



Pre-Conference Engagement Day
6 FEBRUARY 2024

CONFERENCE ON
**EDUCATION DATA
AND STATISTICS**

CONFERENCIA SOBRE
**DATOS Y ESTADÍSTICAS
DE EDUCACIÓN**

CONFÉRENCE SUR LES
**DONNÉES ET STATISTIQUES
DE L'ÉDUCATION**

7-9 FEBRUARY 2024
UNESCO HEADQUARTERS, PARIS, FRANCE

Opening

TUESDAY 6 FEBRUARY, 14:00-15:30



Dr. Gwang-Chol Chang
Chief of Education Policy Section,
UNESCO



Agenda

Sound Data for Good Governance through EMIS

- ▶ Part 1: Global Trends of National Education Data Ecosystems
- ▶ Part 2: Building Sustainable EMIS Transformation Pathways
- ▶ *Each part introduced by a key note presentation and followed by a panel discussion*

▶ Speaker Bios



Keynote presentation: Conceptual Boundaries of Education Management Information Systems

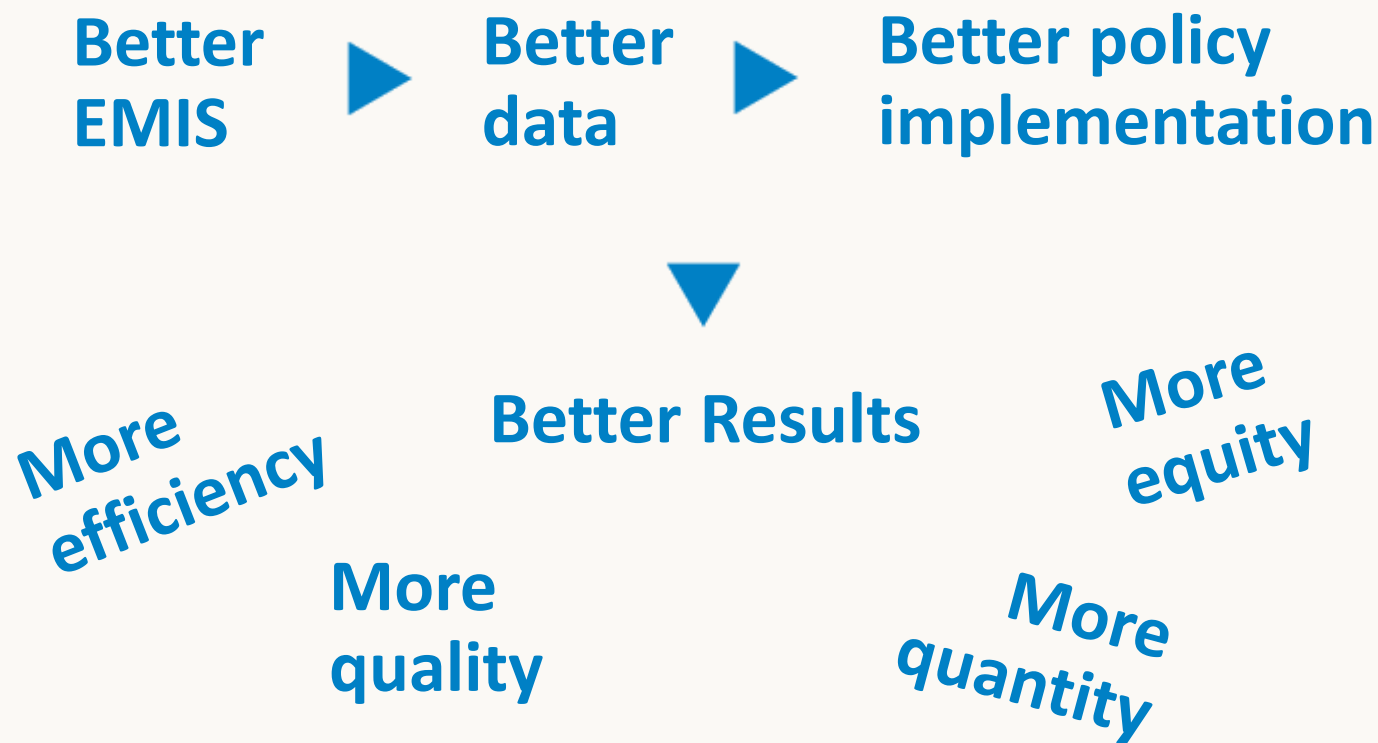


Amélie Gagnon

Senior Programme Specialist,
UNESCO-IIEP



A simple yet complex theory of change



What is an EMIS?

- ▶ An EMIS is the coordinated network of individuals, organizations, institutions, technologies, processes and procedures, rules, and regulations, that produce the fit-for-purpose quality data needed for informing decision-making processes in operating an educational system.



Meeting whose needs?

- ▶ The elements included in an EMIS focus on the needs of educational planners and managers, from high-level decision-makers to decentralized level, to perform their responsibilities , regardless of the educational sub-sector, programme orientations, or administrative entity in which they work.



Interoperability of datasets

- ▶ An EMIS materializes into interoperable datasets, for which there are distinct functionalities (or modules) for data collection, processing, management, storage, archiving, and extraction for analysis (including sometimes simulations and projections models) and dissemination to different types of audiences.



Components and types of data

- ▶ Typically, an EMIS has components referring to students, schools, human resources (teaching and non-teaching staff), infrastructure and material resources, and financial resources.
- ▶ The information managed by the EMIS can be quantitative or qualitative, and combine various sources of input.

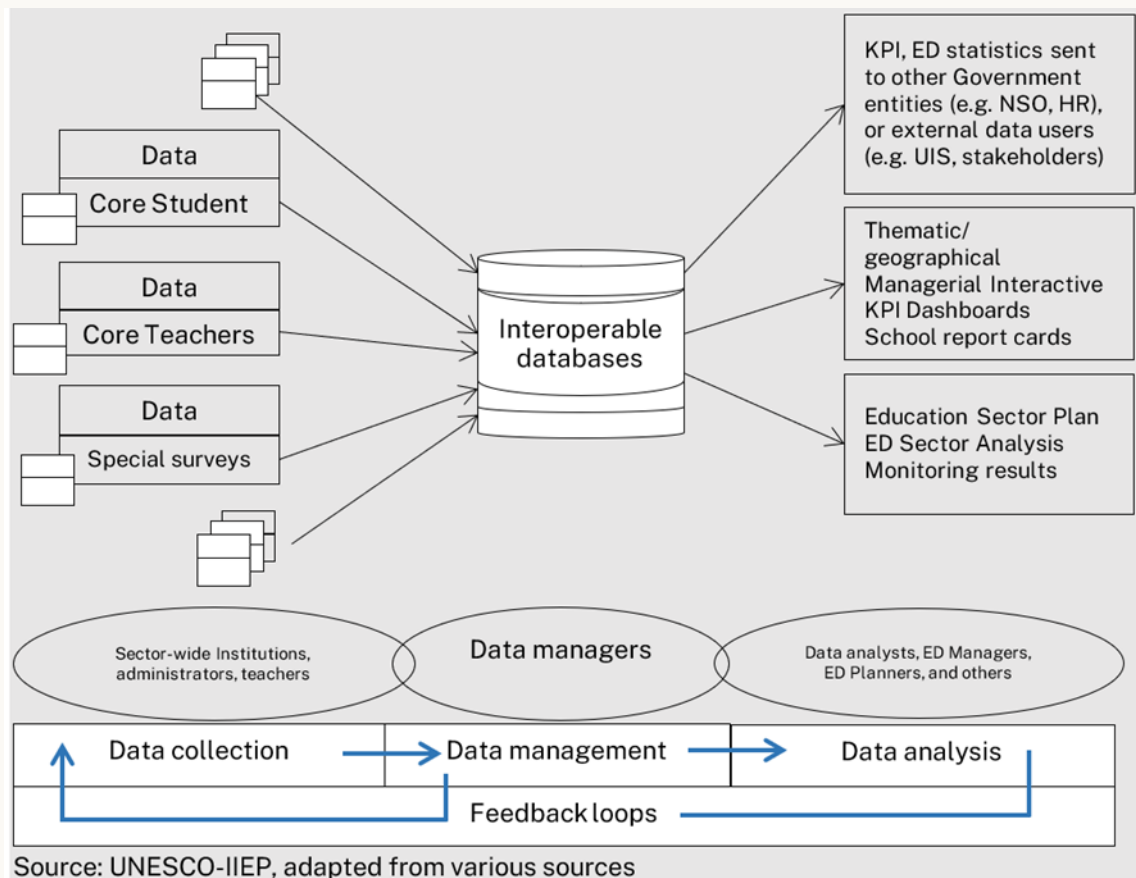


EMIS Governance

- ▶ Accountable entities designated under well-defined institutional leadership are responsible to create, maintain, and update the EMIS by guaranteeing both the financial sustainability of the system and the continuous professional development of involved actors.
- ▶ Good governance also implies leadership in sharing the strategic direction of the EMIS, as well as assessing the relevance and fitness-for-purpose of the data system.



Opportunities for professional and technical improvements



Bottom line

- ▶ Technology is important, but often it is the component that prevents us to see the broader picture
- ▶ Important to ask ourselves why is that the case?
- ▶ Crucial to also work on other aspects:
 - Training
 - Technical cooperation
 - Methodologies and standards



Global Trends of National Education Data Ecosystems



Agija Nika

Senior Expert,
Ministry of Education and Science,
Republic of Latvia



Jonathan Challener

Community Manager
SIS-CC, OECD



Fabio José Novaes de Senne

Survey Project Coordinator,
Brazilian Network Information
Center



Xavier DELPORTE

Director for Public Relations,
CNIL



Erika Piirmets

Digital Transformation Adviser,
e-Estonia Briefing Center



Global Trends of National Education Data Ecosystems

Performance monitoring as part of continuously qualitative and inclusive education

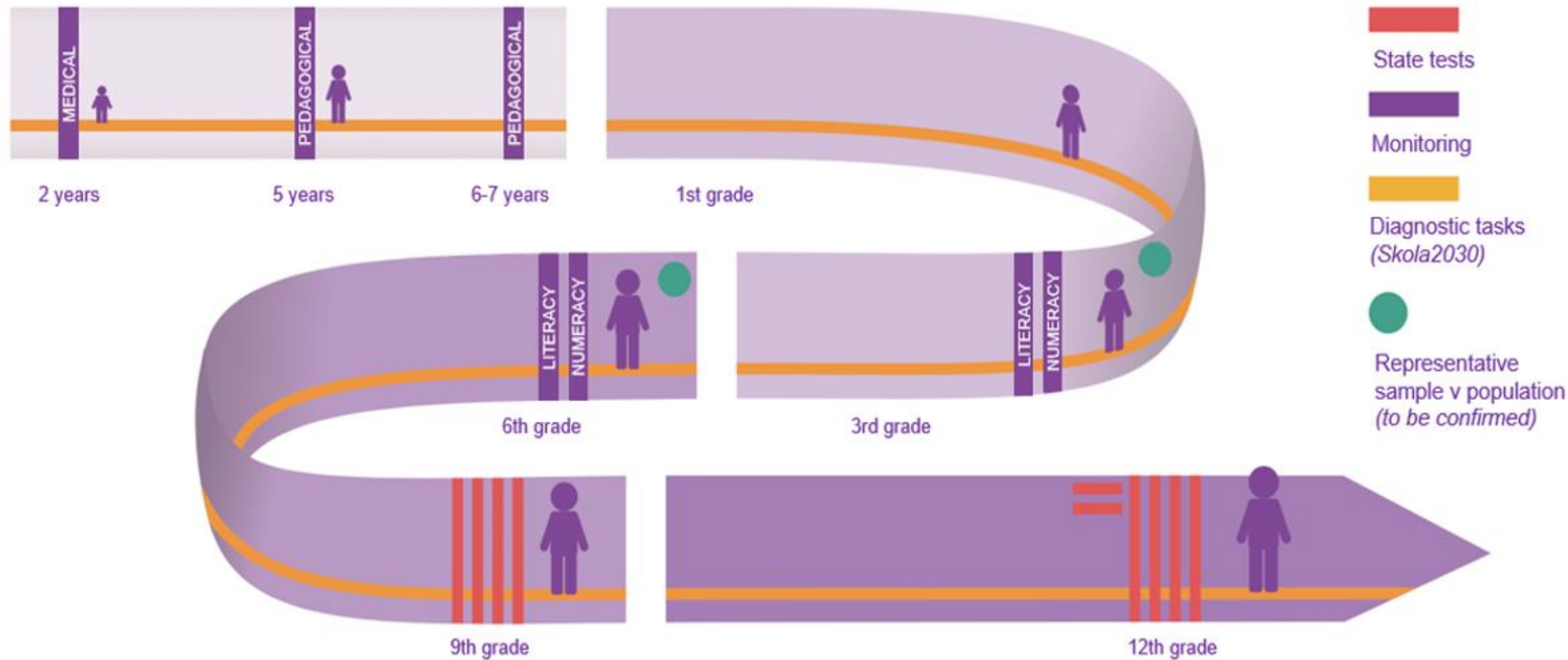


Agija Nika

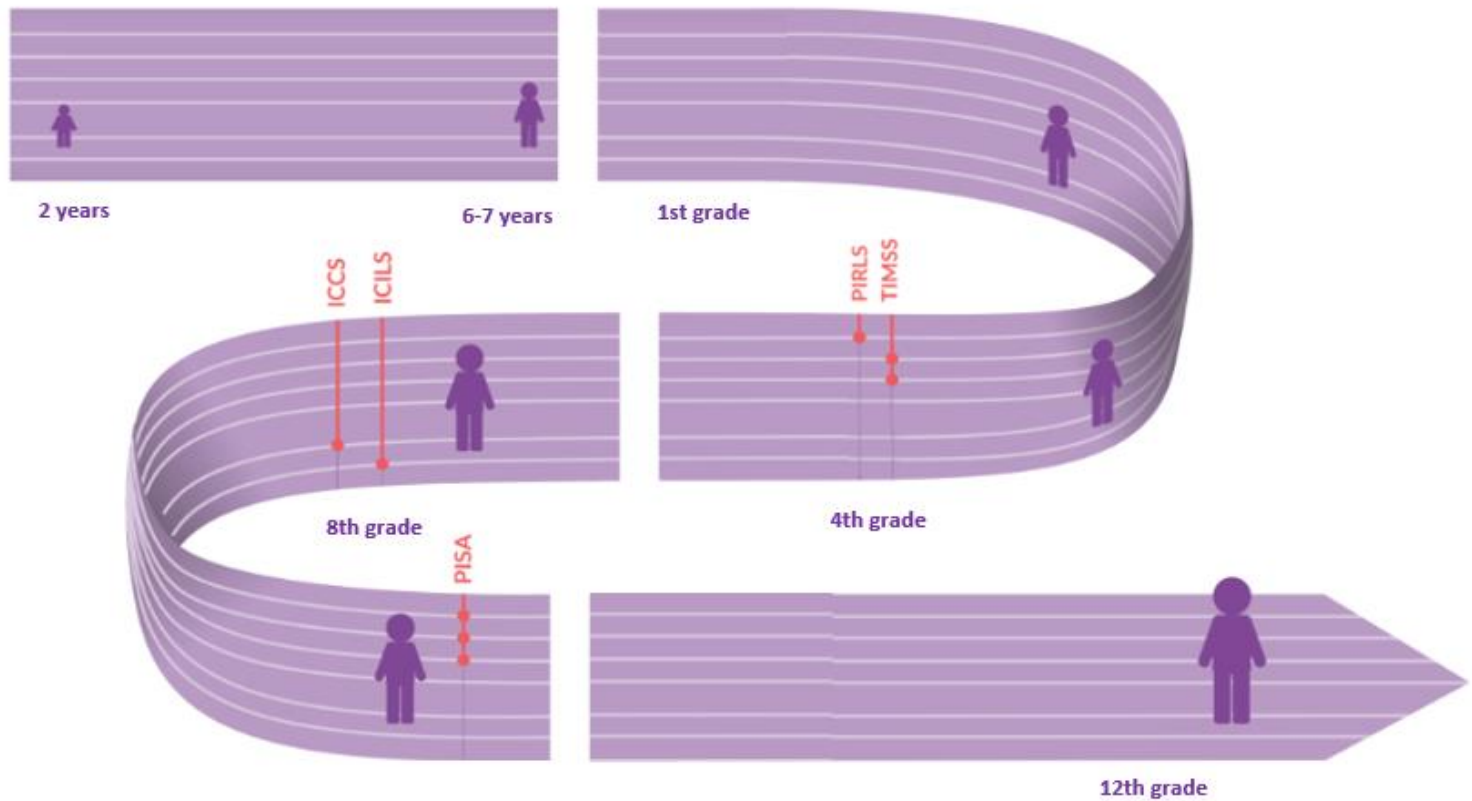
Senior Expert,
Ministry of Education and Science,
Republic of Latvia



Individual performance monitoring as part of an overall assessment approach



International Student Performance Assessment Programs as the benchmark for excellence



Global Trends of National Education Data Ecosystems

National Educational Data Ecosystem in Brazil



Fabio José Novaes de Senne

Survey Project Coordinator,
Brazilian Network Information Center



BRAZILIAN NATIONAL DATA ECOSYSTEM

2,315,616
teachers

47,382,074
enrollments

178,346
Basic Education schools

Source: National Institute for Educational Studies and Research "Anísio Teixeira" (Inep). *Basic Education School Census 2022*.

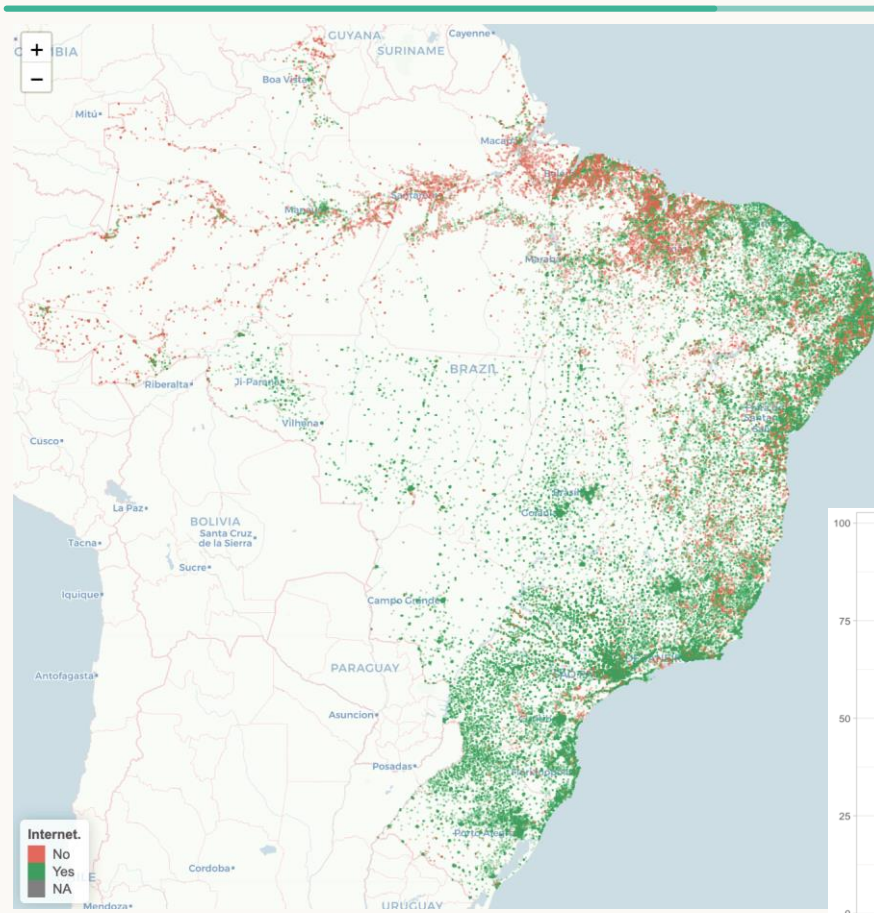
DATA USERS		Governments	Private Sector	Media
		International Organizations	Academia/ Research	General Public
		Civil Society/ NGOs		

DATA PROVIDERS	PUBLIC DATA PROVIDERS		PRIVATE DATA PROVIDERS	
	Administrative Data	Survey Data & Census Data	Organic Data (Big Data)	
	Official Agencies & Institutes	Official Statistical Institutes & Research Centers	Mobile	Crowdsourcing
	Ministries		Online Traces	Social Media
			Financial Transactions	

PARTNERSHIPS & COOPERATION	FRAMEWORKS FOR DATA SHARING	Technical	TRUSTED DATA SHARING PLATFORMS
		Legal	
		Institutional	

- ▶ **86%** of schools record students' registration data
- ▶ **77%** of schools adopt online systems to record students' enrolment and grades
- ▶ **33%** of schools use virtual learning platforms

“CONNECTED EDUCATION” BROADBAND QUALITY MEASUREMENT SYSTEM



Measurements

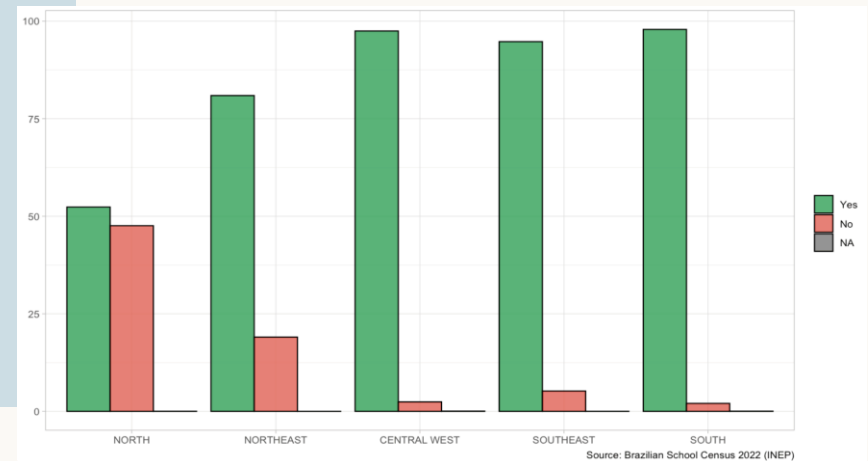
Number of measurements stored
~**65 Millions**

Schools

Number of schools with the measurement agent installed
71,564

Municipalities

Number of municipalities with at least one measurement agent already installed
5,470



<https://conectivadanaeducacao.nic.br/>

Global Trends of National Education Data Ecosystems

How Estonia put „e“ in education?



Erika Piirmets

Digital Transformation Adviser,
e-Estonia Briefing Center

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Preparing for the information society

95%

of schools
use e-diaries

4th

in media literacy
Media Literacy Index 2022

1st

in digital learning
CEPS 2019

99%

of Estonian kindergartens
take part in technology education
programme ProgeTiger

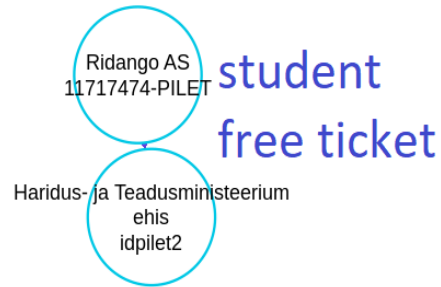
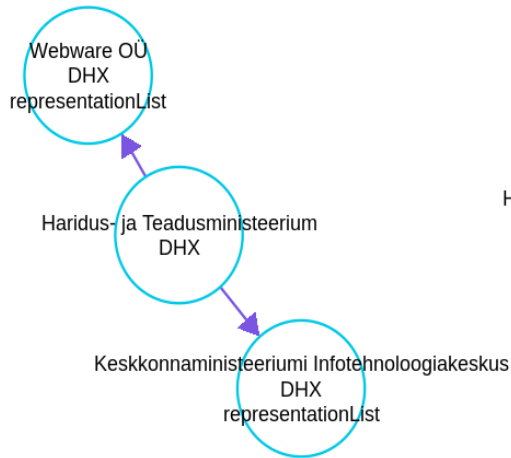
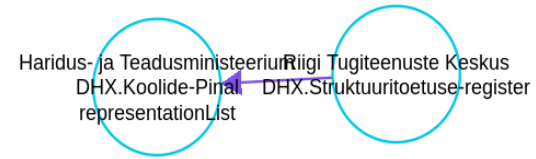
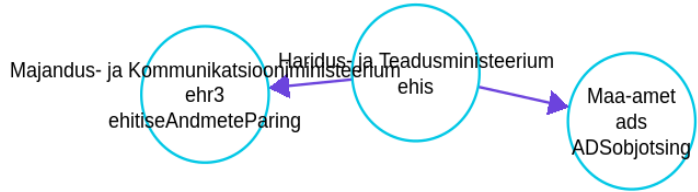
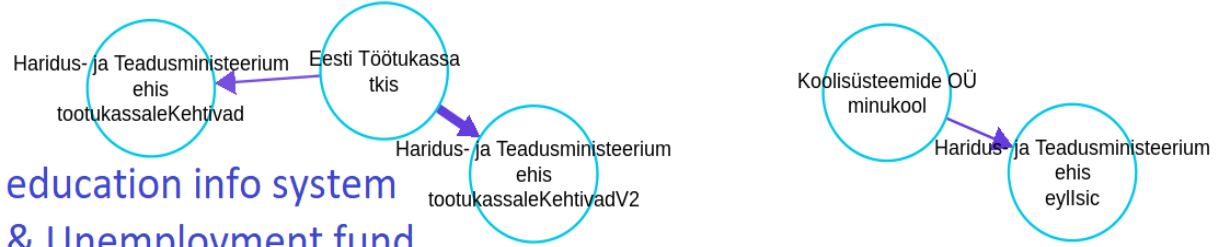
9%

of students study ICT in Estonia
– twice as many as EU average
Eurostat 2018

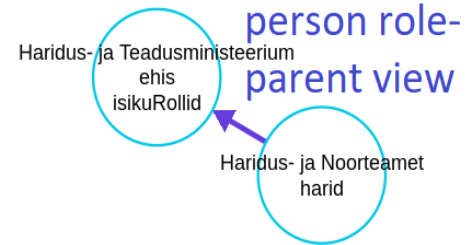
40%

of ICT university students are female –
this is highest share in Europe Informatics
Europe 2020

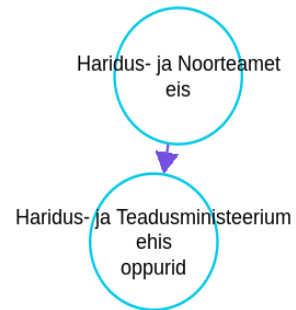
education info system & Unemployment fund



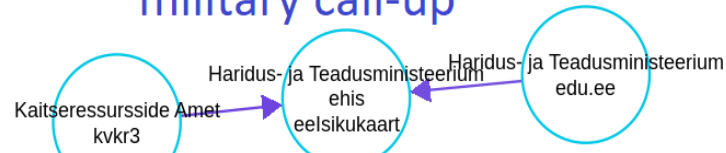
student free ticket



person role-parent view



military call-up



Global Trends of National Education Data Ecosystems

The Statistical Information System Collaboration Community



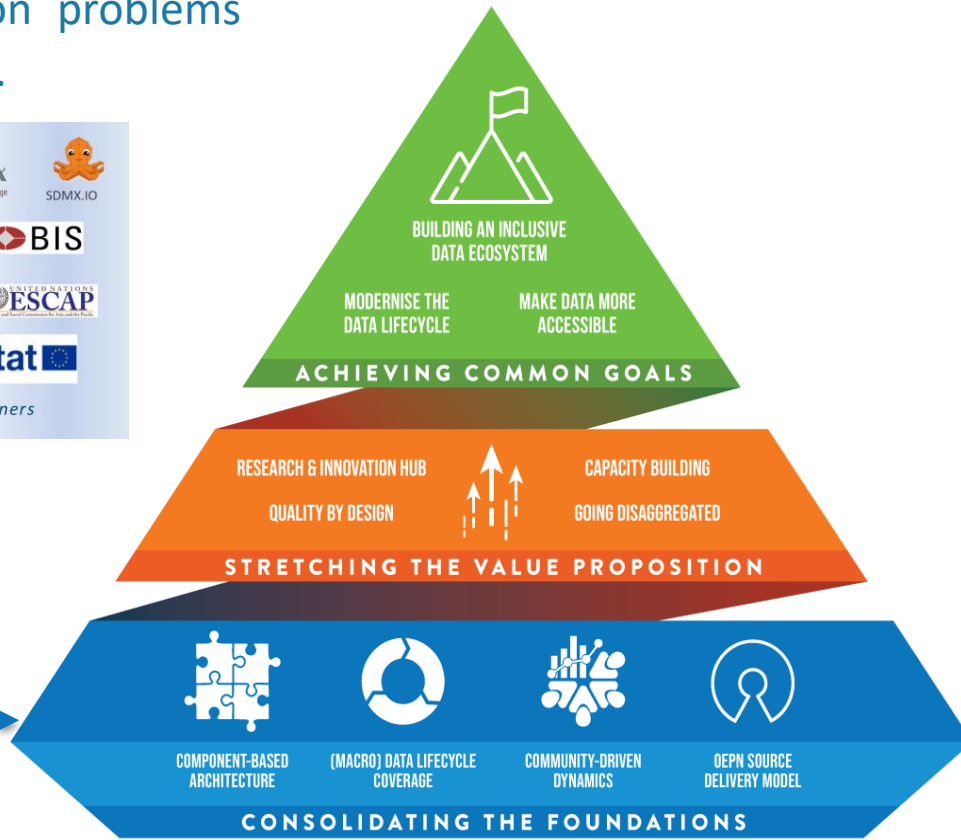
Jonathan Challener
Community Manager
SIS-CC, OECD



A reference **open-source** community for **official statistics**, focusing on **product excellence** and **delivering concrete solutions** to common problems through **co-investment** and **co-innovation**.



The bedrock of more than a decade of collaboration!



OPEN COLLABORATION



sdmx

SDMX enables a cooperative "Business Model"



.Stat Suite

Open-source tools enables to mutually leverage others investments



Coordinated NSS strengthens data accessibility & usability



BUILDING AN INCLUSIVE
DATA ECOSYSTEM

MODERNISE THE
DATA LIFECYCLE

MAKE DATA MORE
ACCESSIBLE

ACHIEVING COMMON GOALS

RESEARCH & INNOVATION HUB

QUALITY BY DESIGN



CAPACITY BUILDING

GOING DISAGGREGATED

STRETCHING THE VALUE PROPOSITION



COMPONENT-BASED
ARCHITECTURE



(MACRO) DATA LIFECYCLE
COVERAGE



COMMUNITY-DRIVEN
DYNAMICS



OPEN SOURCE
DELIVERY MODEL

OPEN KNOWLEDGE & CO-INNOVATION



.STAT
ACADEMY

Support your experts to become good trainers, coaches



sdmx

Structure your (Meta) data governance



Establish a systematic User Research

User research Task Force

Global Trends of National Education Data Ecosystems

CNIL's Approach to Data Privacy in French Education: Aligning with GDPR



Xavier DELPORTE

Director for Public Relations,
CNIL



Keynote presentation: Building Sustainable EMIS Transformation Pathways



Evan Atis

Education Economist

Data & Evidence Lead, GPE



Context: Why do we need to further modernize EMIS?

- ▶ Learning crisis;
- ▶ Inefficiencies of education systems;
- ▶ Weak evidence-based monitoring mechanisms;
- ▶ However, Education systems generate a large amount of data.

1. How can countries shift their efforts from intensive data collection processes to data translation into evidence that can be used for good governance & education systems transformation?
2. How can country partners build a strong data system architecture based on what already exists ?

Strengthening EMIS Modernization: The challenges

Coordination & Governance

- ▶ Uncoordinated efforts to data generation strengthening.
- ▶ Weak policy and governance frameworks.

Data Supply-Demand Gap

- ▶ Underutilization of available data
- ▶ Data collected mainly for reporting purposes but not to guide improvements

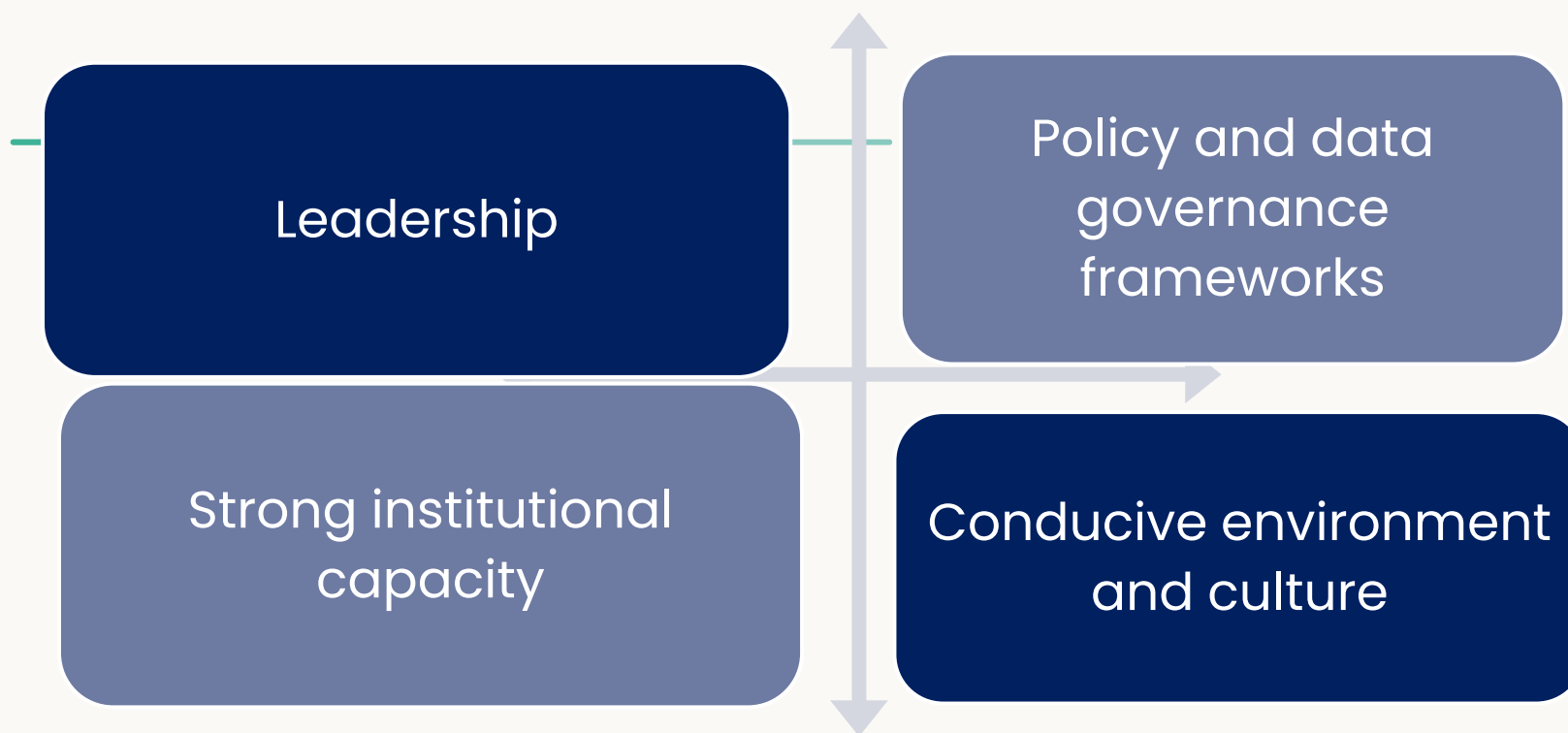
Institutional Capacity

- ▶ Focus on capacity strengthening at national level and less at subnational level.
- ▶ Lack of resources to maintain the required capacity over time.

Inadequate Data & Digital Solutions Architecture

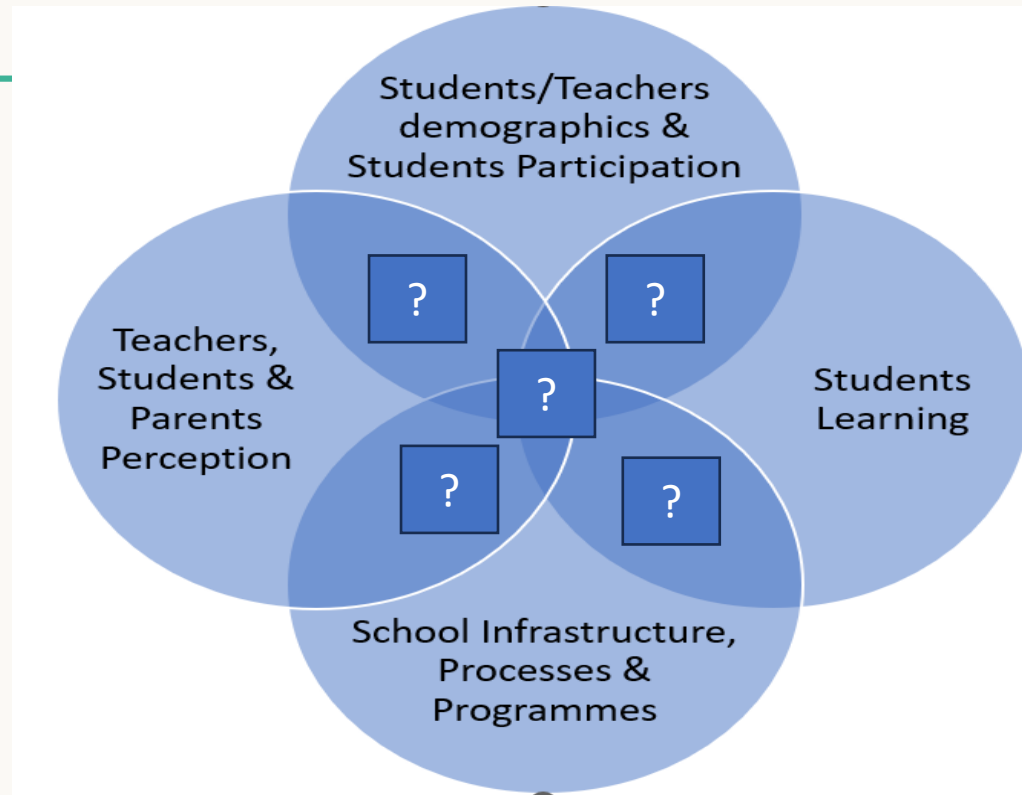
- ▶ Lack of interoperability standards
- ▶ Weak data governance framework
- ▶ Monolithic vs Integrated systems

Opportunities for EMIS Modernization: The Foundations



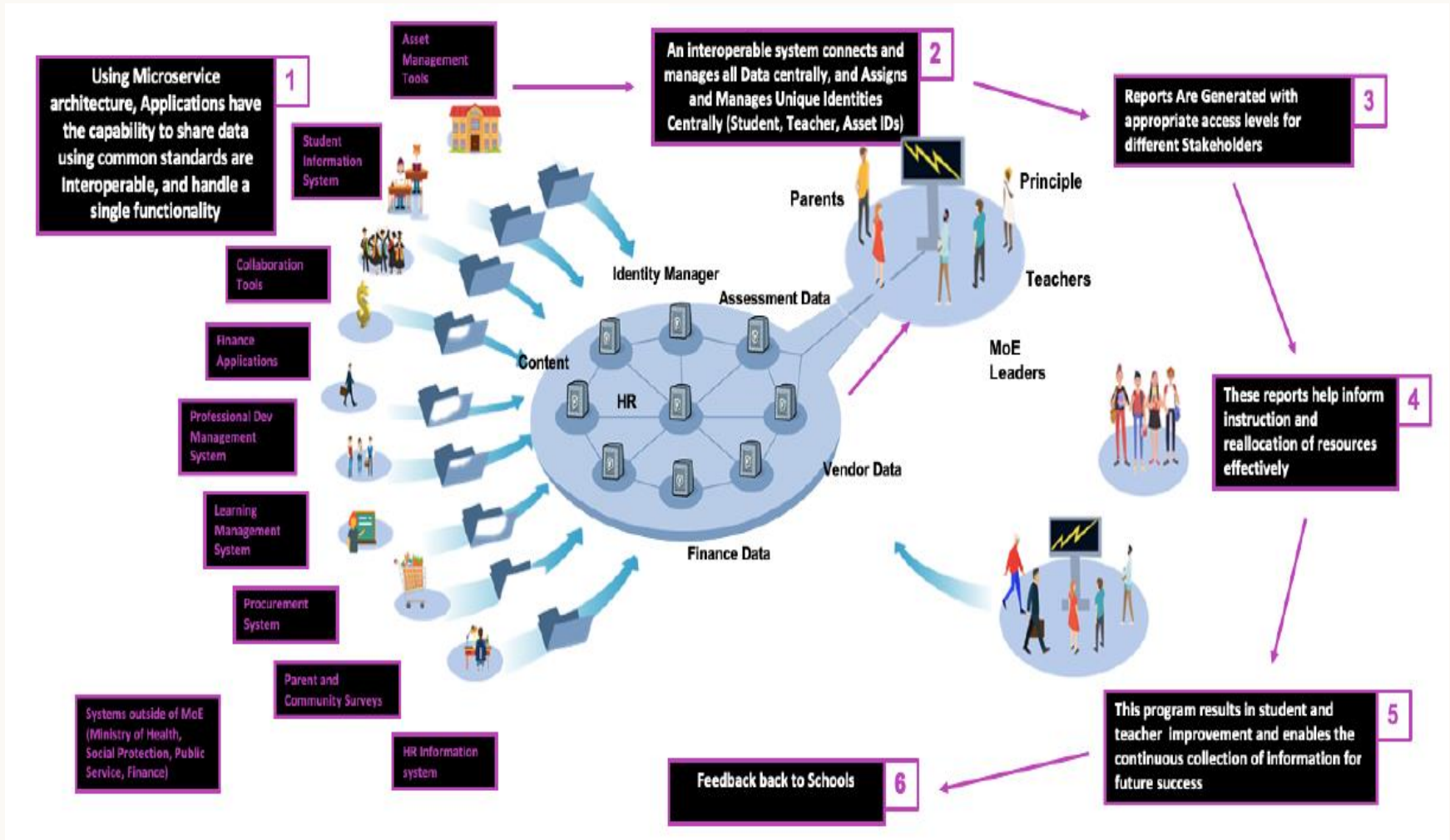
1. Ensure that decision-makers including teachers, have easy access to information and knowledge to help improve teaching and learning as well as system efficiencies.
2. Create a Virtuous Cycle of data production and data usage that drives informed decision making and facilitates the monitoring of SDG 4

Opportunities...: Shared Understanding of the Interrelationship between Categories of Data to Address key Policy Questions

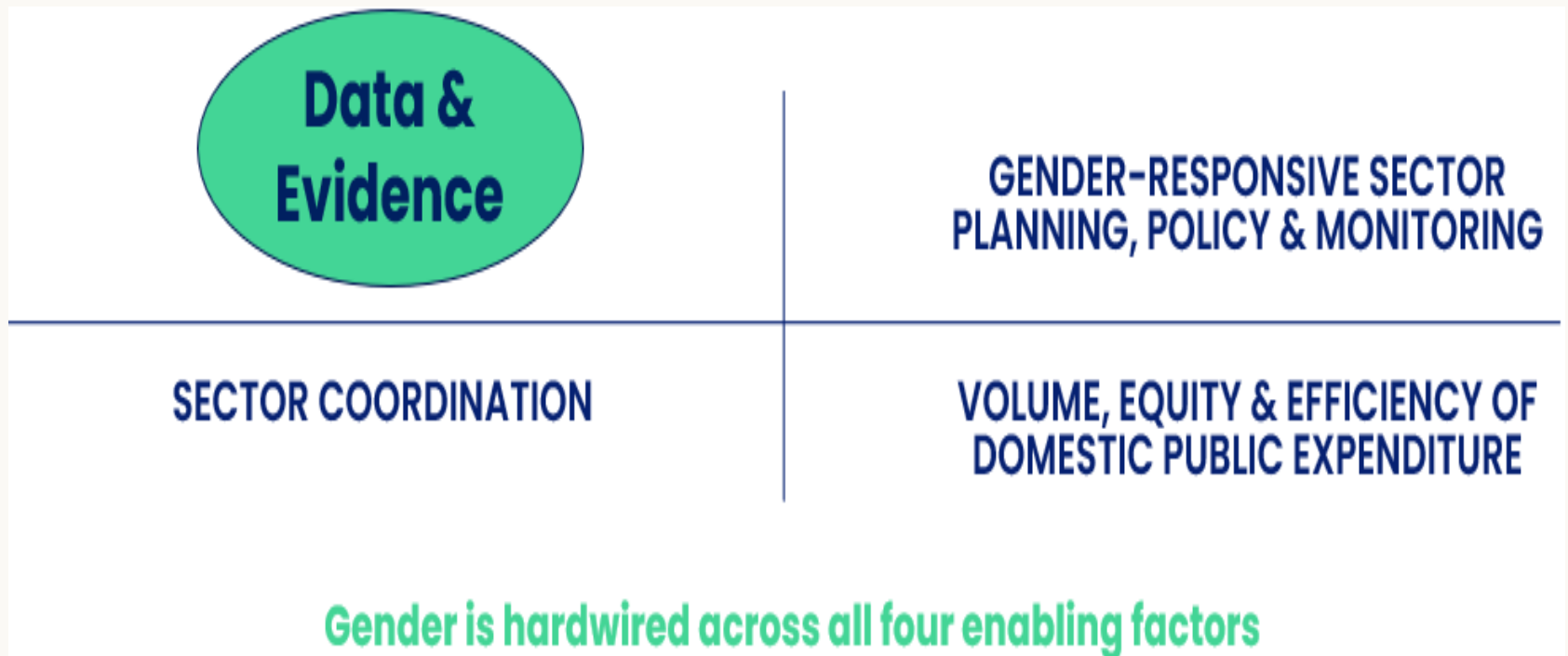


Shift to more advanced analytics on: 1) Teaching, including SDG 4 monitoring; 2) Early warning system creation; 3) Efficient allocation of resources;

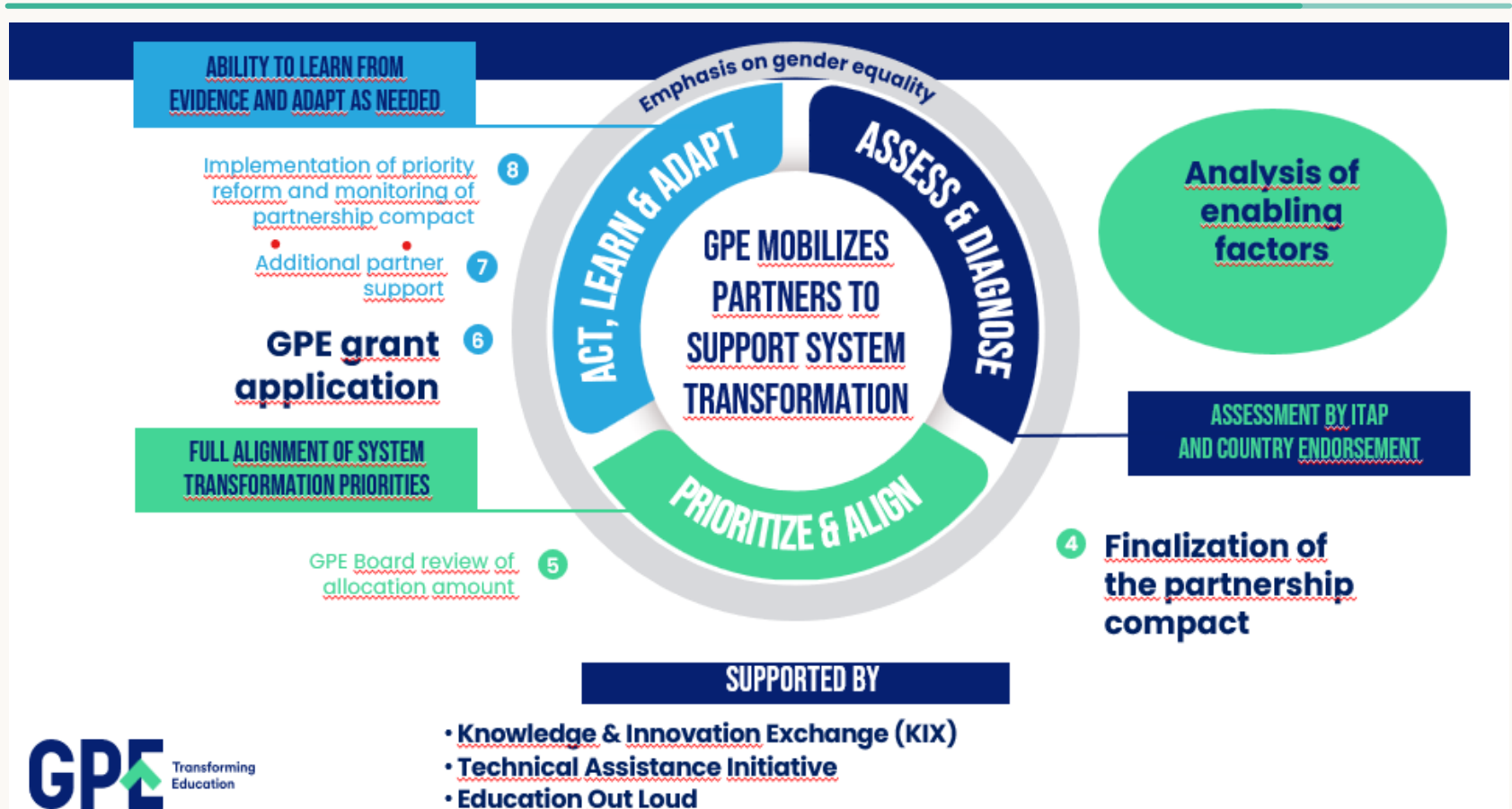
Opportunities: The Virtuous Cycle



GPE's Efforts to Support EMIS Modernization (1/2)



GPE's Efforts to Support EMIS Modernization (2/2)



Building Sustainable EMIS Transformation Pathways



Phillipa Livingston

Senior Statistician, Ministry of Education and Youth, Jamaica



Alpha Bah

Head of the EMIS unit, Ministry of Basic and Secondary Education, Gambia



Dr. Prosper Behumbiize

Program director,
Global Health Information
Systems Programs (HISP)



Pierre Chapelet

Senior Programme Officer,
UNESCO HQ



Global Trends of National Education Data Ecosystems

The main challenges Jamaica faced in modernizing the EMIS and what strategies were implemented to overcome them?



Phillipa Livingston

Senior Statistician,
Ministry of Education and Youth,
Jamaica



Challenges and complexities faced in modernizing EMIS in Jamaica

- ▶ **Data Quality and Standardization** - Multiple computer-based applications that are not integrated
- ▶ Resistance from Secondary schools who have their own Management Software
- ▶ **Policy and Governance:** Functional Structure of the MoE&Y do not allow for quick decision-making. Delays in decision-making in cross-functional areas
- ▶ Buy-in into urgency and importance of implementation

- ▶ **Capacity Building and Training** Availability of the technical skill sets to implement the EMIS into the MoE&Y and schools.
- ▶ **Infrastructure and Technology** availability of technological infrastructure in place to run the EMIS
- ▶ **Financial Constraints:** lack of adequate funding for the development, implementation, and maintenance of the EMIS was a persistent challenge

How did these challenges reflect broader global trends in EMIS development?

These challenges reflect broader global trends in EMIS development, such as the need for :

- ▶ real-time data capture capabilities to facilitate analysis and decision-making processes,
- ▶ Quality data serves as a diagnostic tool, enabling the identification of needs, problems, and challenges within the education system
- ▶ Data will allow for purposeful and efficient allocation of resources across all levels.
- ▶ An efficient system that channel resources into areas of greatest need and aligned with strategic objectives

Strategies implemented to overcome them

- ▶ Implementation of change management strategy- contracted a team to develop the strategy.
- ▶ Formulate a strategic vision and plan for EMIS development (establish conditions for strong governance) – establish a Steering committee
- ▶ Conduct capacity analysis of the existing technology infrastructure
- ▶ Identify technological and capital investment requirements (cost implications)
- ▶ Partnered with funding agencies eg. IDB
- ▶ Identify what modules are needed in the short and long-term
- ▶ Develop the capacity of technical staff and end-users – restructuring on the MIS Unit and training of staff

Global Trends of National Education Data Ecosystems

DHIS2 for Education implementation Challenges and Strategies



Dr. Prosper Behumbiize

Program director,

Global Health Information Systems Programs



Key learnings and practices most valuable in adapting DHIS2 for education sector needs

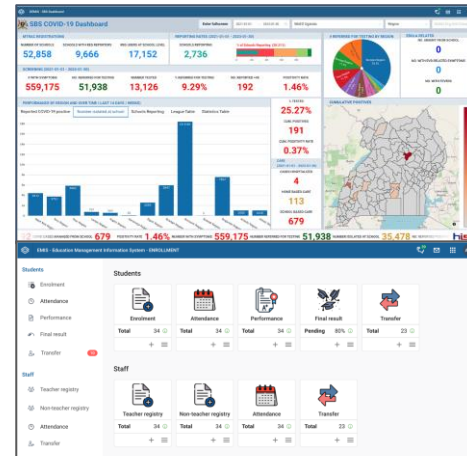
- **Stakeholder engagement** in initial processes of system design and subsequent implementation as it fosters ownership and ensures the system sustainability and alignment to user needs
- Importance of establishing a **master school list** as a backbone facilitating smooth data reporting and management
- **Equipping** national and subnational personnel with the necessary skills and knowledge ensures the efficient operation and maintenance of these systems over the long term
- Relevance of **partner coordination and harmonization** in order to streamline processes, minimize duplication and maximize impact
- Systems thrive in an environment supported by **well defined policies, adequate human resources** (district and learning institutions data personnel) and necessary infrastructure

Challenges faced during the implementation of DHIS2 for education

- Limited **stakeholders' buy-in** especially around decentralization and trust of data collected and captured by schools
- **Limited resources** (HR and funds) for data gathering, capture, analysis and dissemination. A lot of data discussions at global, continental, regional with limited impact at subnational level
- Rapid EMIS shift not **matching the reality** on ground
- **Data use culture** - non reliance on the available data, low motivation of data users
- Lack of data reporting **policies and guideline** especially when it comes to Private schools
- Limited **accountability** - to governments, funders and donors

Strategies that have proven effective in navigating the complexities of EMIS modernization in these contexts?

- Leveraging on the **DHIS2 capacity** (HISP groups, Health personnel and DHIS2 Community of Practice)
- **Real time and Routinization** of reporting to support timely data use
- Self service **visualization and dissemination** tools inbuilt in DHIS2 and addons
- Mature and free **API to exchange and integrate** DHIS2 for Education - legacy data and different softwares used in countries
- DHIS2 for education **Apps/Tools** for data capture/exchange, analysis, visualization and dissemination (e.g. SEMIS, Report Generator, Visual Studio, Import Wizard)
- Regional DHIS2 for Education Webinars, Conferences and Academies and online resources



Category	Value
Enrollment	559,175
Attendance	51,938
Performance	13,126
Final result	9.29%
Transfer	192
Staff	1.46%

Global Trends of National Education Data Ecosystems

The role of technology in education data production



Alpha Bah

Head of the EMIS unit,
Ministry of Basic and Secondary Education,
Gambia



Education Data Production: A National Challenge

The Education Data Gap

- ▶ Millions of children remain uncounted in education data.
 - About 27% or 78,000 OOSch
- ▶ COVID-19 pandemic further disrupted data collection.
 - Emis data was redundant
- ▶ Traditional methods have limitations, requiring innovative solutions.
 - ASC, Aggregate and Quantitative data in a centralised approaches
- ▶ Technology offers promising tools for improved data production
 - Use of SMS/Whatsapp aand AI

SDG 4 and the Need for Open Dialogue

- ▶ SDG 4 transformed education monitoring since its inception in 2015.
 - Health, Finance and Social and Gender Sectors
- ▶ Technical Cooperation Group (TCG) established for SDG 4 indicators.
- ▶ National SDG 4 benchmarks encourage data assessment and target setting.
- ▶ Regular forum needed for international data discussions

Global Trends of National Education Data Ecosystems

EMIS Readiness Assessment Tool for Transformation &
Sound Data for Good Governance Initiative (SDG²)



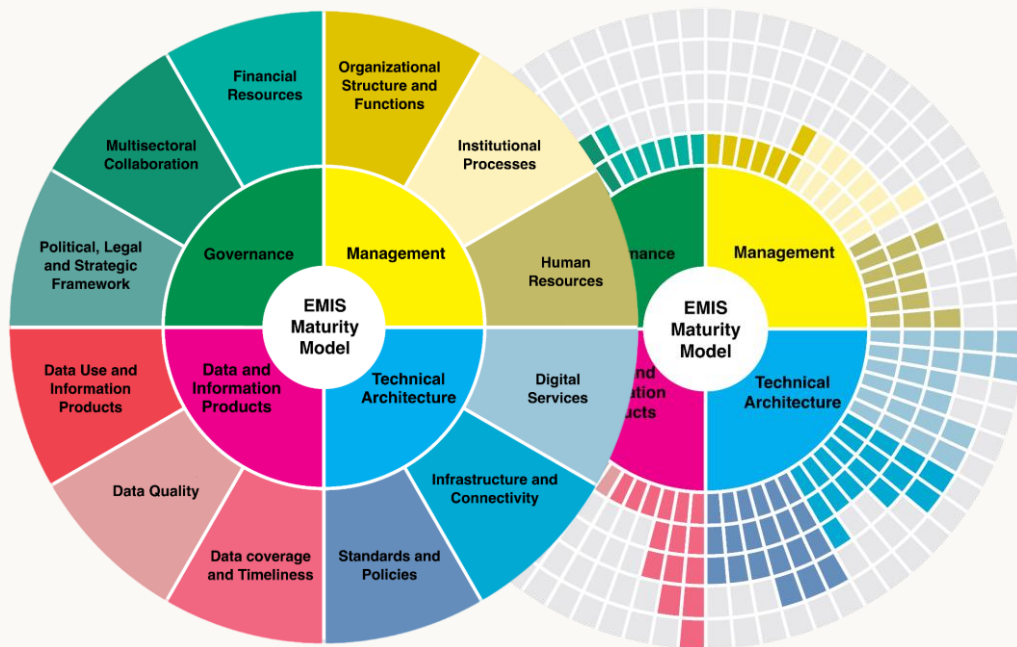
Pierre Chapelet

Senior Programme Officer,
UNESCO HQ



All National Data Systems in Education have Strengths and Weaknesses.

UNESCO's **EMIS Readiness Assessment Tool for Transformation** provides a diagnosis to determine priority areas to transform national Education Management Information Systems.



4 dimensions

12 sub-dimensions

4 weeks

Unlocking the power of data and
EMIS for enhanced education
management.



Lightweight and generic
EMIS diagnostic tool



Country-specific
transformation pathways



Initiating regional dialogue &
exchange between countries



Global benchmarking and
observatory



Sound Data for Good Governance Initiative (SDG²)

UNESCO's SDG² Initiative brings together open source EMIS solution providers and services to transform Education Management Information Systems.



A Global Catalogue of open-source core EMIS solutions to enable countries to objectively select tools adapted to their needs and use-cases.



A Global Service Desk for countries to get assistance on use of EMIS solutions.



A Global Academy to access a large collection training resources and courses on EMIS related domains



A Market Place to identify EMIS service providers providing technical support services



A Global Community of Practice for knowledge and experience sharing.



Standards for quality delivery

- **Software standards:** open-source, generic, documented
- **Data standards:** compliance with internationally recognized data frameworks and standards for ease of integration
- **Implementation standards:** service delivery modalities fostering local and regional capacities

Closing Remarks



Dr. Gwang-Chol Chang
Chief of Education Policy Section,
UNESCO

JOIN US

Join our Global Community of
Practice on Education
Management Information Systems:
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THANK YOU VERY MUCH !

For more information

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