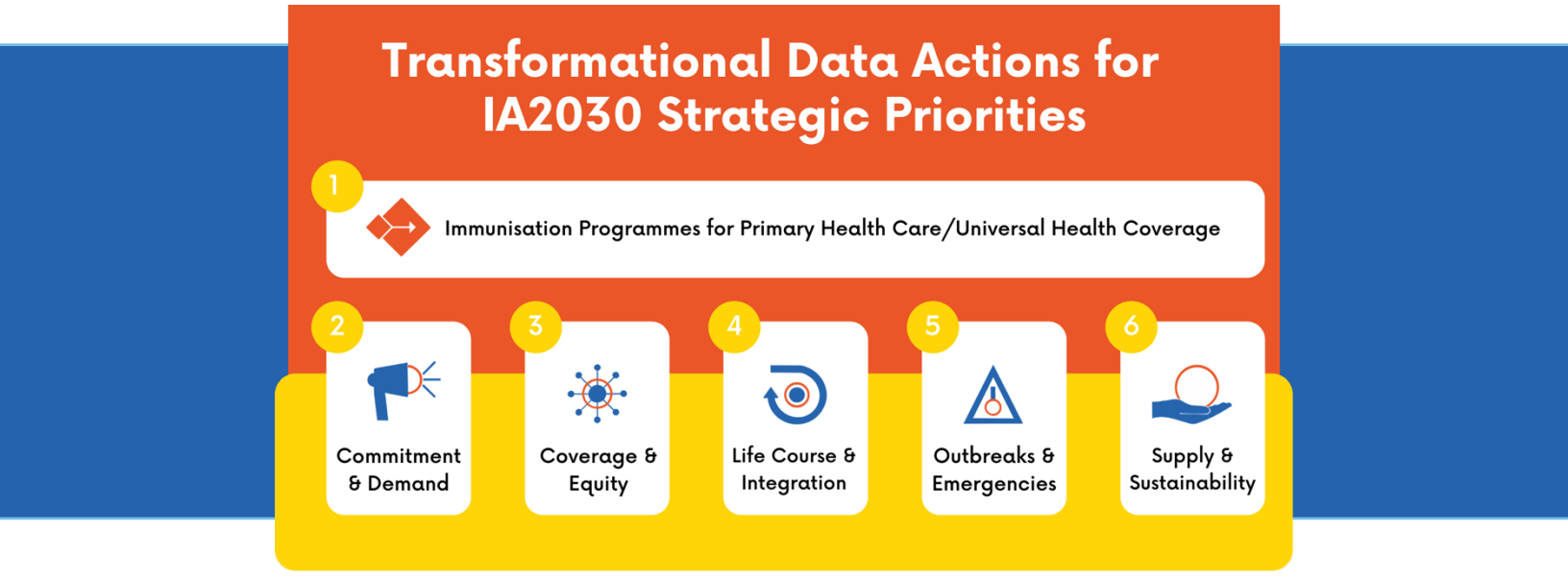


TABLE 2. IA2030 Strategic Priorities

IA2030 Alignment	Strat. Objective	Data Action
Strategic Priority 1: **Immunisation Programmes for PHC/UHC**	1.1	Identify and support scaling of proven tools and approaches that countries can use to convert data into actionable insights, e.g., analytic dashboards with action-oriented prompts.
		Encourage and support countries to have one strong HMIS system that integrates data for decision making and that required by The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), President's Emergency Plan for AIDS Relief (PEPFAR), WHO, and others.
	1.4	Identify, develop guidance for, and support country implementation of promising approaches for defining target populations through innovative methods and interoperability. Develop tools to integrate data from CRVS and health information systems (HIS) to define more accurate local target populations.
		Use human-centred data to identify new distribution methods (e.g., drones) that are directed to the patient and focus on how the supply chain serves the needs of people at access points.
	1.5	Develop guidance on data sharing, privacy, and security measures with consideration for future-thinking technology.
		Create global monitoring system for data quality of national-level data received, including ranking and benchmarking.
Strategic Priority 2: **Commitment & Demand**	2.2	Invest in and develop proven approaches for generating and using local evidence on contextual and cultural factors to design tailored vaccine messages that will improve demand.
Strategic Priority 3: **Coverage & Equity**	3.0	Develop new and streamline existing guidance on proven practices on how to measure and routinely use data to support equitable immunisation.
		Invest in data tools and analytics that can identify zero-dose children in order to bring them into the system and become fully immunised.

		Develop and strengthen routine mechanisms to share data between health programmes.
Strategic Priority 4: **Lifecourse & Integration**	4.1	Use modeling approaches for identifying vulnerable populations and target interventions to reach them.
		Develop standards for building an end-to-end view linking programme planning (e.g., operational) and performance data to enhance programme monitoring.
Strategic Priority 5: **Outbreaks & Emergencies**	5.1	Maintain a robust health facility-based on a VPD surveillance system that can be used to rapidly detect VPD outbreaks.
		Develop guidance on linking data from electronic surveillance systems and lab systems, making them compatible and interoperable.
		Link post-outbreak and emergency root cause analysis data back to routine immunisation data by improving coordination between emergency response and health systems-strengthening groups.
	5.2	Invest in research and novel methods to estimate at-risk populations, including internally displaced persons and other migrants. Develop survey methodology to collect data on immunisation coverage in fragile settings.
Strategic Priority 6: **Supply & Sustainability**	6.1	Develop standards for building an end-to-end view linking programme planning (e.g., operational) and performance data to enhance programme monitoring.

B. Strengthened and Expanded Actions

The Data Strategy Working Group determined that the following complementary sets of actions defined for global, national, and subnational actors were determined to be currently in place to some degree and have evidence of working. The Working Group agreed that these actions should be prioritised in the 2030 data agenda, but rather than serving as transformational to the ecosystem, they should be considered as areas of work that should be strengthened, expanded, and scaled. Similar to the transformational actions identified above, these data action sets should be considered in sum with a focus on how the critical partners at each level should best collaborate for seamless transition of the activities both up and down the chain. Click on this link a full set of these actions, including thematic tagging.

FIGURE 9. Strengthened and Expanded Actions

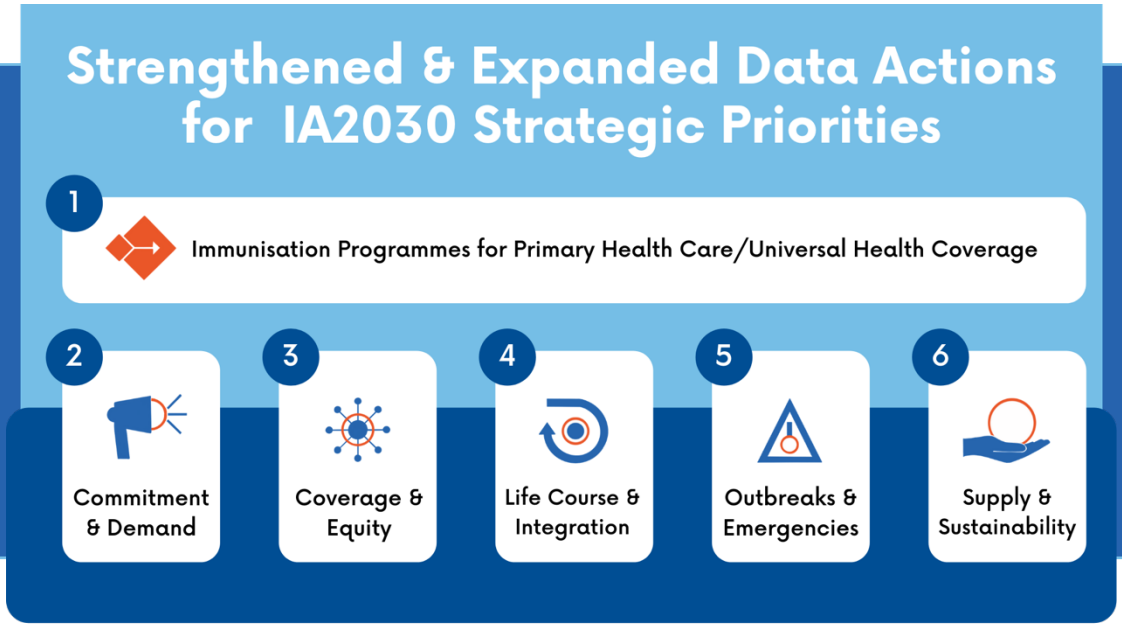


TABLE 3. IA2030 Alignment: Strategic Priority 1

Strategic Priority 1: Immunisation Programmes for Primary Health Care/Universal Health Coverage		
Level	Strat. Obj.	Data Action
Global Actions	1.1	Provide guidance on recommended tools and strategies for comprehensive data sharing, access, and triangulation.

		Align data leadership frameworks and develop a coordinated plan for action to advance harmonization of capacity building efforts e.g., data curricula and leadership institutes.
	1.4	Leverage tools that enable end-to-end visibility by pulling information from disparate systems into one supply mechanism.
		Develop a collaborative framework for global partners in the supply network around ownership of each piece of supply data.
		Connect data tools and apply at country level to global mechanisms in use.
	1.5	Develop guides to support nontechnical audiences at the country level in assessing and purchasing different data solutions for specific circumstances.
		Develop guidance on standardising optimal categories for disaggregation according to data type and uses, and connect this work to WHO work underway to the same end and efforts at country level.
		Provide easily accessible global guidance and documentation on interoperability, including country readiness assessments and requirements. Socialise and implement these at country level.
	1.6	Invest in connecting adverse event reporting workflows with other health systems (e.g., acute care) and immunisation campaign tracking to improve response. Leverage existing digital tools to log adverse events and link to immunisation data at all levels of the system.
National Actions	1.1	Reinforce the use of data in a positive way based on motivation of users. Create and enforce accountability and incentive structures to promote data use.
		Implement communication technology that enables leaders to interact with each other and with data to make data-driven decisions in a more timely manner.

		Provide strategic direction based on global guidance for national and subnational leadership capacity strengthening and implement monitoring and evaluation (M&E) frameworks for these programmes.
		Develop a culture of adaptive management to ensure skills for operational planning and measuring outcomes. Strengthen data-use capacity and reinforce performance-based contracts to augment need for demonstrable leadership.
		Implement strategies for coordinating data collection and use amongst different players to avoid a multiplicity of tools that can burden operational staff.
		Interpret and socialise global data guidance and put systems in place to ensure operationalisation. Develop implementation and monitoring plans to monitor the success of implementation.
		Build skills on regular data use, including adaptive processing.
		Implement modes of delivering training that avoid duplication and limit time away from primary jobs.
	1.2	Develop skills to link data points on utilisation and anticipated need to provide better data for forecasting and adjusting stock levels.
	1.3	Strengthen surveillance and laboratory data management skills and data skills amongst management staff.
	1.4	Develop modeling forecasts to automate decisions and link stock, stock needs, and stock gaps so replenishment is based on actual needs versus coverage. Create dashboards that link national data to manufacturer information.

		Develop data-driven policies and guidelines for redistribution of stock.
		Implement dashboards and automation tools to connect live cold chain inventory tools, logistics management systems, and cold chain equipment optimisation platform (CCEOP) in order to see current inventory of equipment and vaccine together. This will reduce human error on where vaccines can safely be stored.
		Develop governance to address issues related to enterprise architecture as new technologies are adopted and to strengthen supply chain systems.
	1.5	Track and evaluate transition from paper to digital tools to migrate to fully digital data systems in the future. Consider ways to streamline the conversion process, including name-based entries, data cleaning, and optical recognition.
Sub-national Actions	1.1	Develop local leadership with capacity for transforming locally generated data into actionable analytics.
		Implement national plans for sharing, access, and improved analytics, including triangulation of data.
		Build skills on regular data use, including adaptive processing.
	1.3	Implement methods to triangulate nontraditional sources of data (e.g., health hotlines, digital tools). Future plan to integrate these data sources.

TABLE 4. IA2030 Alignment: Strategic Priority 2

Strategic Priority 2: Commitment & Demand		
Level	Strat. Obj.	Data Action
Global Actions	2.1	Provide mechanisms to ensure that information collected on resources needed for running immunisation programmes is shared back to the country level with both MOH and ministry of finance (MOF) officials to better inform decision-making.
		Improve transparency of funding available for priorities such as EPIC and transparency of pricing information.
	2.2	Support the Vaccination Demand Hub to measure demand for both demand-side data and behavioral-informed interventions.
National Actions	2.1	Develop functional and systematic advisory role for interagency coordinating committees (ICC) to help with accountability and coordination.
		Provide mechanisms to ensure that information collected on resources needed for running immunisation programmes is shared back to the country level with both MOF and MOH officials to inform better decision-making.
		Develop rapid and acceptable data methods for measuring community demand by national and subnational teams.
	2.2	Monitor competency levels amongst health care providers regarding the use of appropriate interpersonal communication methods used for ensuring high demand.
		Strengthen data systems for receiving feedback from and informing the community on immunisation.

Sub-national Actions	2.1	Provide community decision-makers who control local resources with information and job aids about the cost-benefit and health impact of immunisation programmes.
	2.2	Deploy data on due and defaulters, and combine with locally relevant messaging options that reinforce the value of completing all vaccinations.

TABLE 5. IA2030 Alignment: Strategic Priority 3

Strategic Priority 3: Coverage & Equity		
Level	Strat. Obj.	Data Action
Global Actions	3.1	Create a forum for feedback and developing technical ability to share and analyse data (e.g., polio programme).
		Develop tools, guidance, and technical support on the use of triangulation, and consider the appropriate role for technology and dashboards to combine different data sources.
		Identify the skill sets needed for data use versus data collection, and invest in capacity building for these skills at all levels.
	3.2	Provide frameworks that can be adapted at national level and rolled out to operational level to collect and use equity data.
National Actions	3.1	Create joint data review mechanisms with users and collectors of data.

		Develop and disseminate illustrative examples of the benefits of using data to promote data-use culture.
		Develop approaches to foster empowerment for data-use culture. Include gender dynamics, data collection, and analytics, and understand what skills are needed at different levels.
		Improve data visualisation to better link data to decision-making.
		Implement the use of data triangulation that goes beyond coverage to measure zero-dose children.
		Create advocacy and/or monetary incentives to promote collaboration, and highlight national and global case studies on data use from which others can learn. Include these lessons in implementation guidelines.
		Create policies and procedures to incentivize use of data at the operational level. (Should be at global level too).
		Use a broad range of data to more effectively determine factors impacting zero dose.
		Develop policies for data collaboration across different programme areas beyond immunisation (e.g., Maternal, Newborn, and Child Health (MNCH)).
		Collaborate with statistics offices and create policy for sharing and giving access to data at national and local levels.
		Identify the skills needed for data use (versus data collection) and invest in building this capacity at all levels.

		Develop programmes to support critical thinking, interpretation of data, and analysis at operational level. Focus on demonstrative approaches that show what data means for programmes, including data for decision-making, statistics, and interpretation of indicator link to action and improvement.
		Invest in country-level pipeline (research, university, education system) for developing different types of data skills than are prevalent at scale.
	3.2	Connect immunisation campaign data to routine immunisations to identify and connect those with missed vaccines to routine services.
		Implement the use of technology for defaulter tracking and link the information to the creation of microplans at facility level.
		Collect and connect data systems, and analyse data to better understand determinants of inequity, including linking qualitative data with quantitative.
		Integrate coverage service and equity data, and investigate dimensions of inequity at national and subnational level.
Sub-national Actions	3.1	Create a forum for feedback and developing technical ability to share and analyse data.
		Implement a human performance technology approach to help line staff think through obstacles to data use.
		Emphasise data-use skills in preservice setting, e.g., nursing schools.

	3.2	Design trainings that start with the existing skills of trainees and focus on basic data analysis, access to data, summarising data, and data that supports finding the underimmunised, putting control in the hands of those analysing the data. Implement training and ongoing supervision to support subnational staff in triangulating and analysing data better and reporting local reasons for inequity.

TABLE 6. IA2030 Alignment: Strategic Priority 4

Strategic Priority 4: Life Course & Integration		
Level	Strat. Obj.	Data Action
Global Actions	4.1	Develop global guidelines for life course standards for data and programmes. Develop data standards focused on linking information from across programmes, and create mechanisms for cross-programme stakeholders to connect and align. Develop frameworks to support countries in creating cultures of data use.
	4.2	Provide guidance on linkages of data systems (antenatal (ANC), immunisation, family planning, private providers) in support of continuity of care.
National Actions	4.1	Implement framework for building a culture of data use. Strengthen skills around implementing a life course approach to data collection and analysis.

		Implement the use of unique IDs to create linkage across life course, including name-based/cell ID for follow-up, and include the ability to de-link to protect privacy.
		Create systems to link and query across programmes to support collection and analysis of data related to life course, including national registries and subnational data (e.g., ANC, EPI, schools).
		Implement alternative ways to identify target populations and gaps in coverage (e.g., GIS, school-based).
	4.2	Utilise electronic health records (EHRs) to better connect referral mechanisms and access points for service delivery (e.g., mapping of access deserts, urban slums, and geospatial mapping).
Sub-national Actions	4.1	Improve skills of users in schools systems on how to identify defaulters and link to services.
		Implement frameworks to build a culture of data use.
		Implement alternative ways to identify target populations and gaps in coverage (e.g., GIS, school-based).
		Implement feedback loops and processes to ensure that local data is incorporated into national policy decisions.
		Implement the use of unique IDs to create linkage across life course, including name-based/cell ID for follow-up, and include the ability to de-link to protect privacy.

		Implement user-centred data visualisation tools to augment data-use meetings at subnational level.
		Integrate data into multisectoral local planning process aimed at strengthening life course delivery.
	4.2	Improve access to data on private providers to enable a more robust view across provider types.
		Utilise EHR to better connect referral mechanisms and access points for service delivery (e.g., mapping of access deserts, urban slums, and geospatial mapping).

TABLE 7. IA2030 Alignment: Strategic Priority 5

Strategic Priority 5: Outbreaks & Emergencies		
Level	Strat. Obj.	Data Action
Global Actions	5.1	Use innovative approaches, including satellite imagery, GIS, and mobile phone data, to track movements and fill gaps when usual administrative systems are not applicable.
		Develop guidance on making electronic surveillance systems and lab systems compatible and interoperable.
		Maintain a robust health facility-based VPD surveillance system that can be used to rapidly detect VPD outbreaks.
		Link root cause analysis data into system strengthening by improving coordination between emergency response and health systems-strengthening groups.
		Use data from event-based surveillance systems to help rapidly identify rumours and misinformation (e.g., media reports).

		Develop and incentivize robust electronic-based tools for collecting, visualising, and digitising data.
	5.2	Improve data collection to compare over time the status of multiple emergencies across a wide area to develop an understanding of immunisation data for emergencies overall.
		Invest in research and novel methods to estimate at-risk populations, including internally displaced persons and other migrants. Develop survey protocol to collect data on immunisation coverage in fragile settings.
		Develop fit-for-purpose, off-the-shelf data collection systems that can be deployed quickly in emergency settings.
		Develop tools to integrate data from CRVS and HIS to define true local target populations.
National Actions	5.1	Support data methodology and tools to (1) identify and characterise communities with a high percentage of zero-dose children, (2) understand why caregivers may not utilise services, and (3) address root causes of vaccine hesitancy.
		Establish data-sharing agreements across agencies and make key data available as a global good (i.e., microplans, population data, settlement lists, GIS mapping, and population movements).
		Incentivize accurate data reporting to prevent reporting of false data in fragile settings.
		Use the International Health Regulations (IHR) joint external evaluation to monitor the efficacy of country-level surveillance.
		Increase national and subnational capacity for disease surveillance and health information to be resilient during times of crisis, including utilising the Public Health Information System (PHIS) to produce alerts in real time.

		Continue investment in national, regional, and local capacity to conduct integrated surveillance for priority VPDs, and ensure outbreak data is linked back with integrated surveillance.
		Support building local capacity for community detection.
		Develop simple and reliable HIS that capture case-based surveillance data elements, and train people to use this to identify suspected cases.
		Support verification of outbreaks with timely access to diagnostic and laboratory data and integration of various surveillance systems.
		Implement quality, user-friendly solutions for real-time data collection on immunisation services for hard-to-reach populations.
	5.2	Create data agreements so the government will have visibility into what is being collected by different INGOs.
		Evaluate vaccination strategies that are appropriate for emergency settings. This may include a mix of routine and campaign strategies.
		Prioritise identification of new innovations, such as GIS and integrated IDP registries, with a focus on frugal innovation. Analyse data on costs of innovation and feasibility.
		Use mobile technology to make data more available and timely, including geolocated data.

Sub-national Actions	5.1	Identify and use novel methods to address difficulties in getting sample frames and conducting population-based surveys.
		Develop early warning indicators to monitor and trigger coordinated response.
		Support building local data skills for community detection.
	5.2	Provide rapid reports of health facility functionality, including mechanisms by which data are captured and automatically reported. Provide a reliable census of functioning health facilities, including reporting structures, such as the Health Resources Availability Mapping System (HeRAMS).

TABLE 8. IA2030 Alignment: Strategic Priority 6

Strategic Priority 6: Supply & Sustainability		
Level	Strat. Obj.	Data Action
Global Actions	6.1	Share transparent data on demand and purchasing prices to support countries in procuring optimal pricing and better calculating cost-benefit of vaccines.
		Collect data on country demand and interest in specific vaccines as a driver of market forecasting.
		In collaboration with UNICEF Supply Division, expand and enhance a public-facing database on vaccines supplied by country.
	6.2	Provide transparent data on financial resources given to countries compared with financial estimates for operating immunisation programmes.
		Donors coordinate, align and consolidate, by programme area, requests for data from countries.

National Actions	6.1	Develop reliable supply and distribution data systems to create better visibility as to how stock is distributed and redistributed. (e.g., electronic logistics management information system (eLMIS) or web-based system). Match needs with financial budgeting and costing needs across national and subnational levels.
		Support microplanning activities that involve triangulation of population data to obtain better target denominator estimates.
		Provide better visibility in stockout data by ensuring alignment across reporting mechanisms (paper and digital).
	6.2	Integrate immunisation services into broader health services and coordinate resources, data collection, and sharing across programmes and levels (national and subnational).
	6.3	Facilitate sharing information across subnational areas on how much funding is allocated for specific activities versus performance outcomes.
		Develop data system to monitor actual costs of EPIC in order to understand the reality of costs of reaching hard-to-reach populations.
Sub-national Actions	6.1	Create operational level linkages to national systems for visibility into supply and financial data and to use vaccine supply data to improve program performance.

GLOBAL LEARNING AND PLANNING FRAMEWORK

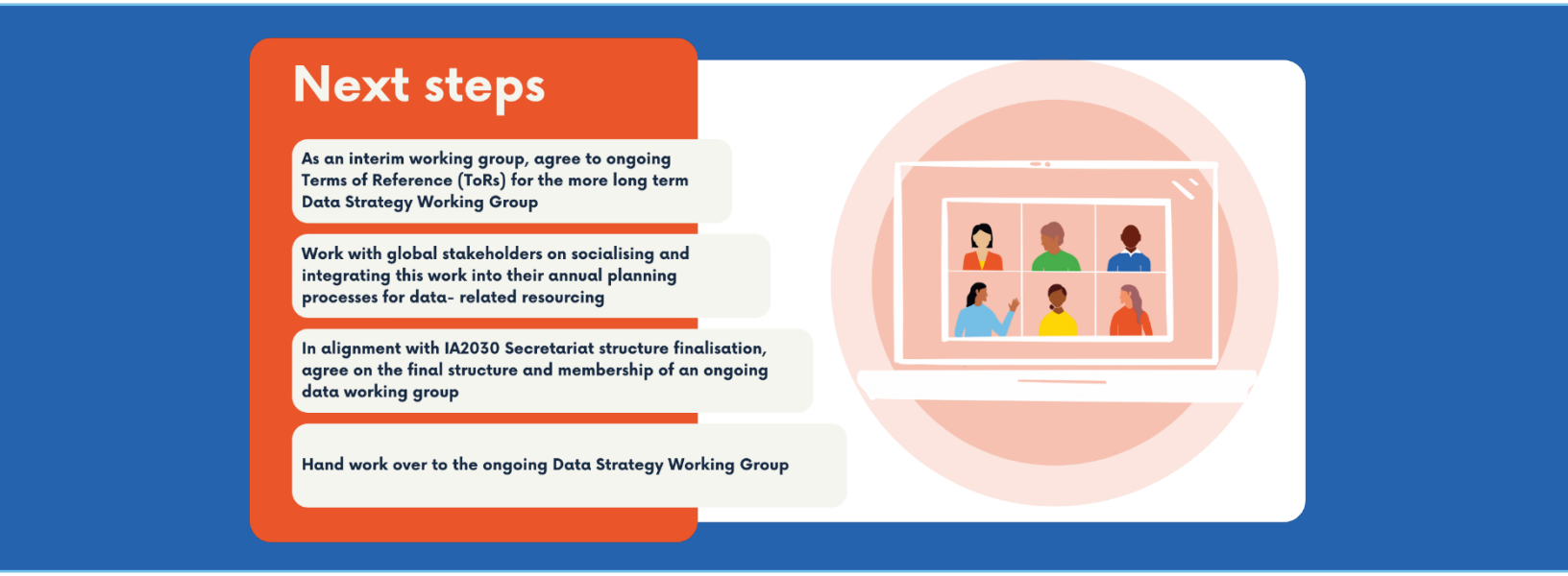
Critical to the success of the Data Action Framework is a means for (1) ownership and learning for the global partners in execution, and (2) for coordination of resources and streamline planning and funding cycles which is tied to the overall IA2030 Secretariat structure. This mechanism must provide clarity on roles and responsibilities, yet retain significant flexibility and room for interpretation in completing the key statement, "If (global partner A) does (data action B) at (C time), it will achieve (D) and deliver on the overall IA2030 impact goals." The group reviewed a number of frameworks for such a Global Learning and Planning Framework (GLPF) and determined that the most effective structure would be one in which:

- each global partner's comparative advantages and primary roles vis-à-vis data were well understood and endorsed; and
- there was an agreed-upon format to support next steps in constantly learning and integrating learnings into work planning that also enables measurement of success and impact.

At the time of publication, the process for finalising the GLPF was not complete. Alignment with the overall IA2030 Secretariat structure and initial agreements and understandings around how to best integrate the GLPF and content of this document are ongoing. The group that created this work will likely act as an interim Data Strategy Working Group until a longer-term group can be formed. Via this interim group, work to finalise data strategy within the larger structure will continue throughout the second and third quarter of 2021..

The draft frameworks presented below were developed in collaboration with the Data Strategy Working Group and, while not final, represent a launching point from which global partners can advance this work as parallel organisational processes and larger structures of the IA2030 evolve and eventually solidify. Figure 10 summarises the next steps required to finalise this work.

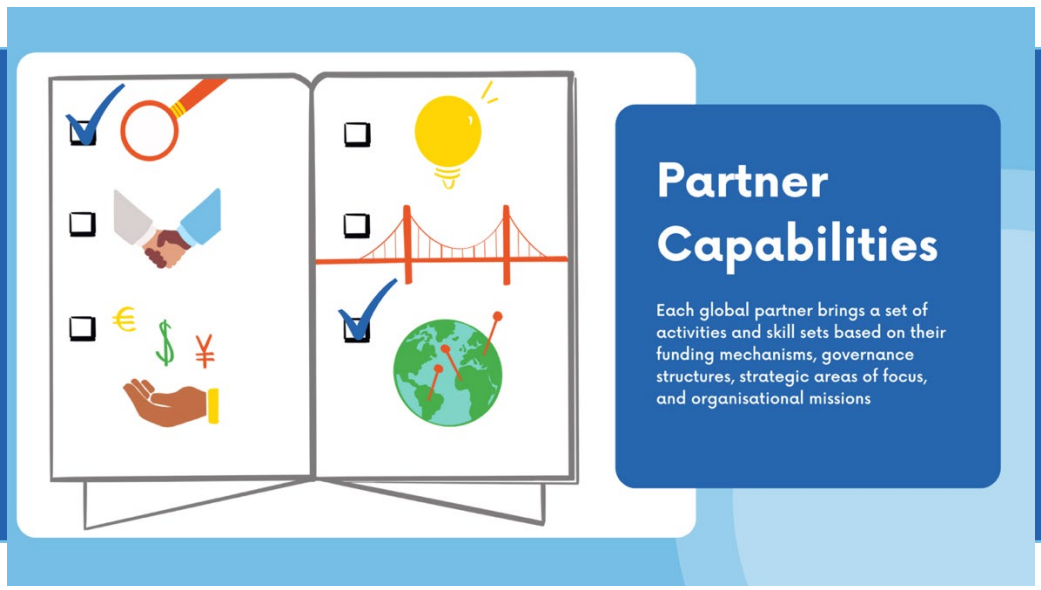
FIGURE 10. GLPF Next Steps



A.Estimated Expertise and Comparative Advantages of Key Global Partners

Across all of the immunisation domains, it is important to have a solid understanding of the comparative advantages, that is, the things that each organisation is more uniquely positioned to carry out. Funding mechanisms, governance structures, strategic areas of focus, and organisational missions are all aspects to be considered when identifying each organisation's comparative advantage. Each of the organisations engaged in resourcing this work is a large, complex organisation with multinational footprints. Comparative advantages should be considered when prioritising which organisations should be involved in which aspects of resourcing various activities.

FIGURE 11. Partner Capabilities



B.Global Partner Roles

The following is an illustrative list of roles required to execute the Framework from the global level. Each global partner possesses a unique combination expertise and comparative advantages as it pertains to immunisation data.

- **Lead:** Act as the main agency in charge of managing and decision-making.
- **Disseminate:** Share evidence and information.
- **Convene and align:** Bring together an array of stakeholders to align on global priorities.
- **Technical assistance:** Lend expertise and technical assistance on key topics and approaches.
- **Fund:** Provide resources and investments in key solution areas and priorities.
- **Guidance and standards setting:** Develop and disseminate guidance for countries around specific data-related technical areas.

Further, across each of the roles outlined above, different partners may play different roles based on the set of activities and technical area. An illustrative list of some of these technical areas includes:

- **Innovation:** Pilots or activity areas that include new data systems, different collection methods and technologies and creative ways of approaching data problems. May also include innovations in integration with existing systems as well as longer term approaches to scale up;
- **Supply Chain:** Data related to supply chain and effective vaccine management across all levels of the system;
- **Surveillance:** Data to support surveillance of priority and emerging infectious diseases after an emergency or humanitarian event, maximizing opportunities to monitor and characterize multiple pathogens to ensure early detection of outbreaks. Also data to strengthen integrated disease surveillance for epidemic-prone vaccine preventable diseases to enhance prevention and response:
- **Equity:** A focus on reaching zero-dose communities and ensuring equitable approaches to data actions; and
- **Capacity Building:** Building the capacity of national and subnational actors in the capture, use, and culture of data.

As a part of the annual planning cycle, once the year's prioritised actions are confirmed, global actors should decide which organisations will play which roles, based on the areas of technical expertise required for the year's actions and the organisation's areas of comparative advantage.

C.Draft Framework for Global Measurement:

Moving forward, it is important that the high-level actions taken are measurable in the near, medium and long term, and that the types of actions required to achieve the target are clarified. The following framework should be filled out for each of the global-level transformational actions. This can be an early and unifying task for the long term Data Strategy Working Group and is meant to be integrated into the annual and triannual process

depicted in the Data Strategy Working Group Proposed Structure and Approach section below.

FIGURE 12. Global Work Planning Template

The Global Learning and Planning Framework is an essential, albeit complex, factor in successfully implementing the Data Action Framework and, in turn, delivering on the IA2030 impact goals and vision. Its further development, refinement, and eventual finalisation will need to remain a priority for the near future. Next steps should include an organisational review of global partner comparative advantages, confirming a framework for measurement, and finally, populating the resulting detailed framework for the set of Transformational Actions referenced above. The resulting documentation serves as a tool for continuous review and accountability enforcement, remaining flexible as priorities may evolve for both global partners and for the broader IA2030 implementation parties.

NEXT STEPS: HOW THE DATA ACTION FRAMEWORK SHOULD BE USED

Nothing in global health is static, and certainly the immunisation ecosystem is changing faster than ever with the onset of the COVID pandemic. Priority actions need to be regularly revisited and updated. This work is meant to be a road map to help input to annual planning and provide a point of departure for constantly assessing, updating, and revising immunisation data priorities. Revisiting both the transformational and the strengthened and expanded actions should be an integral part of this ongoing process. As noted earlier, it is important that this work be integrated into the process of an ongoing Data Strategy Working Group aligned with the IA2030 Secretariat. At the time of publication, the IA2030 Secretariat is in its early formation stages and the overall structure is beginning to solidify. Thus far, the IA2030 has proposed the following overall Vision and Strategy (see figure 13) for operationalising the work. Figure 14 provides a more detailed look at the potential ownership and accountability structure, including working groups of which we have proposed the Data Strategy Working Group to be its own working group in this structure.

FIGURE 13. Currently Proposed IA2030 Secretariat Vision and Global Strategy

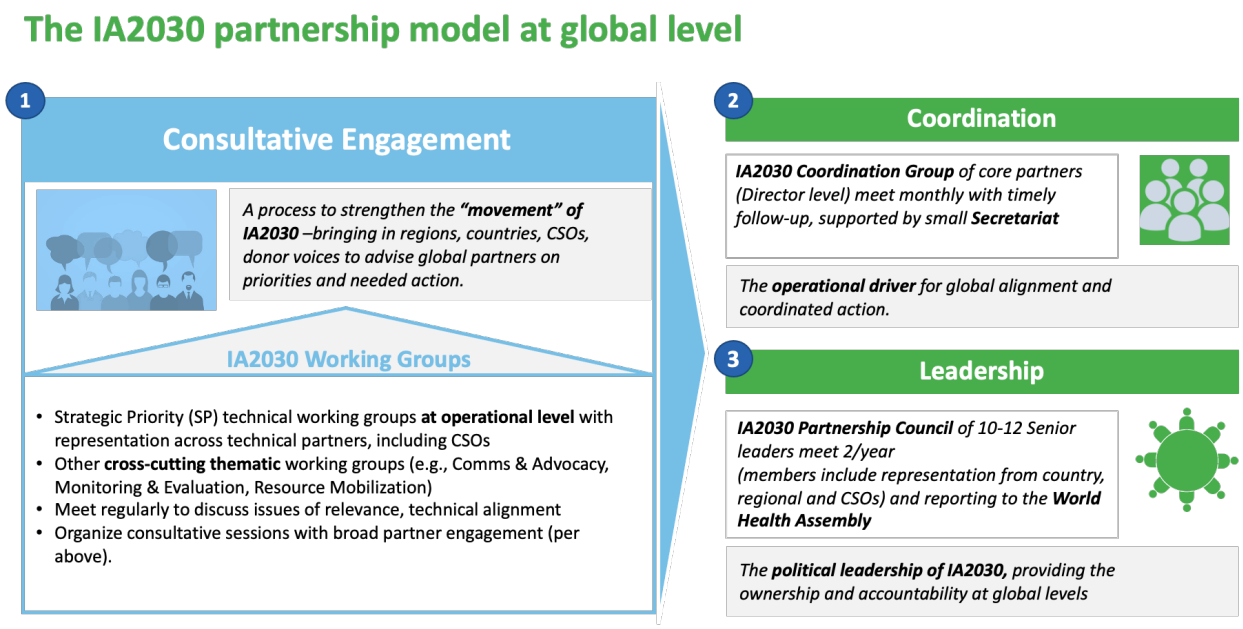
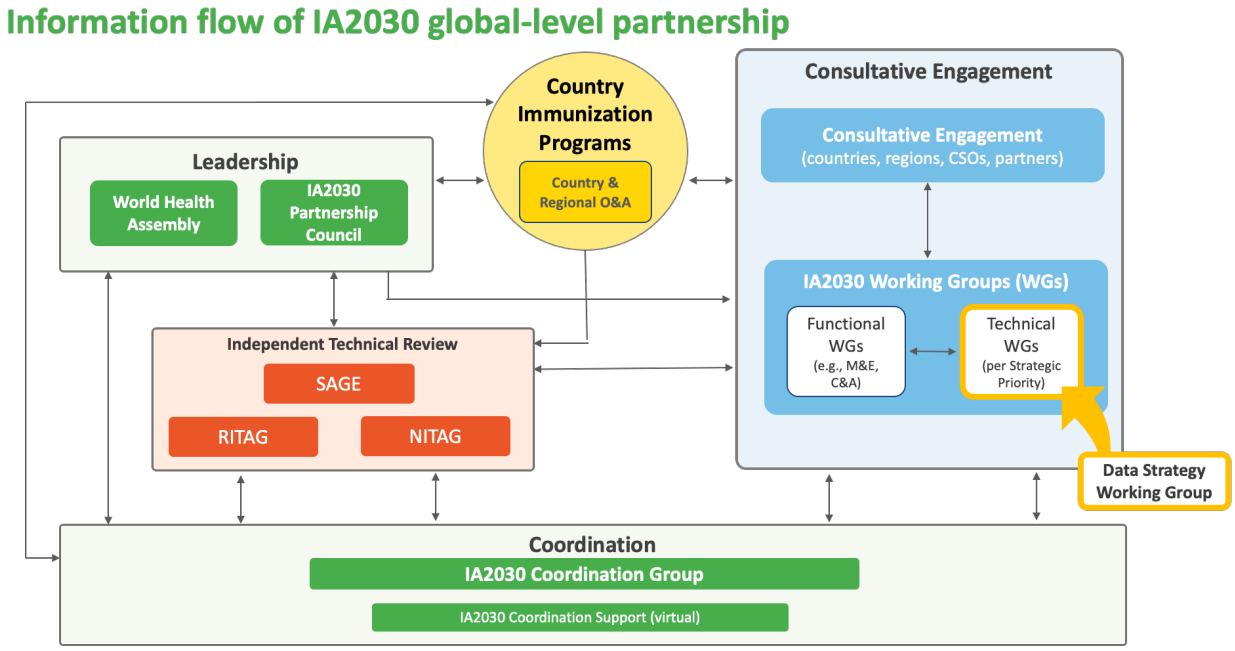


FIGURE 14. Proposed IA2030 Secretariat Global Partner Information Flow



A.Data Strategy Working Group Proposed Structure

The current proposal is for a Data Strategy Working Group to be added to the proposed IA2030 Secretariat structure. This group would be one of the Technical Working Groups that supports and deliberately connects to all of the SP Working Groups, as well as the M&E Working Group.

The following structural recommendations for a new Data Strategy Working Group are:

- include a representative from or otherwise ensure direct engagement with each SP Working Group, as well as one from M&E;
- include membership by or process for regular input from regional and national levels;
- include global-level participation from all core organisations (Gavi Alliance, BMGF, WHO, US CDC, UNICEF), as well as an INGOs also operating in this space; and
- ensure participation from at least one member of SAGE Working Group;

Additionally, this group should:

- provide consistent stakeholder engagement through BID Learning Network, eScholars Network, and BOOST;
- leverage existing for a for read out and stakeholder engagement;
- be additive and complementary to other work in this ecosystem; and
- align closely with the Gavi Alliance 5.0 data investment mechanism and Data Community of Practice.

The Terms of Reference (TOR) Objectives (adapted for data from the spring 2021 version of the IA2030 Secretariat Proposal for all working groups) are a good starting point for the Data Strategy Working Group however, the group should build on the below to include further terms based on the specific needs of data. Terms for consideration include:

Assessment of technical guidelines: Review and align on latest normative content and assess the need for new guidance tailored to different countries (e.g., low, middle, and high income), including technical guidelines as defined in IA2030 Data Strategy Framework.

Implementation learning: Share/build knowledge of implementation best practices spanning diverse settings and country contexts, including data best practices that emerge as part of implementation of IA2030 Data Strategy Framework.

Progress and results: Coordinate with other working groups to ensure systems and investments are in place for tracking against M&E framework, and check in on relevant SP indicators/key performance indicators (KPIs).

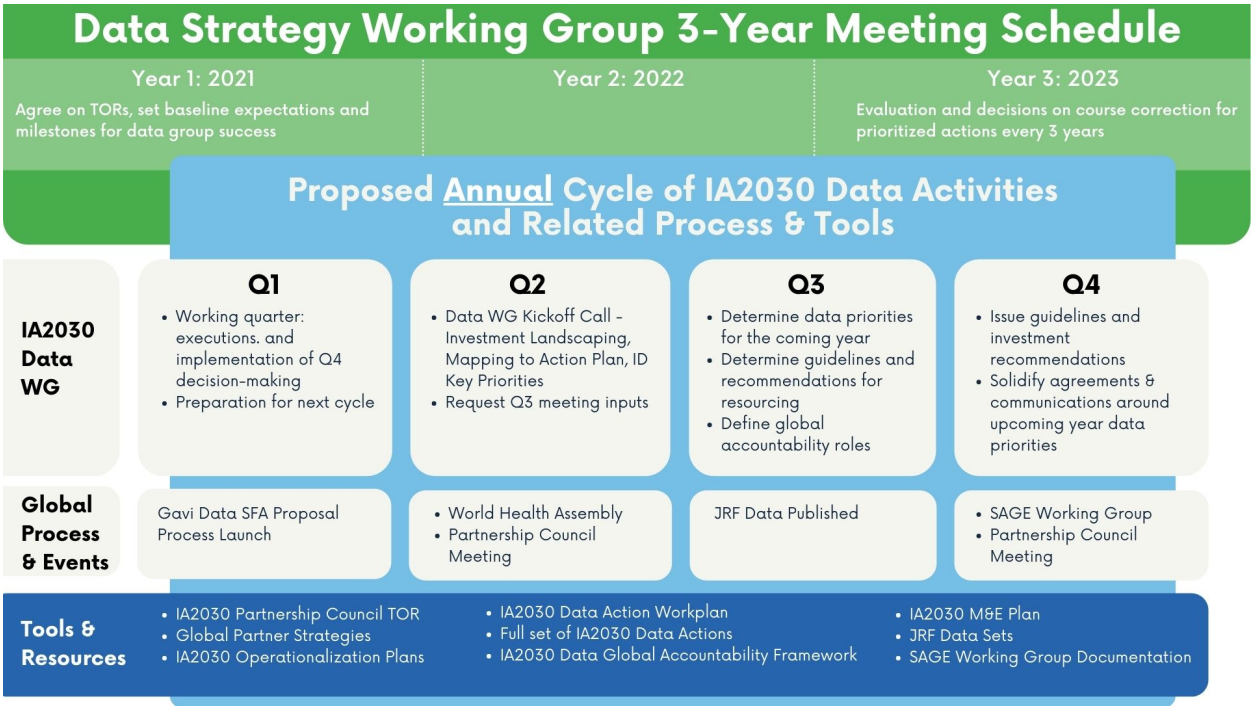
Shared accountability: Collect feedback and align on what various affinity groups need to do together to progress. This might be best supported via breakout sessions for groupings by region, country, job roles, etc. Leverage data from GLPF and aim for alignment with global data investments processes.

Feedback: Capture feedback from countries and other stakeholders on expectations for what is needed from partners in contribution to data in relationship to each SP, including ensuring that data quality, use, and culture are invested in optimal ways to facilitate the achievement of IA2030 goals.

B.Data Strategy Working Group Proposed Approach

Currently, there is a three-year cycle plan being proposed for the IA2030 Partnership Council. Synching this group's work with that cycle can be helpful in terms of updated data priorities aligning with any updates in the overall IA2030 priorities. Further, as depicted in figure 15 below, a set agenda for each quarter of the year can help the Data Strategy Working Group maintain a process that can be aligned with other important annual inputs, such as Joint Reporting Form (JRF) data, Gavi Alliance data investment planning, the SAGE Working Group, and others.

FIGURE 15. Proposed Data Strategy Working Group Meeting Cycle



The following are recommendations that should be revisited and used as guidance once a data group of some sort is formed:

- Refer to the transformational, as well as the strengthened and expanded actions, and prioritise resourcing on a two- to three-year funding cycle to allow for time to implement and assess progress.
- Annually review progress and make midterm adjustments to current priorities, and/or set new priorities for the next two- to three-year funding cycle.
- Align the timing of the ongoing data group's process with other critical processes, such as Gavi Alliance's 5.0 data investment cycles, and other funding and commitment cycles.
- Ensure global-level prioritised actions are resourcing associated national- and subnational-level actions.
- Include regional-, national-, and subnational-level input on annual prioritisation process.

CONCLUSION

This work represents a different way of doing things across the immunisation data ecosystem. It was a truly joint effort with expert representation from many of the groups who resource data activities at the global level in support of countries. Further, despite COVID restrictions, it integrated real and meaningful input from immunisation data experts at the national and subnational levels across many Gavi eligible countries as well as global partners.

The ongoing alignment of this work to the evolving IA2030 Secretariat structure has been an important step in ensuring the implementation and evolution of this work. The adaptation of this work as part of a longer term Data Strategy Working Group is key to ensuring this will be a living document which is revisited as the world evolves.

This work was facilitated by Kati Collective.
www.katicollective.com

APPENDIX 1: PLANNING AND FULL GROUP MEMBERS

The Planning Group was responsible for providing high-level direction to Kati Collective for this work. As the work evolved, the Planning Group also provided specific input to the Global Accountability Framework. All Planning Group members were also members of the Full Group.

- Mamadou Diallo, United Nations Children's Emergency Fund
- Jan Grevendonk, World Health Organization
- Hope Johnson, Gavi Alliance
- Tove Ryman, Bill & Melinda Gates Foundation

Bill & Melinda Gates Foundation support during Tove Ryman's leave of absence:

- Andrew Buhayar
- Sara Chesemore

The Full Group members participated in subgroup activities, as well as full group work, and provided the overall thought partnership, detailed inputs and technical inputs across the work.

- Leila Arnold, Clinton Health Access Initiative
- Jessica Crawford, VillageReach
- Carolina Danovaro, WHO
- Marta Gacic-Dobo, World Health Organization
- Iqbal Hossain, John Snow, Inc. (JSI)
- Justus Jiboye, Clinton Health Access Initiative
- Christopher Murrill, Centers for Disease Control and Prevention
- Chilunga Puta, PATH
- Heidi Reynolds, Gavi Alliance
- Vidya Sampath, VillageReach
- Heather Scobie, Centers for Disease Control and Prevention
- Lora Shimp, John Snow, Inc.
- Aaron Wallace, Centers for Disease Control and Prevention
- Laurie Werner, PATH
- Fenton Whelan, Acasus

APPENDIX 2: NATIONAL- AND SUBNATIONAL-LEVEL PARTICIPANTS

The following people provided input to the prioritised actions via webinars and independent review. Most participants were engaged either via the BID Learning Network or the eScholars Network.

Afaf M. Mohamed

Boureima Kabore
The Geneva Learning Foundation (TGLF) Alumni, Private and Community Initiative for Health and Response to HIV/AIDS (IPC/BF), Ouagadougou, Burkina Faso

Daudi Manyanga
World Health Organization

Dr. Aliyu Mamman Na'uzo,
Consultant Paediatrician and Epidemiologist, Federal Medical Centre, Birnin Kebbi, Nigeria

Dr. Sambo Godwin Ishaku
World Health Organization, Nigeria

Francis Abotsi
Expanded Programme for Immunisation National Logistician, Ghana Health Service

Gift (Ettentuk) Aniyom
University of Calabar, Scholar Alumni Leader for Nigeria

Ibrahim M. Kamara
District Operations, EPI Manager, District Health Management Team Ministry of Health and Sanitation (MOHS)

Iyad Omer Mustafa Abdelgadir
Epidemiologist, Ministry of Health, Oman

John Kissa

Martha Ndiko Ngoe
EPI (subnational level), Ministry of Public Health, Cameroon

Munir Saleh Sule RN, BSc, MPH
Kano State College of Nursing & Midwifery, Ministry of Health, Kano, Nigeria

Palenfo Gnourfatéon
Agence de Médecine Préventive (AMP Afrique)

Rajat Garg
National Programme Manager in John Snow, Inc./Rapid Immunization Skills Enhancement (RISE), Public Health, Epidemiology, Immunisation, Surveillance, India

Raju Tamang
International Planned Parenthood Foundation (IPPF), Delhi, India

Tewodros Woldetsadik
M&E Consultant for Polio Surveillance and Routine Immunisation, McKing Consulting Corporation, Juba, South Sudan

Tina Iroghama Agbonyinma
C4D Facilitator, United Nations International Children's Emergency Fund

APPENDIX 3: RESOURCES

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IA2030 Global Strategy on Comprehensive VPD Surveillance

APPENDIX 4: METHODS

The initial plan for the Data Strategy Working Group was to complete the majority of work and content creation through several strategically timed, multiday, in-person meetings. Circumstances resulting from the COVID-19 pandemic, including the inability to meet in person and unprecedented demand on the time and attention of those in the immunisation field, required a pivot in approach. To maintain the intent and guiding principles of the work, and to create an entirely virtual process that used group members' input as efficiently as possible, the process was adapted to create a small planning group, (see appendix 2 for full list of group members) of representatives from each of the major partner organisations who were tasked with providing high-level input and advice on approach and direction. Additionally, the larger working group was divided into three subgroups, each with a unique set of IA2030 SPs to focus on. Full group calls were scheduled more periodically and only when higher-level input and communication was required.

A human-centred design approach to content generation was implemented. It included breaking each SP into subpriorities and asking the following for global, national, and subnational levels:

1. What needs to be in place from a data perspective to achieve this subpriority?
2. What are the current barriers to this?
3. What would resolve these barriers?

Further, a set of objectives for what the Data Action Framework needed to contain included emphasis on:

- data-use competencies and culture, particularly at subnational levels and for evidence generation;
- how to operationalise and implement (building on SAGE and other frameworks) recommendations and reference to WHO regional plans;
- data exchange to align with standards, promote interoperability, and maximise data sharing to provide the right data to the right audience at the right time;
- alignment of sources of supply data by streamlining local, national, and global data;
- mechanisms for systematic data collection across local, national, and global levels; and
- Gender barriers not just for mothers and caregivers, but also health care workers.