

Summary

Workshop | Transforming educational management: How to build diagnostics and strengthening plans for EMIS in Latin America and the Caribbean

KIX LAC | OECS | Inter-American Development Bank (IDB)

Date: September 24, 2024

Via Zoom

Organizers: KIX LAC

Duration: 2 hrs

Recording availability: Link [Video workshop](#)

The following are the workshop speakers in the order they were presented.

1. Enabling conditions and roadmap for the digital transformation of EMIS in Latin America and the Caribbean | Elena Arias, BID
2. Panel discussion: National experiences in the implementation of EMIS | Moderator Marcelo Perez | Panelists Kheitt Silva Vale, Master in Administration at the Getulio Vargas Foundation (FGV); Neil Butcher, Open Educational Resources Strategist at OER Africa and collaborates with the World Bank and IDB on projects in Africa, Asia and the Caribbean; and Elena Arias Ortiz (IDB).
3. The Challenge of Improvement Plans: Strategies and Roadmaps | Sebastián Iturralde, Manager of the Economics Department of CPA Ferrere. Strengthening Plans
4. El Salvador Case: Information System for the Management of Education in El Salvador (SIGES) : Daniel Coello, Directorate of Planning, Ministry of Education of El Salvador.

1. EMIS from the perspective of the Inter-American Development Bank (IDB)

Among the motivations that drove the development of the EMIS study in Latin America and the Caribbean are some of the educational challenges that the region faces today, such as **low learning outcomes and high inequality (learning gaps: difference between learning outcomes between high-income and low-income students)**. In addition to this, the great challenge of School Management was highlighted, among them are:

- **Lack of automation and systematization of management processes**
- **Paper records**
- **Incomplete and poor quality information**
- **Budget allocation not based on reliable information**
- **Schools must upload the same information in different systems**
- **Isolated systems with low interoperability**
- **The educational census as the main source of information**

Furthermore, if we consider all the challenges mentioned above, added to the learning outcomes, what we see is that there is a low return for the existing level of investment in the countries of the region.

This has led to the need to generate an Educational Digital Transformation that results in what the IDB has called, an Education 4.0. In this vision of the future, **digital equipment is integrated into training and pedagogy, more personalized and relevant learning is expected**, in addition to **teachers promoting learning through innovative pedagogical practices** and where, finally, **technology contributes to an efficient management of processes and generation of strategic information for monitoring and decision making**.

Therefore, the EMIS project addresses these challenges by establishing two areas of work

1. Pedagogical transformation: Student-centered education that develops 21st century skills.
2. Expenditure management and efficiency: Efficient processes and integrated, up-to-date digital information

To this end, the creation of tools such as the [Eduotec Guide](#) and the [EMIS Diagnostic Instrument](#) was mentioned. Based on this, the following questions were answered: What is a EMIS? How to measure the level of maturity of the EMIS? What is the level of maturity of the EMIS in LAC? How to strengthen the EMIS?

A EMIS is a set of processes that allow the educational system to function as a whole. It includes **5 major management processes: i. Physical infrastructure and equipment, ii. Educational institutions, iii. Human and financial-budgetary resources, iv. Students and learning, v. Tools for strategic management** and **2 structural conditions** that are the basis for the development of the five previous processes: **i. Technological infrastructure and ii. Governance and institutional framework**.

On the other hand, a **simplified conceptual framework of a EMIS** was presented , in which among its High Impact pillars are:

Pillar 1: Single register of buildings → Structure and state of conservation, register of basic services available.

Pillar 2: Single school registry → Educational offerings, curricula, grades and classes.

Pillar 3: Single Registry of Human Resources and Positions → HR data, services rendered, job details and budgetary association.

Pillar 4: Single student registry → Nominal student data, educational trajectories and social benefits.

Pillar 5: Interoperability

All of the above under the enabling conditions of technological infrastructure with governance and institutional

Once the above is in place (basis for systematization + data management and analysis), the degree of digitization of the functionalities for educational management can be analyzed.

In relation to the maturity level of an EMIS, this is achieved from the application of the 85 items and a classification is made for each process and structural condition of 4 levels: Latent, Incipient, Emerging and Established.

OVERALL EMIS SCORE= MEDIAN OF 5 PROCESSES + MEDIAN OF 2 STRUCTURAL CONDITIONS

However, the general panorama of the evaluations carried out in Latin America shows that none of the countries studied reaches the level established at the global level, but there are those that do at the process level.

Regarding **the Strengthening Plans**, they are the last step in this process. They are intended to show the route that the system must follow to achieve the Established EMIS level. In addition, these plans **are adapted to the needs and contexts of each case studied and contain an integral and modular vision**, the latter meaning that not everything is worked on immediately, but that **there is a different time frame for attacking each process** to be improved, as well as considering the priorities of each country. Finally, a detailed costing of the activities is proposed.

Finally, it was mentioned how the estimation of investment costs in a EMIS is carried out, where the elements to be considered are firstly the level of maturity of the EMIS, then the size of the educational system, the previous investments in connectivity and equipment at school level, and also the institutional capacity at central, regional and school level.

2. Panel discussion: Implications of the EMIS diagnostic tool based on national experiences.

National experiences were presented where the EMIS has been applied (Brazil, Barbados and Jamaica) and where processes of change have already begun. The dynamics of this section consisted of a round of questions addressed to each of the panelists: Kheitt Silva Vale, Master in Administration at the Getulio Vargas Foundation (FGV); Neil Butcher, Open Educational Resources Strategist at OER Africa and collaborates with the World Bank and IDB on projects in Africa, Asia and the Caribbean; and Elena Arias Ortiz (IDB).

The panel began with the case of Brazil, in which the experience of the two applications (self-assessment and guided evaluation) of the EMIS diagnostic tool in the state of Paraná¹ was discussed. Two EMIS applications were carried out in this state, one in 2020 and the other in 2022. The one in 2020 was a self-assessment (EMIS Express) and then in 2022 a guided assessment (EMIS Diagnostic Instrument). Three major differences stand out from both applications:

¹ The state of Paraná has an educational system that serves from year 6 to 12, a network of 2,100 schools and 1.2 million students, and is one of the strongest performing states in Brazil. In Paraná, the diagnostic instrument was applied and after two years of implementing changes and **reforms**

- i) **The instrument as such**, where the self-assessment had 42 items versus the 119 items of the guided application.
- ii) **Method of application**. In the self-evaluation, each department and sector is responsible for the administration of the instrument, so the answers are subjective to an evaluation of the results made by them, while the guided evaluation is administered by technical agents and the secretariats work together with them, which generates a greater exchange of information that finally results in an objective answer and with greater depth.
- iii) **Results**. The self-evaluation may overestimate the results, compared to the guided evaluation, which may not be fully covering the reality of the situation.

In conclusion, the guided application is much more effective because it gathers information in greater depth and shows the reality of the system in a better way.

In the case of Barbados, the processes being carried out in both Barbados and Suriname were discussed, the latter having started with the development of a diagnostic assessment from scratch and emphasized that in order to use the EMIS diagnostic tool effectively, **it is necessary for the country to have some implementation underway**. Thus, the tool **helps to identify the main challenges and therefore where attention should be focused**. On the other hand, and in line with the Brazilian case, it is recommended to **repeat the diagnosis** after two or three years. In Barbados, it is even included in the planning to carry out this diagnosis again. Applying this instrument is the basis for starting implementation, as a baseline exercise, and then applying the diagnostic again after a few years to see the progress. On the other hand, it was mentioned the relevance of the instrument to systematically consider all the elements in the consultation with all the actors involved and then use this data to promote the planning and reform process of the EMIS without necessarily.

In the case of Jamaica, the challenges faced by the country in the implementation of its EMIS and how the instrument has supported it were discussed. The IDB representative mentioned that the diagnosis provided key information on the support to be provided to schools. In particular, the Ministry of Education did not have information on how the financial resources available to the schools were used; they only had information at the regional level. As a result, and in parallel to the expansion of EMIS at the central level, work is currently underway to provide schools with financial management software that will allow them to record this information both for decision-making by the schools themselves and for reporting to the Ministry. In other words, **the downstreaming to schools is important to strengthen EMIS at the central level**.

Then, when asked about the challenges faced by each country and what they hoped to solve with the EMIS diagnosis, in the case of Brazil, it was mentioned that during the COVID-19 pandemic, the Secretariat of the State of Paraná had two priority emergencies: 1) To provide quality education for all students and 2) To have data. Therefore, the diagnosis helped to clarify the difficulties faced by the secretariat, as it highlighted the need to have concrete data to provide quality education for all students, as well as to have information on different educational indicators, but above all the importance of incorporating technology in all these processes. Thus, the diagnosis was a starting point to direct the secretariat's efforts in these areas.

In the case of Barbados, the challenge lay in the implementation of the EMIS itself, which had stalled and created certain difficulties for the team to respond to this problem. However, a key element that helped to guide the next steps for the implementation of the EMIS was the development of a diagnosis that helped to identify in concrete and practical terms exactly where the challenges were, which consequently facilitated the identification of specific solutions. From this, it was highlighted that the scoring methodology is very useful because it helps to focus on the specific weakest components of the EMIS implementation. However, it was finally highlighted that the strength of the instrument lies in the detail of the individual questions.

What was done for each component was to develop a list of strengths and weaknesses of the current implementation of EMIS in Barbados, using the individual questions as a guide. All detailed responses and data are then attached as an annex to the final report. This facilitated the task of persuading policy decision-makers on the actions to be taken and the main challenges they were facing. Along these lines, it was emphasized that this systematic process in which the different educational stakeholders were consulted would have been much more difficult if it had been carried out as an expert consultant, especially convincing the Ministry of what the roadmap should look like. From this experience, one of the main lessons learned is that the application of the diagnostic tool has facilitated the process of moving from diagnosis to implementation.

In the next question focused on how countries with similar challenges could establish connections in order to create shared solutions around their EMIS, Butcher highlighted that although countries tend to think that their problems and therefore their solutions in the implementation of an EMIS are unique, experience in working with Caribbean countries has shown him that in reality these countries have several similarities both in their problems and in the possible solutions that can be given to them. Therefore, it would be possible to select from a toolbox the solutions to the specific problems that are most pressing in each country.

What is being experienced today, informally, is that by using the knowledge of a consultant working in several countries at the same time, as an informal network and sharing information, policy development processes can be accelerated. The development of implementation plans can be accelerated. As an example, it is possible that the most important aspect of the common implementation of an EMIS is the fact that many countries have chosen the same technical solution, which is an open source application called Open EMIS.

In this line, he mentioned the next project that he has in conjunction with the IDB, where the intention is to convert the information that emerges from the diagnoses into a knowledge exchange platform, which will be based mainly on the diagnostic assessment tool as one of its main tools to facilitate the exchange of information between countries, which will result in all countries benefiting from the lessons learned from each other and from its use to accelerate the identification of problems.

Finally, two elements stand out for the success of this implementation: 1) political commitment from the highest levels and 2) discipline and commitment to details, such as job descriptions of the officials who will be part of the EMIS unit and the roles to be played in the capacity development strategies. In particular, it is essential, to the extent possible, to be able to ensure that the exchange of information is actually an exchange of detailed information associated with implementation challenges, not just research reports documenting what the challenges are and the processes for resolving them.

3. Presentation by Sebastián Iturralde, Manager of the Economics Department of CPA Ferrere. Strengthening Plans

The presentation was structured in three main components: 1) Global vision of Transformation, 2) Recommendations for the elaboration of strengthening plans, 3) Other considerations, and 4) Other considerations.

a. Global vision of transformation

The global vision of transformation should never be lost sight of in the elaboration of a digital strengthening or transformation plan; it is the north when we want to reach the 4.0 education that was mentioned at the beginning. To achieve this, there are enabling conditions related to infrastructure, governance and institutional framework, and then dynamic conditions such as the management pillar, especially focused on the EMIS, and the pedagogical pillar related to the incorporation of technologies and data in the learning process itself. In order to achieve a comprehensive approach, both pillars must be taken into account, which implies taking into consideration actions that contemplate all the necessary elements for efficient management, actions to strengthen the digital competencies of the actors in the education system and also the digital resources available to strengthen the infrastructure and technological equipment.

b. Recommendations for the development of the strengthening plan.

Among the recommendations/suggestions for the elaboration of strengthening plans, always considering that each case is specific and therefore each plan must respond to the needs of the country or region that is promoting the study, the following were mentioned:

- **The plan must always consider a general vision of transformation, as well as political and institutional support for implementation.** Any plan must consider the management processes, plus the structural conditions in which an EMIS is framed. It is not enough to consider only some of them; the entire framework on which the EMIS is based must be considered. On the other hand, if a country has a strategic plan for information technologies, this strengthening plan must be linked

to the previous one, since it has an institutional and political consensus. In this regard, it is essential to have institutional backing, to reach a consensus on the strategic direction at the level of the most relevant stakeholders and to empower the stakeholders involved in the plan.

- **The plan must define actions to close the gaps between the diagnosis made (for example, by means of the EMIS diagnostic tool) and a maximum state of development (such as the level: Established).** Based on the scoring of each process and sub-process, actions can be defined to help converge to this maximum state of development. Among these actions are, among the most basic, having unique identifiers, unique information records, optimizing access to information, digitizing and systematizing processes and even improving the functionalities of some of the systems that are already established.
- **All these actions must be structured in components that act on specific purposes.**

- **The plan must move from a general or very abstract plan to a detailed transformation plan.**
- **The plan should be implemented in stages or implementation modules.** In this way, it is more viable to carry out the implementation process, since, for example, it makes it possible to internalize the budgetary restrictions or the capacities of the agencies, as well as to manage change within the organizations. The definition of stages depends both on the diagnosis of the EMIS in the specific case, as well as on the institutional restrictions present in each case. Here the question "What are we prepared for and what can we do?" becomes relevant to see how to begin to drive the actions to be taken in the future. The scope of these actions ranges from process reengineering (more complex and with more resistance) to the conceptual guidelines of the EMIS operation, capacity building of existing staff or the hiring of new staff.
- **The plan should focus on the strengths of existing systems.** Within the plans, weaknesses, points of improvement and strengths are identified, where it is key to focus on the latter to develop the plan.
- **When developing a plan, it is essential to map all available resources at the national, provincial or local level.** These resources can be financial, digital or systems resources. The objective of tracking all these resources is to be able to take advantage of these existing solutions and not to generate new ones. In this sense, coordination between actors and levels is essential to take advantage of existing resources and not to duplicate efforts.
- **Design a change management plan that accompanies and complements the digital transformation plan.** The transformation plan must have a governance structure that allows proper monitoring and evaluation of how it is being executed, but it must also have a specialized unit/focused on change management. On the other hand, the transformation should not be thought of in isolation, but rather in an integrated manner, otherwise the efforts made to manage change will be perceived as isolated things, not linked to the more technical and functional aspects of the solutions and changes that are put in place. Integration is key. The two go hand in hand

- **Related to change management, you always have to expose to all stakeholders the benefits of implementing a digital transformation plan.** When they see these benefits, they will realize that there are benefits for each of the stakeholders involved. In the long term, all the benefits will have an impact on the quality of learning and on the monitoring of students and teachers, which is the focus of an EMIS.

c. Other elements to take into consideration.

In the case of infrastructure management, HR management and financial resource management, it is necessary that the plan is in dialogue with the frameworks and guidelines defined at the general government level. Always before thinking about solutions and systematization, it is key to think about how we can generate processes, that is, to promote reengineering to generate efficiencies. On the other hand, in order to aspire to higher levels of development, technological infrastructure and connectivity are key. The institutional structure of the educational systems conditions the deployment of the plan, so all the actors involved must be internally coordinated and in constant

dialogue. Another point, to develop systems it is not necessary to reinvent the wheel but to use existing resources and learn from the experiences of others. "Always in a transformation plan the focus should be on the system's protagonists, i.e., the focus should not be lost on students and teachers when thinking about isolated systems and processes. Rather, all of this has a final objective, which is to have an impact on the performance and performance of students and teachers and, therefore, on the education system."

4. El Salvador Case: Information System for the Management of Education in El Salvador (SIGES)

A final presentation was given by Daniel Coello, representative of the Ministry of Education of El Salvador, on the Salvadoran Educational Management Information System (SIGES), where the main challenges faced in the implementation of the system were presented, as well as the future steps that are expected to be taken in this regard.

El Salvador has the Salvadoran Educational Management Information System, which aims to "Generate strategic information on Salvadoran education through the registration of critical variables of the SIGES educational system, in order to contribute to evidence-based decision making for the improvement of educational quality". This system contains data from all educational centers, both public and private, and has a complete registry of students and teachers and works in close collaboration with the area of innovation and technology.

Among the main challenges presented in relation to SIGES were:

- Digital divide in users: For teachers, parents, and some students.
- Strengthening of training strategies for the entire educational community.

- Strengthening the culture of timely registration of information. Counterparties request feedback on the information, but do not enter the requested information within the agreed deadlines.
- Establishment of quality management and data integration strategies
- Strengthening of the technological infrastructure for the optimal functioning of SIGED: Work closely with the technology area to keep the system up to date.

While the next steps to follow in the development and improvement of SIGES are:

- Improve functionality by making adjustments to SIGES.
- Activation of the Quality Model Portal
- Implementation of Continuous Training Methodologies in SIGES
- Inter-institutional Coordination with RNP for data validation
- Socialization of the Monitoring System (SIMON) to the Educational Centers.
- Conducting a study to establish a Governance Model.