Deloitte.

Six Nations of the Grand River
Education Technology Assessment

Final Report
June 2020

Executive Summary

This report details the final outputs of the project, including insights from Phase 1 - Current state assessment and future state visioning, Phase 2 - Signature requirements and user journey maps, and Phase 3 - Technology solution and high-level roadmap.

Project Overview

- Six Nations of the Grand River ("Six Nations") is committed to delivering an **enhanced lifelong learning experience** supported by a world-class education ecosystem for all Haudenosaunee learners to achieve success in education
- Six Nations engaged Deloitte to mobilize the transformation journey by assessing the current state of the **education technology landscape for K-12 education providers** and developing high-level business requirements to inform optimal technology solutions and roadmap development. Education technology primarily focuses on **Student Information Systems (SIS) and Learning Management Systems (LMS)** followed by HR and Finance systems in the K-12 sector

Current State Themes & Future Vision

- Gathered **current state challenges and future aspirations** through 10+ stakeholder interviews across various entities.
- **Six emerging trends** that are shaping the K-12 education technology sector includes Adaptive learning, Immersive technologies (AR / VR), Conversational Technologies, Digital Assessment, Omni channel User Engagement, and Data security & Privacy
- **Education Technology Vision:** Six Nations' education technology should enable the community to provide its learners with a life-long learning experience that inculcates Haudenosaunee language and culture, drives inclusiveness, equity, and unity, and supports learner success. The technology should enhance student, teacher, parent, and community experience with education while future-proofing their ability to adapt to evolving digital paradigms.
- **Future State Prioritization Outcomes:** Student data management and real-time SIS-LMS integration emerged as the highest priority areas for transformation. Effective training & support, security and privacy, robust reporting & analytics, and better user experience also featured among top priority areas, among others.

Future State Signature Requirements & User Journey

- Signature Requirements are the **must-have system (SIS & LMS) requirements** to consider while deciding on the future software solution
- **A set of technology-agnostic requirements have been developed for both SIS and LMS systems** based on phase 1 future state visioning exercise outcomes, and industry best practices.
- SIS and LMS signature requirements have been validated with various Six Nations stakeholders, primarily from STEAM Academy and OSTTC during workshops. **41 SIS and 45 LMS requirements have been summarized as outcomes.**
- Future state user journey maps were developed using a **human-centered design approach**
- **4 key user personas** (e.g., students, teachers, parents, administrators) have been identified to learn about **users' education technology needs, moments that matter the most, and the key technology interactions** in their end-to-end journey

What's Next: Technology Solution Recommendation and Transformation Roadmap

- Deloitte recommends a **phased-transition plan** encompassing **remediation, partial, and full transformation phases** to support the technology transformation at the community and the individual entity level:
  - **Under Phase 1 -** The remediation stage: Education Coordination Office (ECO) **to set up a new SIS**, which is integrated with entities' SIS to retrieve information on ECO sponsored students. This centralized SIS will also help Six Nations (SN) to reduce costs and effectively manage student data once SN takes control of the federal schools. In addition, SN to develop a **centralized IT support team** at the community level; Entities to support SIS integration between ECO and their SISs
  - **During Phase 2** - The partial transformation stage: ECO to **introduce a new LMS** and integrate it with ECO SIS and entities' LMSs. Entities to support ECO during the LMS integration and also to ensure **seamless integration between SIS and LMS within each entity**
  - **During Phase 3** - The full transformation phase: ECO to **introduce HR and Finance ERP systems** and connect all education systems (SIS/LMS/HR/FIN) to get a **360-degree view on its constituents**. Individual education entities will work to further streamline their technology landscape to eliminate manual processes.
- A high-level **Transformation Roadmap** that **spans across three phases over the next five years** has been established. It starts with approximately **3-6 months** of mobilization period (phase 0), followed by **6-12 months** in the remediation phase (Phase 1). Next, it moves to the partial transformation phase (Phase 2) for two years before getting into the full transformation phase (Phase 3) for **additional 2-3 years**. With the help of this roadmap, SN can fully transform its education technology landscape within five years. (Note: there are internal agreements and funding that need to be in place to support this technology Transformation Roadmap)
- **16 / 70+ technology vendors** that align with K-12 industry trends and Six Nations' must-have capabilities were shortlisted for Six Nations to consider during the education technology transformation journey

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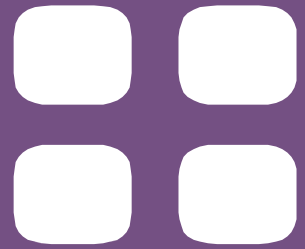
1. Project Overview



1.1 Evolution of Six Nations' Education Management Vision

Six Nations' Education Coordination Office (ECO) has articulated several iterations of community's education management vision over the years with the consistent goal of developing recommendations for community's life-long learning initiative.

Six Nations has articulated key constituents of their vision for education management over the years.

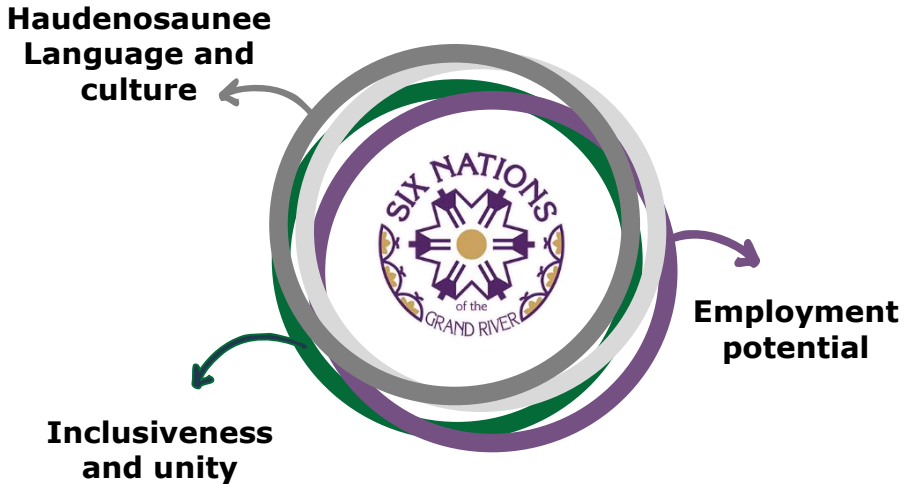
Six Nations Education Commission

A future in which all of our Rotinonhshon:ni students can achieve their full potential.

Six Nations Community Plan Tsęh Niyǫgwadrihwihsaʔnhǫʔ

Employment and Education is one of the eight priority areas of the community and articulates a vision whereby, "Six Nations is a community where all have access to holistic education that centers around our culture and prepares our people for employment opportunities in all fields."

2015 — **2018** — **2019** — **2020**



LLTF Mandate

LLTF is mandated to explore options and make recommendations on a world-class lifelong learning (education) system - that is grounded in language and culture - to the Six Nations of the Grand River Elected Council and community, pursuant to the approval of SNGREC.

Recent evolving guidelines

- Gather and be responsive to Haudenosaunee learners inclusive of all voices
- Cradle to the grave Haudenosaunee values, long term birth to sunset
- Haudenosaunee language, culture and values are the foundation for lifelong learning
- Knowledge and wisdom as opposed to "education"
- Unifies the community
- Inclusive of all community voices – advocacy, honesty and commitment, family community

1.2 Project Background & Objectives

To meet the objective of providing a world-class education to its learners, the Education Coordination Office (ECO) engaged Deloitte to undertake a comprehensive review of the current education technology landscape and to devise a future technology strategy.

Project Background

Six Nations of the Grand River (Six Nations or SN) aspires to provide an enhanced life-long education experience for all community stakeholders supported by a world-class education technology ecosystem.

During late 2018 – early 2019, Deloitte was engaged by Six Nations to complete a historical costing analysis and develop a future vision for the Six Nations education system, ultimately determining a high-level view of the funding required to achieve the rights holders' vision.

To explore further the recommendations from the previous study, Deloitte was engaged to undertake a comprehensive review of the education technology landscape.

As part of this project, Six Nations wanted to achieve the following objectives:

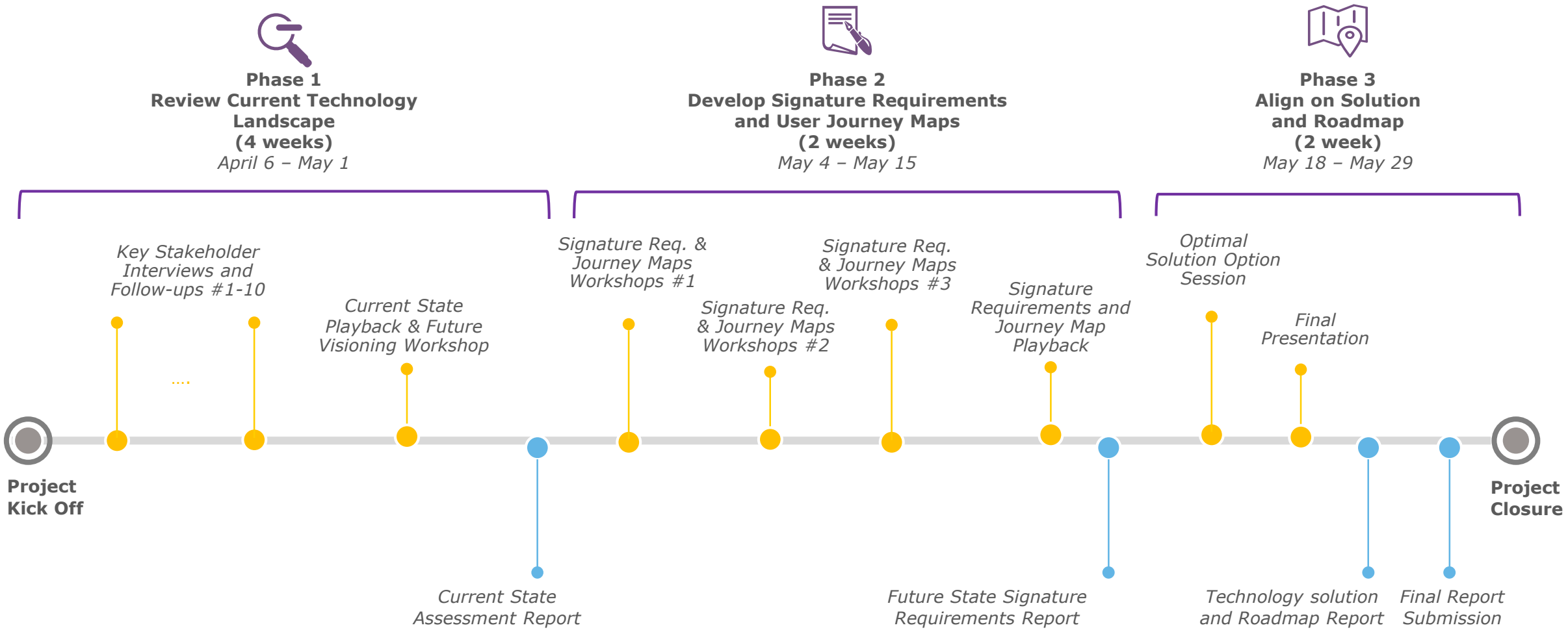
1. Understand the current state of education technology including needs and gaps, with a primary focus on Student Information System (SIS) and Learning Management System (LMS) followed by HR and Finance systems in the K-12 sector

2. Develop SIS and LMS related high-level business requirements for and desired future state user journey maps

3. Determine the optimal technology solution and high-level transformation roadmap

1.3 Project Structure

During eight weeks, the project team has engaged key stakeholders through interviews and workshops to understand current state technology challenges, future aspirations and to validate the must-have business requirements and desired user experience.



Legend Start / End Point · Interview / Meeting / Workshop · Deliverables

1.4 Project Stakeholders

Stakeholders across the community were engaged through interviews, workshops, and playback sessions to shape the education technology transformation strategy.

(x) Entities that participated in the study | Primary scope of the project | Secondary scope of the project | *NOT EXHAUSTIVE*

Key entities in the Six Nations Education Ecosystem

1 Strategic / coordination entities

- Lifelong Learning Task Force (LLTF)
- Education Coordination Office (ECO)

K-12 education entities

2 Federal schools

- Emily C. General
- Jamieson
- J. C. Hill
- O. M. Smith
- I. L. Thomas

Provincial schools*

- 3 GEDSB
- BHNCDSB

Private schools

- 4 SNP STEAM Academy
- 5 KGPS
- Everlasting Tree School

Other entities – post-secondary / adult education entities, funding entities etc.

- 6 GRETI / GREAT / OSTTC
- SNP
- ISC
- 7 GRPSEO

Technology areas across all key entities

- Student Management
- Learning Management
- HR
- Finance

1.5 Project Achievements

The following three major milestones have been achieved during the last eight weeks

1

Current State Assessment & Future State Visioning

Understood the current education technology challenges and aspirations, market trends, and future priorities for the education technology transformation

2

Future State Signature Requirements

Developed signature requirements and future state user journey maps to attain the desired future state

3

Technology Solution & Roadmap

Developed phased-transition technology solution and implementation roadmap including estimated timelines and budget items

Engagement Factoids

8 Weeks

8+ Entities

15+ Interviews

30+ Participants

40+ Documents

2. Current State Themes & Future Vision

2.1 Our Approach for Current State Assessment and Future Vision

Through engagement with project stakeholders across different entities, three key activities have been conducted to capture current state challenges and future aspirations, understand K-12 education market insights, and alignment on future state education technology priorities

Key Activities:

Current State Discovery

Understanding of current state challenges and technology landscape through stakeholder interviews and document analysis

Market Scan

Understanding of K-12 emerging technology trends and vendor landscape through extensive primary and secondary market research

Future State Visioning

Development of future state vision based on the current pain points, future aspiration and industry-leading practices

The findings of this phase have helped to set up a solid foundation for the future state signature requirements and technology solution development.

2.2 Current State – what we've heard?

Over the course of interviews and document review, a series of themes emerged that speak to what's working well and what's not with the current state of education management in general and education management technology in particular.

What's NOT working well

Limited Internet Access

Students have limited internet access on the reserve, preventing them participating in online learning / training activities.

Lagging Capital Investments

Lack of capital investments on IT, buildings, and other basic infrastructure limits scalability for easier, more streamlined education technology transformation.

Siloed Technology Operations

Entities have strong silos in their system operations, resulting in technology complexity and operational inefficiency.

Lack of Process Automation

Student Management and Learning Management are heavily reliant on manual data entry and bulky process, leading to operational inefficiency and user frustration.

Poor Reporting and Data-based Decision-Making

Access to data is restricted due to low leverage of technology within entities and minimal integration across entities, hindering decision-making around funding, programs etc.

Slow Technology Adoption

Adoption of current technologies is low because of tech complexity, lack of training, lack of basic infrastructure (internet, email addresses etc.), poor change management etc.

Insufficient Training / Tech Support

Limited user training and technology support in place from system providers, impeding IT service delivery and adoption.

A Lack of Holistic Strategy/Focus

Each entity appears to be focused on its own affairs with limited understanding/acceptance of the benefits of a holistic strategy/focus. There seems to be a general lack of willingness to work together.

Funding challenges

Funding continues to be a key challenge – it is insufficient in general, and limited for capital projects. Government-mandated technologies to track funding are not very intuitive.

What's working well

Best-of-breed technologies deployed in some entities

Some entities already have best-of-breed education technology. These entities have an opportunity to optimize their tech through better training/support/integration.

Some level of technology consistency across entities

A few entities have adopted the same technology for LMS or SIS (though not in a coordinated manner). This could help make any future integration efforts easier and more effective.

An emerging orientation for convergence / integration

Though there is a general lack of holistic strategy, there is an emerging understanding in various parts of the ecosystem that a disjointed approach will not serve for the future

2.3 Current State – where do we want to go?

Aspirations for education management in general and education management technology, in particular, were captured through stakeholder interviews.

Digital way of doing business

More automation and less reliance on paper-based processes. Better reporting and more data-based decision-making. Ability to overcome fear of transformation.

Cloud-based learning

Ability to deliver learning online to give students more flexible access to learning. Students need to have robust devices and reliable internet access to enable cloud-based learning.

Enhanced experience

Enhanced experience for students, teachers, and parents to ensure higher engagement, increased technology adoption, and better learning outcomes.

More localized technology

Need technology vendors that understand local, institutional realities. Want to avoid vendors (e.g., US-based ones) that do not make an effort to localize their technology.

Better tech training, support, & change management

Need more training, support, and change management to maximize benefits from tech implementation and increase adoption

Change in learner mindset

Enabling students to think beyond survival jobs to pursue careers. Leverage technology to help them navigate their way through this shift in mindset.

We want to be ready for an all-cloud future. Our cloud solution has helped us better handle the disruption due to COVID-19

We need to transition to a digital way of doing business – right now, we have too many manual, paper-based processes.

More effective funding mechanisms

Funding that goes beyond short-term project-based funding to strategic capital funding that enhances the fundamental infrastructure of education management.

A more unified approach

Some entities voiced an aspiration for the education ecosystem to adopt a more unified approach with better engagement in endeavors that span across entities.

Teachers need to be trained on new systems and they need to have a positive experience at work.

Though we don't have systems that speak to each other right now, we will need to be more integrated in the future

2.4 Key Emerging Trends in the K-12 Education Technology Market

The "digitalization of education" continues at a rapid pace in K-12 education, which allows technology to act as a significant strategic enabler with business leadership in the complex pursuits of improving teaching and learning outcomes. The following are the top and latest strategic technology trends impacting K-12 education transformation:

Adaptive Learning

- Adaptive learning technologies dynamically adjusts the way content is presented to the students based on their responses or preferences, which provides a **personalized and competency-based learning path** to each learner
- Gartner predicts that **60%** of K-12 organizations will be actively experimenting some level of adaptive learning solutions in their regular instructional offerings by 2025

Immersive Technologies (Augmented Reality / Virtual Reality)

- The use of immersive technologies in K-12 education has drawn a **high degree of novelty** due to science simulations and virtual explorations
- Working with curriculum leadership by experimenting with small, contained pilots at school will help to **identify the specific needs and avoid costly mistakes**

Artificial Intelligence (AI) / Conversational technologies

- The adoption of AI-enabled products provide **real-time data insights and predictive trends** for users, which helps organizations make **informed decisions and timely actions**
- Leveraging conversational technologies (e.g., virtual learning assistant, AI chatbots) will significantly improve **user interactions and technology operational efficiency**

Digital Assessment

- Explore opportunities to enable digital assessment capabilities by using it to decrease the load on teachers and **enable faster, easier means of assessing student learning**
- Gartner states that **71%** of K-12 CIOs report they have already invested or are in short-term planning/experimentation in some aspect of this area

Omnichannel User Engagement

- Multichannel user engagement technologies will create a **customer-centric experience for learners**, meeting users when and where they want to be engaged
- Analyzing and improving **customer-facing processes and technology touchpoints** are the foundations to start organization's user personalization journey

Data Security and Privacy

- K-12 entities are **increasingly prime targets for cyberattacks** because of the large amount of student and employee data they collect, store, and analyze
- **Adopt security and privacy policies** that enable faculty, staff and students/parents to control what personal data is collected and on what legal grounds that processing takes place are becoming imperative

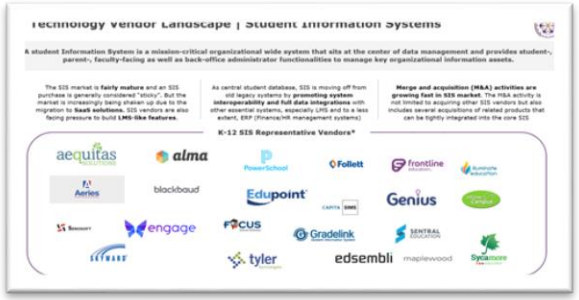
Source: Gartner K-12 education related reports, 2019 – 2020

2.5 Technology Vendor Landscape

An extensive technology vendor research has been conducted in the K-12 education technology sector. More than 70 K-12 representative vendors have been identified and reviewed across 4 technology solutions, including Student Information Systems, Learning Management Systems, HR Management System, and Finance Management System.

Student Information Systems

- The SIS market is relatively mature, with several established players in the market. SIS vendors are looking for promoting system interoperability with other essential systems such as Learning Management System (LMS) and ERP solutions.

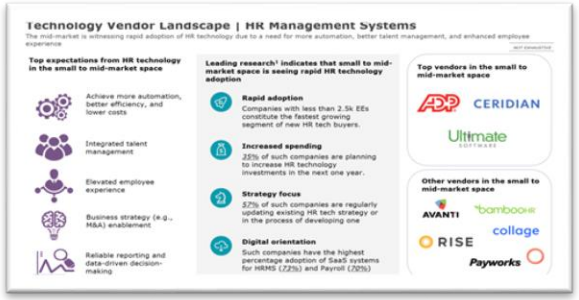


Learning Management System

- The LMS market consists of established and amateur vendors and is experiencing high growth with many first-time buyers emerging as education organizations continue to move toward being digital.

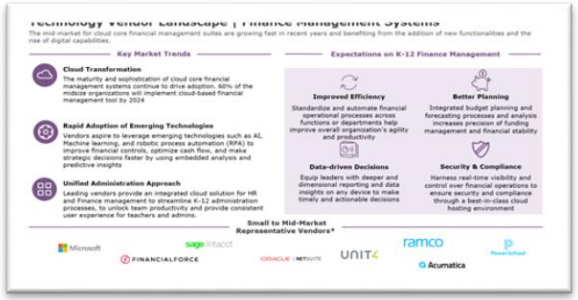
HR Management Systems

- The mid-market is witnessing the rapid adoption of HR technology due to a need for more automation, better talent management, and enhanced employee experience.



Finance Management Systems

- The midsize market for cloud core financial management systems is growing fast in recent years and benefiting from the addition of new functionalities and the rise of digital capabilities.



2.6 Future State Guiding Principles and Vision

Future State education technology vision along with eight guiding principles have been validated and aligned with Six Nations' key stakeholders during playback session, which will act as the guard rails as education transformation evolves

Guiding Principles

Enable Haudenosaunee culture

The future state technology solution should enable students to consume content in their language and support students imbibe to their culture as much as possible

Enhanced user experience

The future state technology solution should enable a positive experience for key users – students, teachers, parents, and administrators - which leads to better adoption and learning outcomes

Increased automation

The future state technology solution should reduce manual steps in education management and automate as much as possible, thus increasing efficiency, reducing errors, and freeing bandwidth for more strategic activities

Robust data for reporting and analytics

The future state technology solution should give stakeholders access to consolidated information on crucial education parameters (e.g., learner participation, funding effectiveness, etc.) across all entities

Consistent education technology landscape

The future state technology solution should be consciously made consistent across entities. This will help learners to have a consistent experience and Six Nations to track learners, simplify IT operations, and reduce costs

Think beyond current fundamental challenges

The future state technology solution should not be constrained by fundamental challenges in the current state (e.g., lack of consistent Internet access). The future state is aimed at transforming Six Nations to a world-class education provider

Flexibility to adopt a phased solution approach

Educational entities should have the flexibility to adopt the phased-transition solution as opposed to a big-bang transformation. The solution implementation can start with those who opt-in and then expanded to others, as required

Focus on future-readiness

The future state should enable digital levers that future-proof Six Nations' education system including AR/VR, AI, advanced analytics, adaptive learning, digital assistants etc.

"Six Nations' education technology should enable the community to provide its learners with a life-long learning experience that inculcates Haudenosaunee language and culture, drives inclusiveness, equity, and unity, and supports learner success. The technology should enhance student, teacher, parent, and community experience with education while future-proofing their ability to adapt to evolving digital paradigms."

3. Future State Signature Requirements & User Journey

3.1 Our Approach for Future State Signature Requirements and User Journey Maps

Must-have SIS and LMS requirements along with the user journey maps were developed based on the current state findings and future aspirations

Key Activities:

Signature Requirements Validation

Development and validation of technology-agnostic must-have requirements to guide the future SIS & LMS vendor selection process

User Journey Maps Development

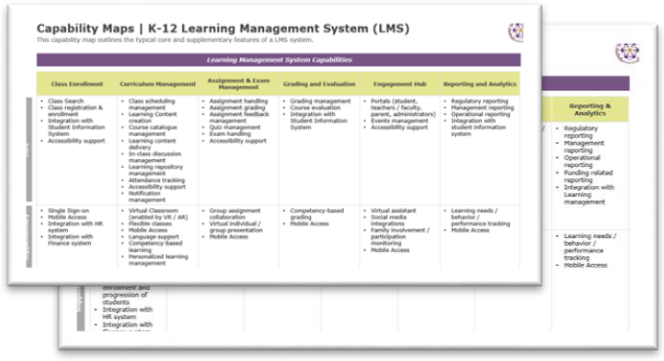
Development of high-level future state user journey maps to highlight Moments that Matter the most and the key technology interactions during users' end-to-end journey

Determining future state signature requirements and user journey maps ensure the success of future vendor selection and desired user experience delivery through Six Nations' education transformation

3.2 Signature Requirements Development

Signature Requirements are the must-have system (SIS & LMS) requirements to consider at each K-12 education provider related to Six Nations while moving to the desired future state

SIS and LMS Signature Requirements Development



A set of core and supplementary features of a K-12 focused Student Information System (SIS), and Learning Management System (LMS) identified with the help of the capability maps

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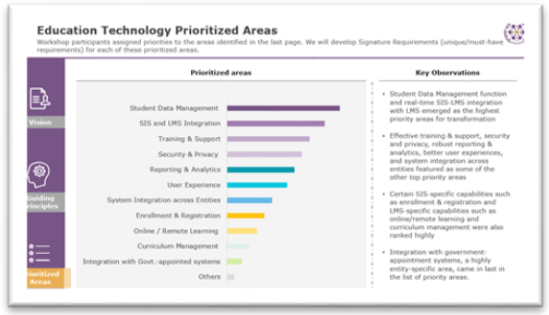

A list of must-have Student Information System (SIS) and Learning Management System (LMS) requirements were prepared based on the future education technology prioritization outcomes

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41 SIS related Signature Requirements

45 LMS related Signature Requirements

SIS and LMS signature requirements assumptions have been validated with various stakeholders during three working sessions

3.3 User Journey Map Development

A human-centered design approach involving personas design allows Six Nations to think about different users' education technology needs, identify the Moments that Matter the most and the key technology interactions in the future education technology transformation

Students

Teachers

Parents

Administrators

1 **Stage of the Journey:** highlights key phases during each key persona's end-to-end journey

Illustrate

Explore	Registration & Enrollment	Learning	Transfer / Graduation
1. Jim applies for I. L. Thomas for elementary education with his parents' guidance	3. Jim is registered as a student with I.L Thomas with his parents' help	5. Jim enrolls in multiple mandatory and supplementary courses with his parents' help	6. Jim starts learning based on the schedule, learning pace, and competence set by School
2. Jim is accepted at I.L Thomas's elementary school	4. After the school registration, Jim performs required assessments (e.g., reading, writing, math, etc.) and his parents fills in IEP form (if necessary)	7. Jim is able to send his homework through various intuitive channels (e.g., video, photo) to his teachers	8. Jim is able to write online exams
		9. Jim receives tailored and timely guidance and learning feedback from teachers	10. Jim transfers from I.L Thomas to Jamieson to finish his last year at middle school level
			11. Jim graduates from Jamieson and decides to apply for SNP STEAM Academy for high-school education
4 Moments That Matter			
• School exploration / consultation • School application	• Student registration & enrollment (incl. student profile set-up) • Student EQAO / OSSLT assessment • Individualized Education Plan (IEP) form completion (if required) • Course selection and enrollment	• Adaptive learning • Pathway learning development • Assignment & Exam Management (e.g., Digital Assessment) • Course evaluation • Peers and Parents engagement	• Student data transition across entities incl. ➢ Student profile ➢ Learning history ➢ Credits ➢ Etc.
5 Key Technology Interactions			
✓ Online application ✓ Digital signature on the confirmation letter (if required)	✓ Account set-up across various technology platforms (i.e., SIS, LMS) ✓ Student profile management (e.g., data consolidation) in SIS ✓ SIS and LMS integrations ✓ User access control ✓ Technology training and support	✓ Single sign-on LMS ✓ LMS platform onboarding ✓ Curriculum Interactions via LMS ✓ SIS and LMS integrations ✓ Ongoing technology training and support	• SIS and LMS integrations • LMS system integrations across different entities • SIS system integrations across different entities (e.g., within 5 federal schools, between federal schools and STEAM)

2 **Start / End point of the Journey:** represents the potential beginning and closure on the user's end-to-end journey

3 **Steps on the Journey:** depicts detailed activities a user is involved in, under every stage of the journey

4 **Moments that Matter:** provides all the important moments that helps in creating a positive experience for the end users

5 **Key Technology Interactions:** includes all the key interaction touchpoints with technology platforms (e.g., SIS, LMS, HR, Finance, etc.) within as well as across different Six Nations education entities

4. Technology Solution and Roadmap

4.1 Our Approach for Technology Solution and Roadmap Development

A phased-transition technology solution, list of shortlisted leading technology vendors, and a high-level execution roadmap have been developed to inform the Six Nations technology transformation journey

Key Activities:

Technology Solution Design

Development of a phased-transition plan encompassing remediation, partial and full transformation phases to support the technology transformation at the community and individual entity level

Leading Vendors Selection

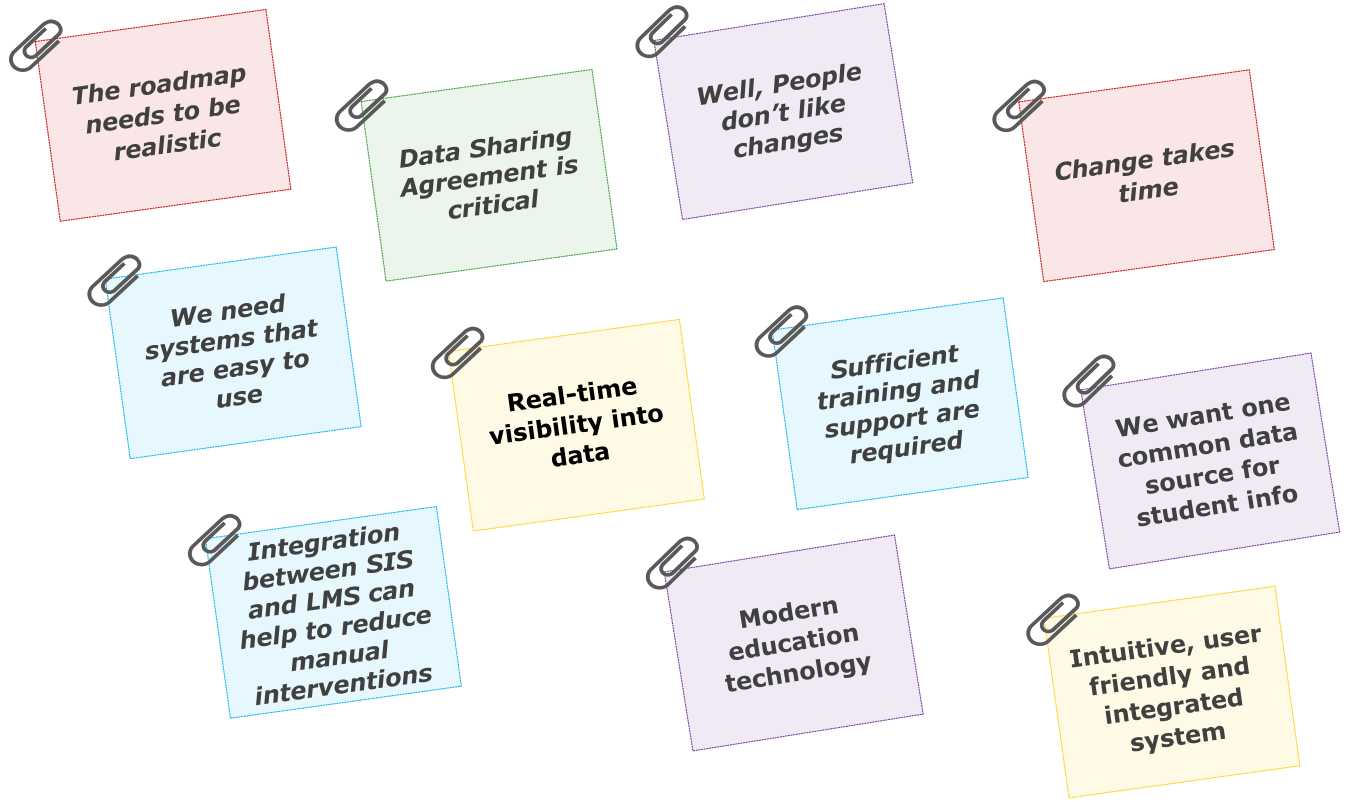
Shortlisting of technology vendors who are aligned with K-12 industry trends and must-have capabilities Six Nations' is looking for

Transformation Roadmap Development

Development of high-level implementation roadmap and key implementation considerations based on the phased-transition plan

A phased-transition solution with tactical activities at both community and entities levels will help Six Nations to achieve the desired improvements and benefits incrementally

4.2 What we've heard from you

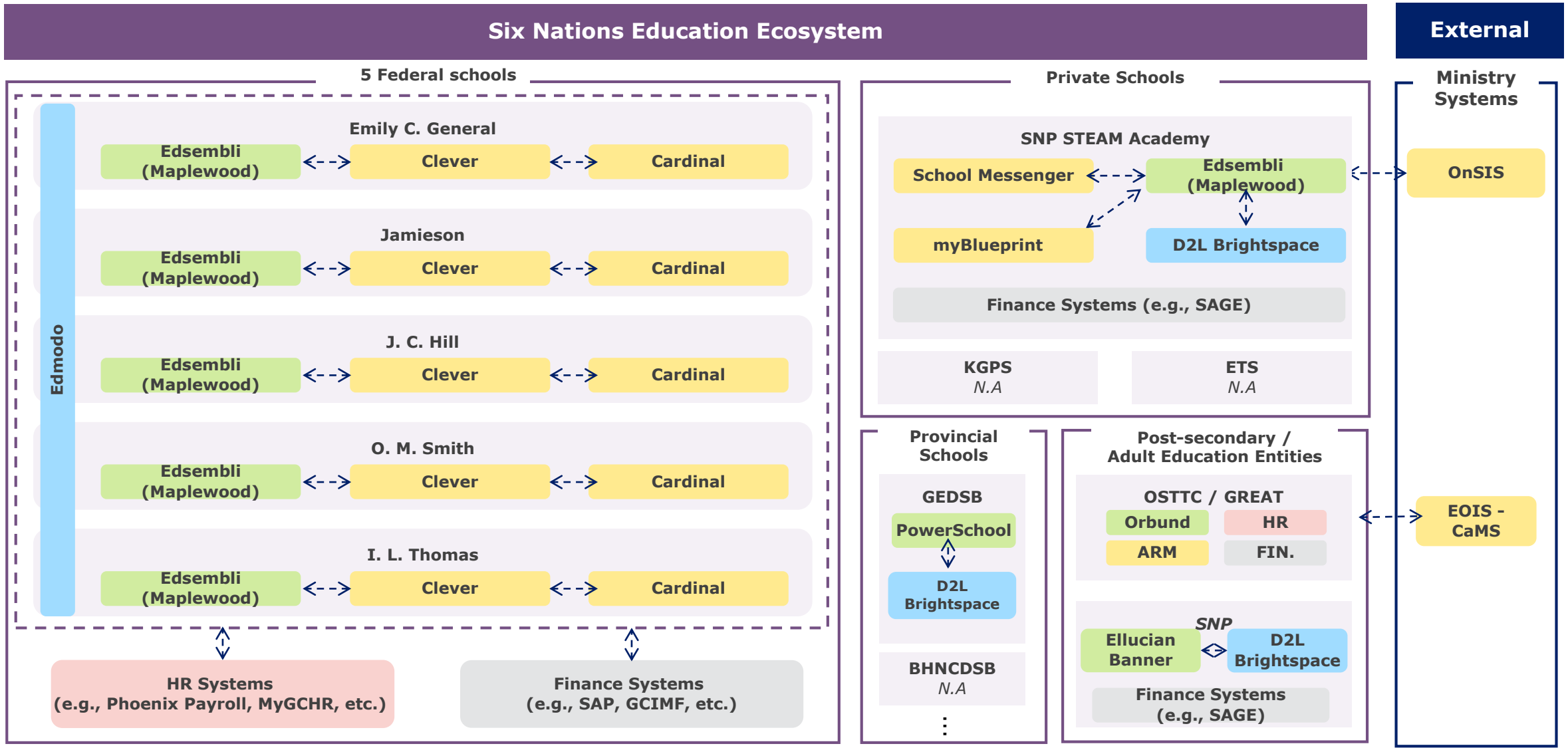


Friendly Reminder…

- *Majority of the changes are suggested to happen at the* ***community / ECO level*** *instead of at the entity level*
- ***Sufficient flexibility*** *is provided for entities in terms of how and when they are able to support on the education transformation journey*
- ***Collaboration*** *is a crucial success factor in the desired success of education transformation journey*

4.3 A Snapshot of the Current State Education Technology Landscape*

The visual below highlights the education technology interactions among Six Nations K-12 entities and external parties based on the inputs received from stakeholder interviews. Siloed technology operation within each SN entities increases technology complexity and operational inefficiency.

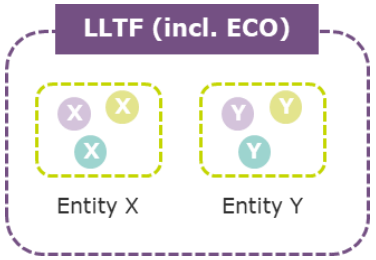
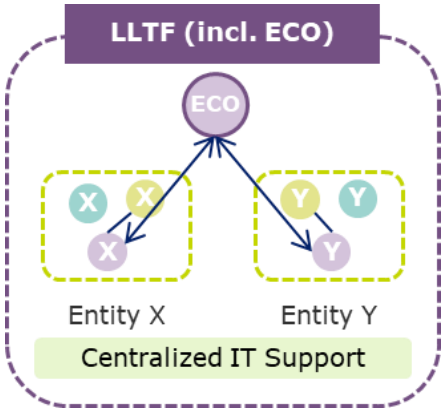
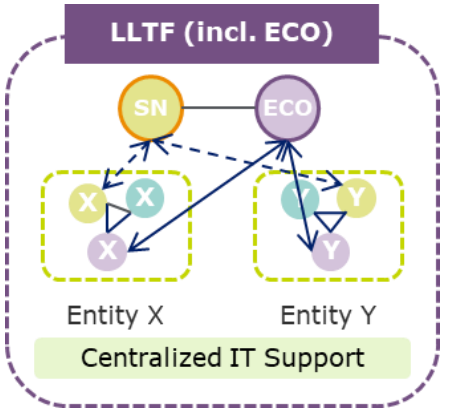
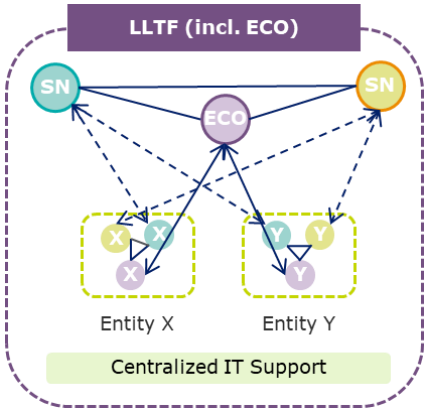


Legend: SIS | LMS | HR Mgmt. | Finance Mgmt. | Others | Some level of integration

*This landscape is based on inputs from key stakeholders. It highlights key technologies and is not intended to be exhaustive

4.4 Technology Solution Overview | Phased-Transition Plan

A phased-transition plan has been developed to support Six Nations' education technology transformation initiative:

	Current State	Future State		
	Status Quo	**Phase 1 – Remediation**	**Phase 2 – Partial Transformation**	**Phase 3 – Full Transformation**
Technology Landscape				
What are the suggested changes?	• No enterprise level technology architecture in place. • Entities maintain siloed technology operations.	• ECO will setup a new SIS which is integrated with entities' SISs. • Six Nations will set up centralized IT support function. • Entities support seamless SIS integration between ECO and its entity • SIS and LMS integration within entities is highly encouraged	• Introduction of new LMS platform at ECO/Community • Development of SIS and LMS integrations Development of integrations between ECO and entities • Entities support LMS integration between ECO and its entity • Full integration across various platforms (SIS, LMS, HR and Fin) within entities	• Introduction of HR and Finance ERP systems • Development of SIS, LMS, and ERP integrations • Development of ERP integrations between ECO and entities • Entities support ERP integration between ECO and its entity • Entities rationalize their technology landscape to fully support community's education technology transformation

Legend

Within entity: SIS LMS ERP systems

LLTF / ECO level: SIS LMS ERP systems

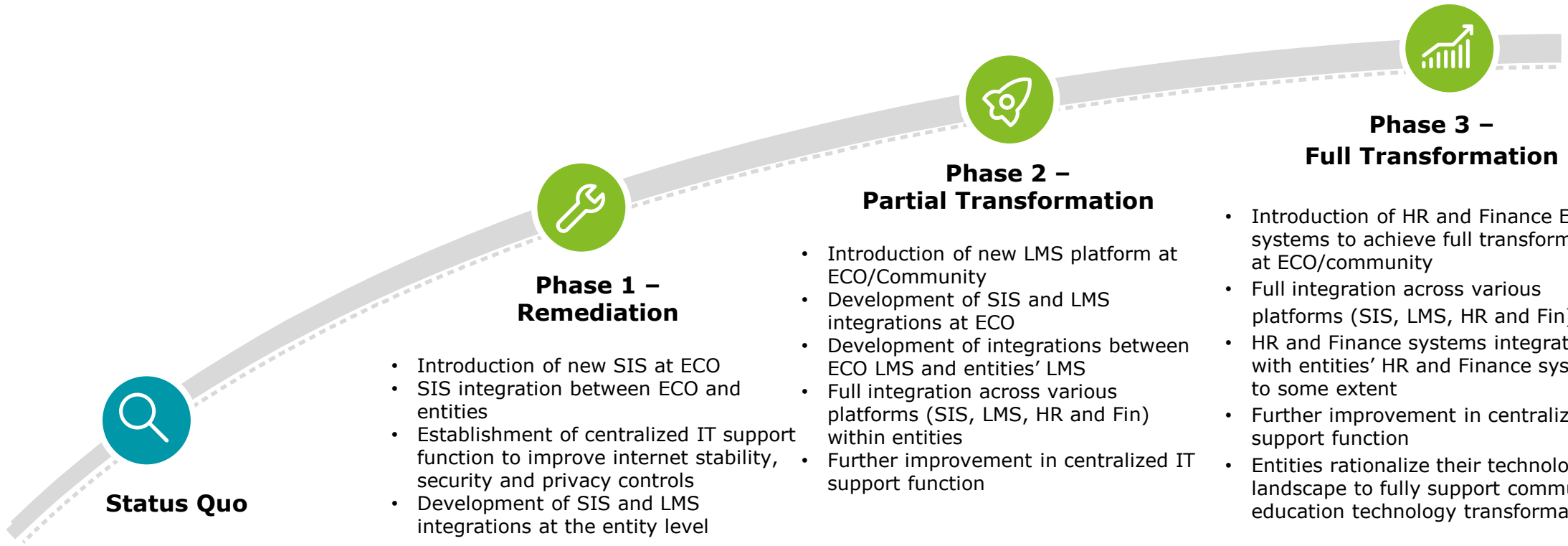
↔ Seamless Integration across entities

<-> Some level of Integration Between ECO and entities

— Seamless Integration within entities / community

4.4 Technology Solution Overview | Transformation Evolution

The evolution of Six Nations education technology transformation has three key milestones including enhancement of technology operation, centralized IT support, and improved change management



Status Quo

Phase 1 – Remediation

- Introduction of new SIS at ECO
- SIS integration between ECO and entities
- Establishment of centralized IT support function to improve internet stability, security and privacy controls
- Development of SIS and LMS integrations at the entity level

Phase 2 – Partial Transformation

- Introduction of new LMS platform at ECO/Community
- Development of SIS and LMS integrations at ECO
- Development of integrations between ECO LMS and entities' LMS
- Full integration across various platforms (SIS, LMS, HR and Fin) within entities
- Further improvement in centralized IT support function

Phase 3 – Full Transformation

- Introduction of HR and Finance ERP systems to achieve full transformation at ECO/community
- Full integration across various platforms (SIS, LMS, HR and Fin)
- HR and Finance systems integrations with entities' HR and Finance systems to some extent
- Further improvement in centralized IT support function
- Entities rationalize their technology landscape to fully support community's education technology transformation

Technology Operation: System Integration; Process Automation

Centralized IT Support: System Training; IT Support Consultation; Internet Stability; Data Governance; Security and Privacy Control

Change Management: Collaborative Working Culture; Effective Communication

Low **High**

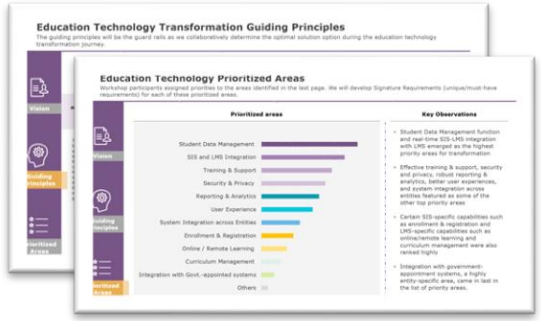
4.5 Vendor Shortlisting Approach

SIS, LMS, HR and Finance ERP systems Vendors have been identified for Six Nations to consider in the education technology transformation journey

The shortlisted vendors are selected based on the following three aspects:

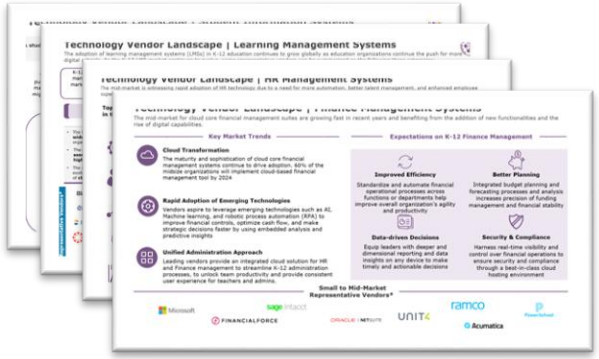
1

Vendors that can help to address Six Nation's current education technology challenges and help with future aspirations



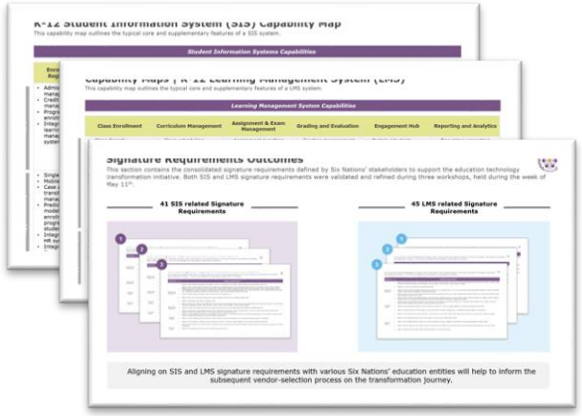
2

Vendors aligned with technology trends in K-12 education and industry best practices



3

Vendors meeting Six Nation's must-have SIS and LMS capabilities and signature requirements



Key Outcomes

11 Education Technology prioritized areas reviewed

6 Key emerging trends in the K-12 education market identified

70+ vendors considered for selection, packaged into 4 functional areas

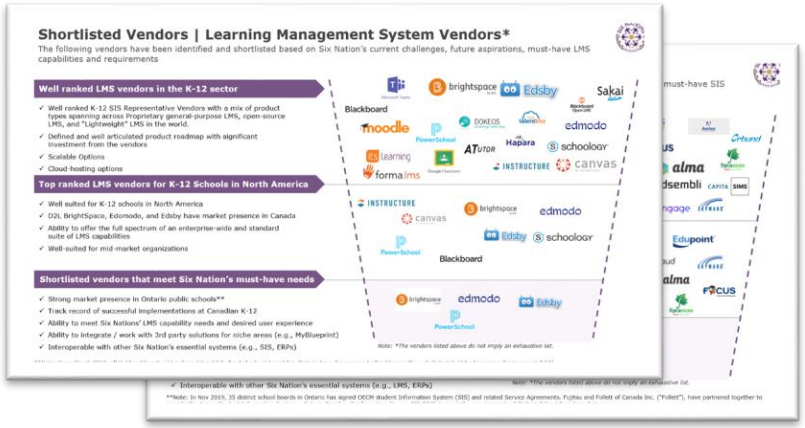
85 Must-have requirements captured

16 Leading vendors shortlisted for future consideration

4.6 Vendor Shortlisting Outcomes

16 / 70+ technology vendors who align with K-12 industry trends and Six Nations' must-have capabilities have been identified for Six Nations to consider in the education technology transformation journey

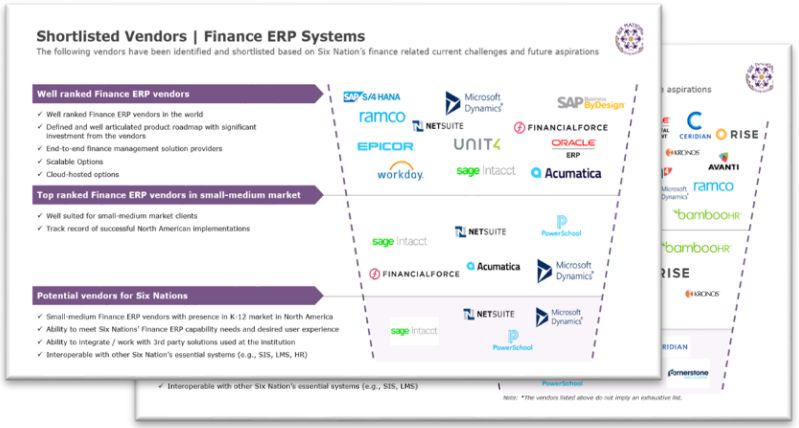
SIS and LMS shortlisted Vendors



- Top ranked SIS and LMS vendors with strong K-12 presence in Canadian small-medium market have been identified
- 2 shortlisted SIS vendors that can potentially meet Six Nations' must-have SIS capabilities are Folllet and PowerSchool
- Similar to SIS, 4 shortlisted LMS vendors are D2L Brightspace, Edmodo, Edsby, PowerSchool

Leading Vendors for Considerations

HR and Fin Shortlisted Vendors



- Top ranked HR ERP and Finance ERP vendors with strong K-12 presence in North American small-medium market have been identified
- 6 potential HR ERP vendors are ADP, Ultimate, Ceridian, Kronos, Cornerstone, PowerSchool
- 4 potential Finance ERP vendors are Sage Intacct, NetSuite, PowerSchool, Microsoft Dynamics

4.7 Key Transformation Themes

Key transformation themes to ensure the successful delivery of technology transformation initiative as part of the overall education strategy at Six Nations

Strong Transformational Strategies

Form a strong technology transformation plan by:

- Ensuring strategic objectives are clearly articulated
- Aligning initiatives with the future state visioning and priorities
- Setting up a realistic timeline and objectives through phases
- Fostering a collaborative culture and focusing on case for change communication

Community-Wide Integration

Transform how the community operates by:

- Streaming decision-making processes and empowering leaders with decision rights
- Establishing enterprise-wide governance
- Holding leaders accountable to objectives and outcomes and defining mechanisms to remove barriers
- Empowering staff, student, and parents to take initiatives based on Haudenosaunee values

Organizational Alignment

Become a trusted partner with different entities by:

- Ensuring business leaders are aligned on the strategic direction
- Proactively partnering with individual entities to understand their needs and expectations
- Jointly developing solutions to some of the most pressing challenges faced by the entities
- Setting up measurable goals and metrics for project execution

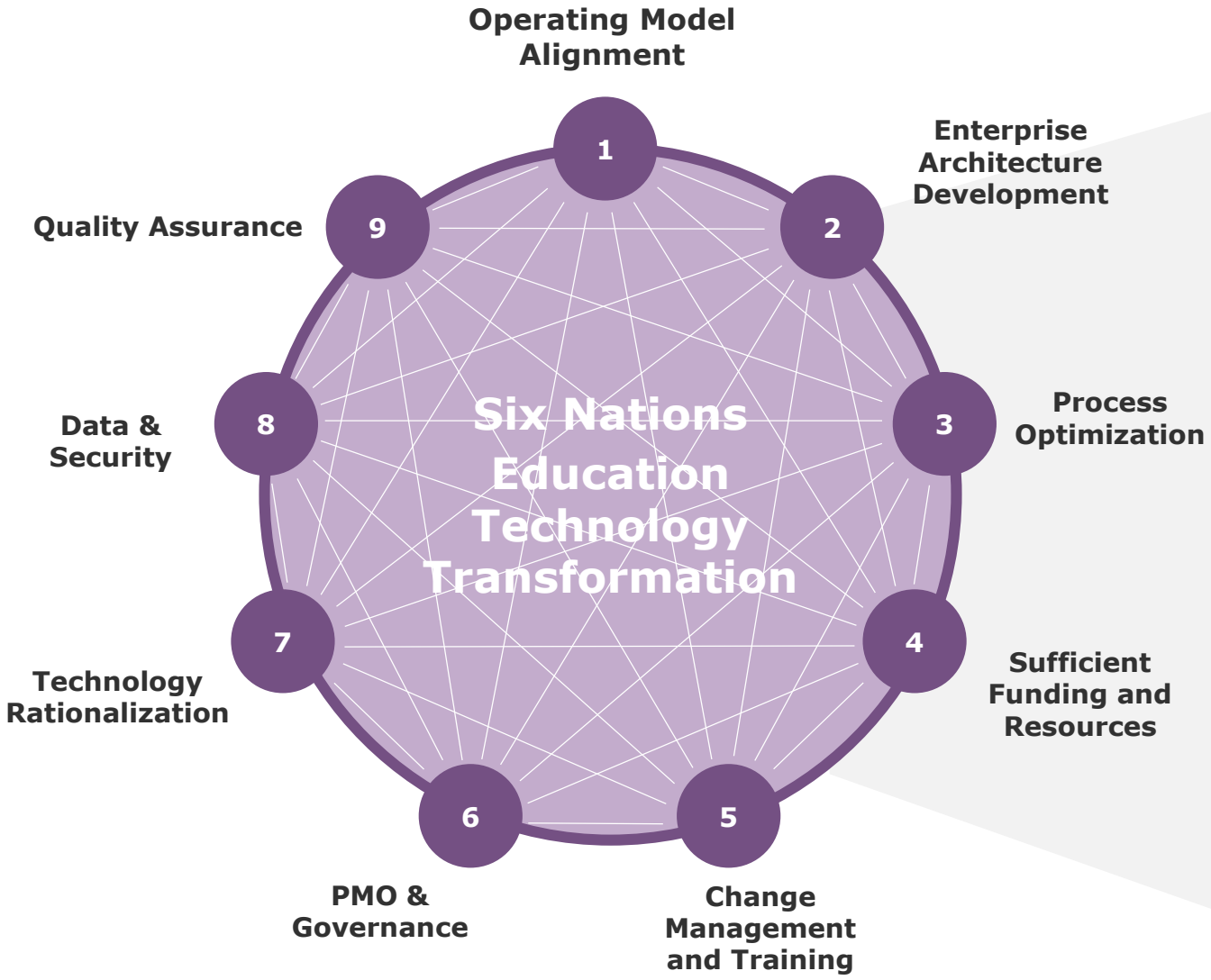
Sufficient Capability for Execution

Deliver fit-for-purpose education technology services by:

- Ensuring sufficient funding including capital investments
- Securing dedicated resources as early as possible
- Mobilizing early and plan the transformation journey ahead
- Preventing duplicative or conflicting efforts

4.8 Roadmap Components

The education transformation goes beyond technology implementation and requires several associated activities during the transformation journey to ensure desired improvement and transformation benefits realization in the future state.



Key Strategic Enablers

Establish **early strategic alignment and clear decision-making / accountabilities** on go forward activities according to the phased-transition plan

Provide Six Nations key stakeholders with **sufficient tools and knowledge training** to be successful during change management

Establish a **collaborative organizational culture and effective communication mechanism** via continuously stakeholder engagement

4.9 High-Level Transformation Roadmap

A high-level roadmap described below to guide Six Nations to transform its education technology operations.

Phase 0

Mobilization
~3-6 months

Key Activities
- Align on phased-transition solution
- Develop community-wide decision-making Process
- Set up Enterprise-level governance structure
- Define detailed project plans along with resource planning
- Secure sufficient funding to support phased-transition plan
- Conduct vendor evaluation and RFP activities
- Select pilot entities for quick-win transformation activities

Budget Estimation
- **Nearly none**

Phase 1

Remediation
~6 -12 months

Key Activities
- Introduction of new SIS at ECO
- SIS integration between ECO and entities
- Establishment of centralized IT support function to improve internet stability, security and privacy controls
- Development of SIS and LMS integrations at the entity level

Budget Estimation
- **One-time costs** are required to implement new SIS at ECO and to integrate SIS with entities
- **Ongoing costs** are expected for new SIS licensing, centralized IT training and support, and annual compensations for required new resources

Phase 2

Partial Transformation
~2 years

Key Activities
- Introduction of new LMS platform at ECO/Community
- Development of SIS and LMS integrations at ECO
- Development of integrations between ECO LMS and entities' LMS
- Full integration across various platforms (SIS, LMS, HR and Fin) within entities
- Further improvement in centralized IT support function

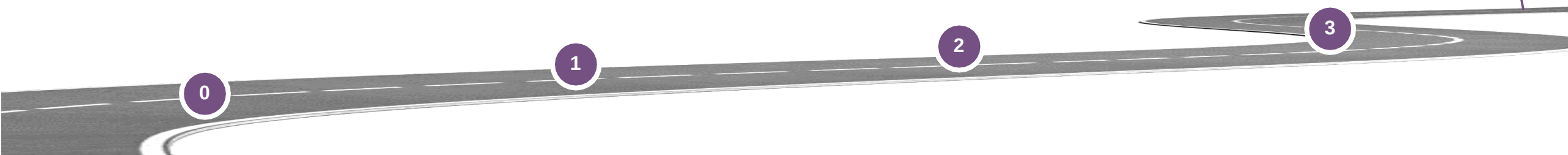
Budget Estimation
- **One-time costs** include implementing new LMS; LMS and SIS integration at the ECO level; and LMSs integration between community and entities;
- **Ongoing costs** include LMS licensing, additional centralized IT training and support costs, and annual compensations for support resources

Phase 3

Full Transformation
~ 2-3 years

Key Activities
- Introduction of HR and Finance ERP systems to achieve full transformation at ECO/community
- Full integration across various platforms (SIS, LMS, HR and Fin)
- HR and Finance systems integrations with entities' HR and Finance systems to some extent
- Further improvement in centralized IT support function
- Entities rationalize their technology landscape to fully support community's education technology transformation

Budget Estimation:
- **One-time costs** include implementing HR and Finance systems; integration with existing platforms (SIS and LMS at the ECO level); and ERP integration between community and entities;
- **Ongoing costs** include ERP licensing, additional centralized IT training and support costs, and annual compensations for support resources



5. Wrap-Up

5.1 Next Steps

Six Nations' upcoming transformation will require significant alignment and engagement from different stakeholders (ECO, entities etc.,). Based on today's discussion, Six Nations can consider the following as next steps:

1. **Socialize project findings, technology solution and roadmap with key stakeholders both at the community and entity level**
2. **Secure alignment and support for the phased-transition technology solution and roadmap from the key decision makers**
3. **Confirm budget / resources for mobilization activities within the next 3-6 months**

5.2 Final Presentation Participants

The following list provides a snapshot of attendees of the final project presentation on May 28th

List of Workshop Participants

Six Nations

- Kathleen Manderville
- Linda Staats
- Audrey Green Summers
- Stacey Hill
- Clinton Powless
- Aaron Hobbs
- Candy Browatzke
- Audrey Poweless-Bomberry
- Amber S.
- Claudia Noyes
- Audrey Powless-Bomberry
- James Medway
- Judy Reuben
- Karen Sandy
- Michael Freeman
- Nathan Jamieson
- Reva Bomberry
- Robin Staats
- Zandra Bear-Lowen
- Julia Candlish

Deloitte

- Mario Glumpak
- Craig Robinson
- Ricky Singh
- Christine Qian

Deloitte.

6. Appendix – Engagement Deliverables

Appendix – Table of Contents

Engagement Deliverable #1 – Kick-off Presentation

Background and Objectives

- Six Nations of the Grand River ("Six Nations") aspires to provide an enhanced educational experience for key stakeholders, supported by a world-class education system across various schools and education providers (internal as well as external)
- Six Nations is also seeking to enhance access to consolidated data and make their workforce future ready within and outside the community
- As part of this exercise, Six Nations intends to identify opportunities for transformation and associated high-level business requirements to inform IT vendor procurement process in the future

With this project, Six Nations wants to achieve the following objectives:

- Understand the current state of education technology landscape including gaps and needs
- Develop high-level business requirements for transformation and define desired user journey maps
- Determine the optimal technology solution and roadmap

Approach

We will adopt the following collaborative approach over five weeks to attain the objectives of the project.

Phase 0 Mobilization

Week 0

- Request / gather relevant documentation
- Identify stakeholders and participants for planned interviews and workshops
- Schedule interviews and workshops
- Prepare and review kick-off material
- Facilitate project kickoff with key stakeholders

Phase 1 Review Current Landscape

Week 1-2

- Facilitate up to 4 group interviews with key stakeholders (e.g., IT, Student Management, HR, Learning Management, and Finance) to capture current challenges and future priorities for a new education management information system
- Perform a market scan of education technology trends and best practices
- Finalize current state technological landscape, deficiencies, and opportunities for education management information systems
- Validate findings with core team and refine as needed
- Conduct a current state playback session, along with market insights discussion and a future state visioning exercise

Phase 2 Develop Signature Requirements[1]

Week 3-4

- Facilitate up to 4 workshops with key internal and external stakeholder groups to
  - Design desired future user journey maps including moments that matter and key technology interaction points
  - Determine the Signature Requirements needed to achieve the desired future state
- Play back Signature Requirements and Journey Maps
- Develop 2-3 potential technology solution options (focus on SIS and Learning Management System, with Financial System and Human Capital System implications) to attain the future state
- Develop a solution evaluation criteria and align with the core team in a session

Phase 3 Align on Solution and Roadmap

Week 5

- Evaluate solution options and conduct a session to align on an optimal solution option to attain future state
- Identify a shortlist of key technology vendors for each of the applications / systems as identified in the optimal solution option
- Define next steps (e.g., developing vendor RFP) and key initiatives (e.g., business process re-engineering, target operating model, technology implementation)
- Develop directional details (e.g., estimated costing, expected timelines) for each initiative
- Prepare project summary, present final report, and socialize with key stakeholders

Deliverables

1. Current State Assessment (including technological landscape, gaps and needs)
2. Future State Signature Requirements
3. Technology Solution and Roadmap (including shortlisted vendors)

Project management updates twice per week

1 Defined as must-have or unique business requirements. See next page for more details.

Deliverables

The following are the key deliverables of the project.

Definitions of key deliverables

Current State Assessment Report

- Current state challenges and aspirations
- Current technology landscape including gaps and needs
- Business imperatives / vision for the transformation, inspired by current state as well as market insights

Future State Signature Requirements

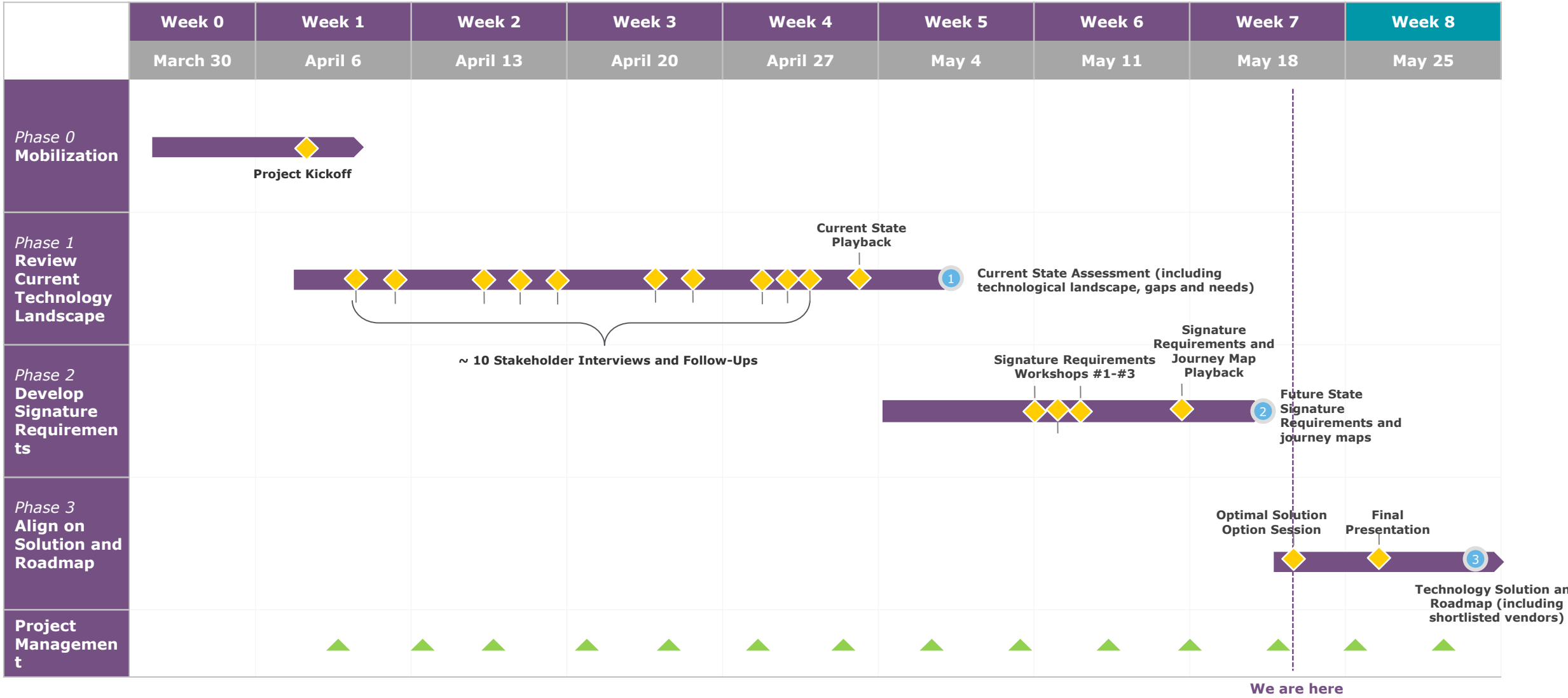
- Signature requirements (defined as must-have or unique requirements) to be attained through the transformation
- Future state user journey maps including moments that matter and key technology interactions

Technology Solution & Roadmap

- Optimal technology solution options to attain the desired future state including shortlist of technology vendors
- Roadmap to attain desired future state including estimated timelines

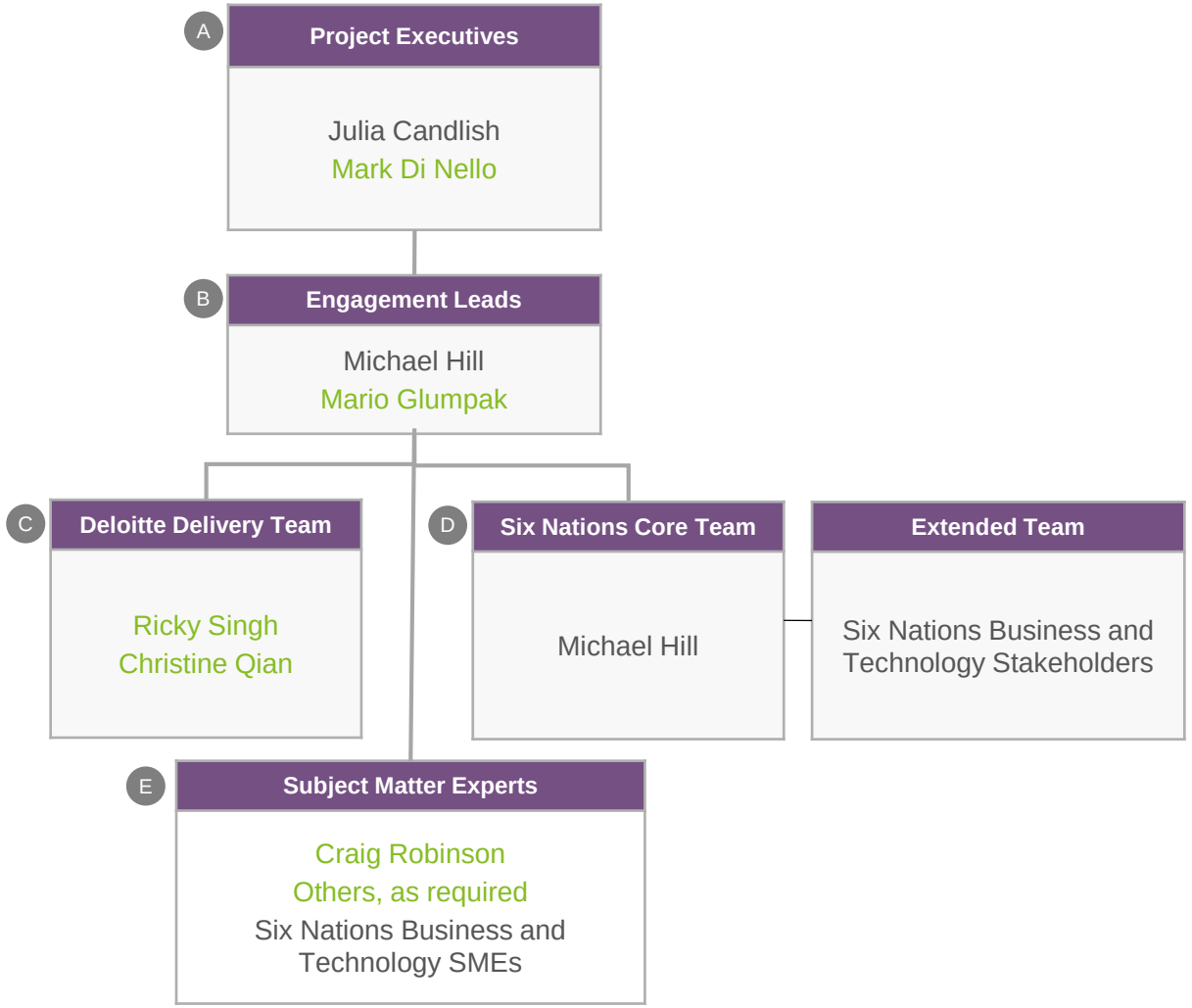
Updated High-level Timeline

The following is the updated high-level view of the timeline of the project:



Team Structure and Governance

We have proposed a team that will work collaboratively with the Six Nations team on delivering the desired outcomes of the engagement



LEGEND: Six Nations / Deloitte

Project Role	Responsibilities
A **Project Executives**	▪ Provide overall project direction and final approvals / sign-offs ▪ Identify and assign appropriate resources to the project
B **Engagement Leads**	▪ Ensure project objectives are met within timeframes and scope ▪ Make key project decisions ▪ Review, approve, and sign-off on deliverables
C **Deloitte Delivery Team**	▪ Manage and execute day-to-day activities ▪ Perform required analysis and develop deliverables ▪ Conduct interview and facilitate workshops ▪ Ensure knowledge transfer to client resources throughout project
D **Client Core and Extended Team**	▪ Participate in interviews, surveys, and workshops (as required) ▪ Provide relevant documentation and insights ▪ Review project deliverables and provide feedback
E **Subject Matter Experts**	▪ Provide domain, application, and technology expertise ▪ Accelerate development and validate recommendations

Note: A status meeting will be conducted every week to track project progress.

Next Steps

1. Six Nations to provide responses to data request.
2. Six Nations to schedule interviews, meetings and workshops.
3. Deloitte to share stakeholder interview guide and conduct interviews to understand current state challenges and aspirations/priorities.

Engagement Deliverable #2 – Stakeholder Interview Guide

Stakeholder Interview Guide (1/2)

Topic	Questions
Introduction	• Please introduce yourself and the organization (entity) you are aligned with. Please provide information on number of students/learners, organization structure, and any specific factor that adds complexity/nuance to the organization. • Please describe your role. What is your main area(s) of focus? • Please describe the role of your organization (entity) in serving the learning needs of the Six Nations community.
Current State	• What are the technologies that your organization currently uses for Student Management and/or Learning Management? • What is your end users' experience with these technologies? • What are your long-term (1-5 years) and short-term (less than 1 year) goals for Student Management and Learning Management? • How are your technologies helping or hindering the attainment of these key goals? How do you think they can be improved to serve your area/entity better? • What are the other related factors (people, process, etc.) that are helping or hindering the attainment of these key goals? • What are your thoughts on current funding model? Do you have sufficient funding support to achieve your goals? • How would you describe the interactions of IT with your focused area? Does IT effectively manage those interactions? • How would you characterize the services provided by IT to your focused area? What would you like to see more / less?

* Please note these are sample guiding questions; based on the discussion, we may have a more in-depth conversation in certain areas

Stakeholder Interview Guide (2/2)

Topic	Questions
Future State	• If you had a magic wand, what changes would you make to the Student Management and Learning Management technology landscape in your specific area/entity? • What are your aspirations for the other related areas of Student Management and Learning Management (e.g., people, process, data, funding etc.) • How do you think Student Management and Learning Management in your specific area should evolve to become 'world-class' in the future? • Are there any industry/market trends that you would like to incorporate into your Student Management and Learning Management systems in the future? • What are the factors that you think could potentially impede the transformation to the desired future state?
Project-Specific	• What are your expectations from this project with Deloitte? What would success look like to you? • Do you foresee any challenges as we go about delivering this project? • What would be your top tip to help us succeed in this project together?
Conclusion	• Is there anything else we have not touched on that we should be aware of? • Do you have any questions for us?

* Please note these are sample guiding questions; based on the discussion, we may have a more in-depth conversation in certain areas

Engagement Deliverable #3 – Current State Assessment and Future State Vision Report

Current State Summary

Key Overall Themes | What's Working Well and What's Not

Over the course of interviews and document review, a series of themes emerged that speak to what's working well and what's not with the current state of education management in general and education management technology in particular.

What's NOT working well

Limited Internet Access

Students have limited internet access on the reserve, preventing them participating in online learning / training activities.

Lagging Capital Investments

Lack of capital investments on IT, buildings, and other basic infrastructure limits scalability for easier, more streamlined education technology transformation.

Siloed Technology Operations

Entities have strong silos in their system operations, resulting in technology complexity and operational inefficiency.

Lack of Process Automation

Student Management and Learning Management are heavily reliant on manual data entry and bulky process, leading to operational inefficiency and user frustration.

Poor Reporting and Data-based Decision-Making

Access to data is restricted due to low leverage of technology within entities and minimal integration across entities, hindering decision-making around funding, programs etc.

Slow Technology Adoption

Adoption of current technologies is low because of tech complexity, lack of training, lack of basic infrastructure (internet, email addresses etc.), poor change management etc.

Insufficient Training / Tech Support

Limited user training and technology support in place from system providers, impeding IT service delivery and adoption.

A Lack of Holistic Strategy/Focus

Each entity appears to be focused on its own affairs with limited understanding/acceptance of the benefits of a holistic strategy/focus. There seems to be a general lack of willingness to work together.

Funding challenges

Funding continues to be a key challenge – it is insufficient in general, and limited for capital projects. Government-mandated technologies to track funding are not very intuitive.

What's working well

Best-of-breed technologies deployed in some entities

Some entities already have best-of-breed education technology. These entities have an opportunity to optimize their tech through better training/support/integration.

Some level of technology consistency across entities

A few entities have adopted the same technology for LMS or SIS (though not in a coordinated manner). This could help make any future integration efforts easier and more effective.

An emerging orientation for convergence / integration

Though there is a general lack of holistic strategy, there is an emerging understanding in various parts of the ecosystem that a disjointed approach will not serve for the future

Key Overall Themes | Where Do You Want to Get To?

Through stakeholder interviews, we also captured your key aspirations for education management in general and education management technology in particular.

Digital way of doing business

More automation and less reliance on paper-based processes. Better reporting and more data-based decision-making. Ability to overcome fear of transformation.

Cloud-based learning

Ability to deliver learning online to give students more flexible access to learning. Students need to have robust devices and reliable internet access to enable cloud-based learning.

Enhanced experience

Enhanced experience for students, teachers, and parents to ensure higher engagement, increased technology adoption, and better learning outcomes.

More localized technology

Need technology vendors that understand local, institutional realities. Want to avoid vendors (e.g., US-based ones) that do not make an effort to localize their technology.

Better tech training, support, & change management

Need more training, support, and change management to maximize benefits from tech implementation and increase adoption

Change in learner mindset

Enabling students to think beyond survival jobs to pursue careers. Leverage technology to help them navigate their way through this shift in mindset.

We want to be ready for an all-cloud future. Our cloud solution has helped us better handle the disruption due to COVID-19

We need to transition to a digital way of doing business – right now, we have too many manual, paper-based processes.

More effective funding mechanisms

Funding that goes beyond short-term project-based funding to strategic capital funding that enhances the fundamental infrastructure of education management.

A more unified approach

Some entities voiced an aspiration for the education ecosystem to adopt a more unified approach with better engagement in endeavors that span across entities.

Teachers need to be trained on new systems and they need to have a positive experience at work.

Though we don't have systems that speak to each other right now, we will need to be more integrated in the future

Deep-Dive Into Education Management Entities

We will be diving into detailed current state challenges and aspirations for key entities in the Six Nations Education Management Ecosystem.

(x) Entities that participated in the study | Primary scope of the project | Secondary scope of the project | *NOT EXHAUSTIVE*

Key entities in the Six Nations Education Ecosystem

1 Strategic / coordination entities

- Lifelong Learning Task Force (LLTF)
- Education Coordination Office (ECO)

K-12 education entities

2 Federal schools

- Emily C. General
- Jamieson
- J. C. Hill
- O. M. Smith
- I. L. Thomas

Provincial schools*

- GEDSB
- BHNCDSB

Private schools

3

- SNP STEAM Academy
- KGPS
- Everlasting Tree School

Other entities – post-secondary / adult education entities, funding entities etc.

4

- GRETI / GREAT / OSTTC
- SNP
- ISC

5

- GRPSEO

Technology areas across all key entities

- Student Management
- Learning Management
- HR
- Finance

Strategic / Coordination Bodies

Not applicable

N/A

Not applicable

Key Observations

These entities aim to develop a life-long learning experience for learners at Six Nations.

These entities are looking for better participation and engagement in cross-entity endeavors.

ECO has limited access to key education and employment data, hindering the ability to develop evidence-based recommendations

ECO wants to establish a standalone education technology landscape integrated across SN entities.

What's working well?

- The LLTF, established in 2018, has been committed to providing evidence-based recommendations to community's life-long learning initiative over the last couple of years
- ECO has been staffed relatively recently to assist the LLTF in achieving its mandate
- ECO and LLTF are seeing significant promise of a unified approach in the light of the community coming together to respond to COVID-19

What's NOT working well?

- ECO is trying to overcome several factors impeding cross-entity cooperation including lack of information on the benefits of cooperation, lack of alignment on vision, and resistance against the idea of undertaking transformation initiatives (e.g., full devolution of the federal government's control)
- ECO is trying to develop recommendations on formalizing a community-based decision-making process that can bring together different entities and adopt a unified approach
- ECO does not have access to key data, especially on federal systems, to make effective recommendations on life-long learning

Where you want to be

Federal Schools

Focus on grades junior K-8

~1,033 learners

edmodo maplewood CARDINAL Clever

Key Observations

All five federal schools use the same SIS (Maplewood) but not optimally due to lack of training and support.

Lack of comprehensive student info in Maplewood as information is captured and stored in multiple sources (e.g., system, paper-forms).

No real-time integration between SIS and LMS (e.g., attendance data and grade records stored in LMS require manual entry to SIS).

Edmodo is the designated single LMS for all federal schools. The schools are looking to buy a license soon.

Federal schools aspire for integrated/converged student and learning management

What's working well?

- Clever, an API explorer, is a versatile tool that links with Maplewood and helps access data from the SIS conveniently
- Funding is not a major issue for federal schools. They are trying to optimize the use of the funding to achieve transformational outcomes
- HR & Payroll, Finance, and SIS systems are the same throughout all the federal schools. Edmodo is the designated single LMS for federals schools
- Federal schools are pursuing a vision driven by relevance, learning choices, differentiation, and areas of safety

What's NOT working well?

- Maplewood is not being used optimally due to lack of training and support. It is also not well-integrated with other systems such as Cardinal and Edmodo
- Registration process are done primarily through paper forms. Manual efforts are required to update information to Maplewood, increasing potential errors and process inefficiency
- Federal school systems do not interact with other SN education entities' technologies. Interactions are generally ad-hoc and relationship-based
- The legacy of cultural issues makes focusing on positive outcomes difficult

Where you want to be

We are looking at iPads as a differentiator and want one per student. We are also looking to replace Smartboards with Apple TV

We want an integrated online learning experience that also tracks cultural development based on Haudenosaunee values

SNP STEAM Academy

3

Focus on grades 9-14

~115 learners

D2L maplewood SchoolMessenger Cardinal myBlueprint OnSIS

Key Observations

Overall, satisfied with the LMS (D2L) – enables blended learning and offers good user experience.

The SIS (Maplewood) is adequate but archaic and cumbersome, resulting in unsatisfied user experience

The LMS and SIS do not communicate well – manual efforts required to transfer data

STEAM is looking for a different SIS. Ability to integrate with OnSIS is a key requirement.

STEAM aspires to move to an integrated, all-cloud technology landscape.

What's working well?

- D2L Brightspace is an effective system that enables blended learning, provides a positive experience for students, teachers and parents, and helps STEAM Academy navigate the COVID-19 world. It has experienced high adoption
- Thanks to the presence of an in-house expert, there are no key training/support challenges associated with D2L
- School Messenger is an effective tool for the school to communicate with parents
- myBlueprint is an effective tool that provides education planning and career guidance resources

What's NOT working well?

- Maplewood is adequate but offers unsatisfied user experience – archaic look-and-feel, cumbersome workflows (e.g., for reporting), access restrictions (e.g., require RDP access)
- No real-time integration between SIS and LMS. Currently, data (attendance, grades etc.) is manually transferred from Maplewood to D2L
- SIS core functionalities esp. enrolment and registration (e.g., credit transfer, paper-form based), attendance tracking (manual process), and reporting & analytics are not meeting expectations

Where you want to be

Standardizing technologies across Six Nations schools could have benefits (e.g., students from feeder and transfer schools have the same experience, easier administration, better data on learner history, etc.)

Integration between SIS and LMS can help reduce manual interventions

GRETI / GREAT / OSTTC

Focus on postsecondary education related to skilled trades

~907 learners

Orbund

Key Observations

GRETI is the overall governing body. GREAT is a funding manager and OSTTC is an education delivery entity

Orbund was forced on the entity with no requirements exercise. It does not meet expectations.

Orbund has poor user experience, offers minimal automation, and does not meet localized needs.

Orbund did not come with proper training and support. Hence, OSTTC may not be using the system optimally.

No integration between GREAT, OSTTC, and other entities, as a matter of policy (e.g., confidentiality).

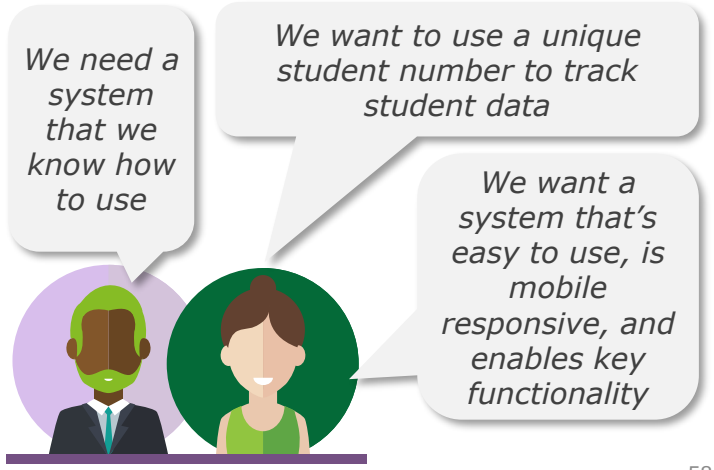
What's working well?

- OSTTC is exploring alternatives to Orbund. For LMS requirements, it is considering D2L

What's NOT working well?

- Fundamental issues – lack of internet connection, lack of email etc. – continue to be a challenge
- Orbund is not meeting expectations – it is currently being used just as a core data management system. Most other SIS functionality not being used due to lack of training and support. Orbund also does not automate many processes and is not localized for their unique local needs
- Key areas not being enabled by tech – registration, curriculum management, user experience, and reporting
- No LMS is being used currently. Orbund was expected to have that functionality, but doesn't

Where you want to be



GRPSEO

Not applicable

N/A

GRADS

Key Observations

GRPSEO is a funding body focused on administering post-secondary funding.

GRPSEO has an in-house student funding management system called GRADS, which is not fully meeting needs.

Reporting to ISC is a cumbersome, time-consuming process.

GRPSEO interacts with GREAT (funding-related) as well as high schools (guidance-/counseling-related)

GRPSEO aspires for a more advanced student database and better application experience for students

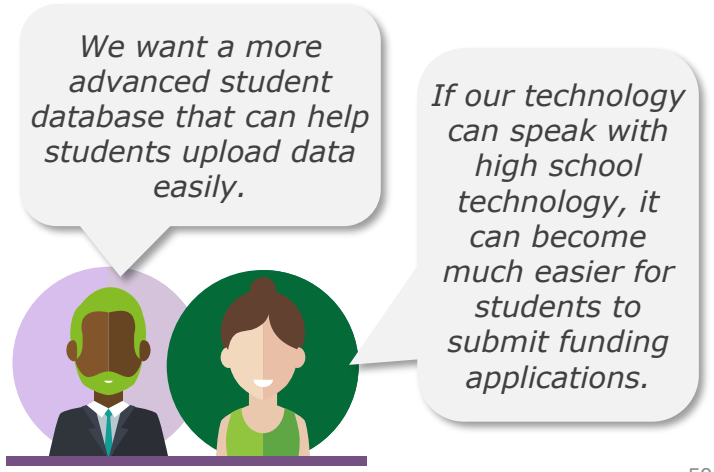
What's working well?

- GRPSEO provides funding for a significant number of students to study in Canada as well as internationally

What's NOT working well?

- GRPSEO wants to move to a more effective cloud-based student funding management system.
- Over the years, GRPSEO's connections with high schools have deteriorated.
- Reporting to ISC on parameters such as the number of students, amount of funds, etc. takes too much time and effort
- No technology integration between GRPSEO and other education entities in Six Nations
- IT operations have been outsourced to an external party, which GRPSEO is not fully satisfied with (wants to move IT in-house)

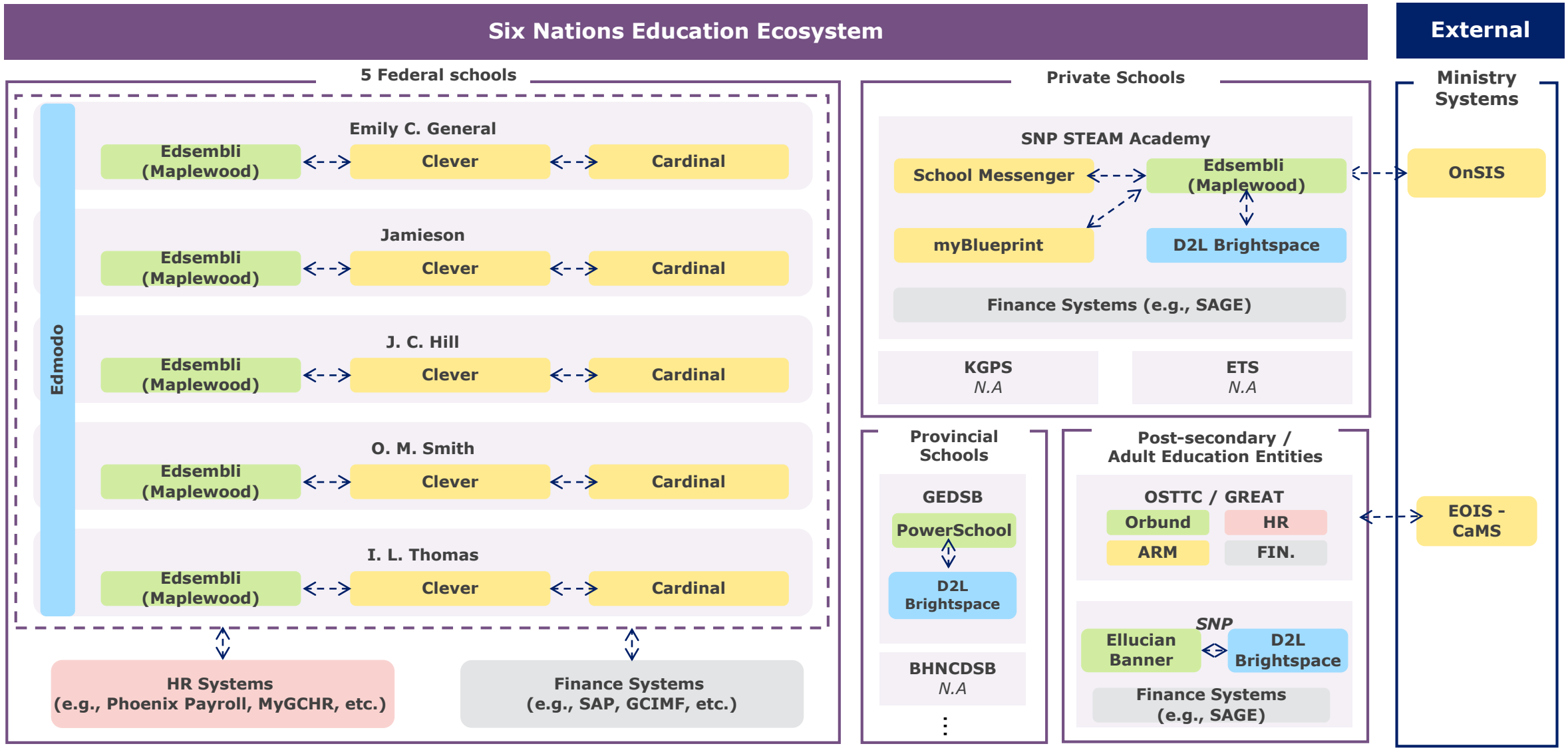
Where you want to be



Current State Technology

A Snapshot of the Current State Education Technology Landscape*

The visual below highlights the education technology interactions among Six Nations K-12 entities and external parties based on the inputs received from stakeholder interviews. Siloed technology operation within each SN entities increases technology complexity and operational inefficiency.



*This landscape is based on inputs from key stakeholders. It highlights key technologies and is not intended to be exhaustive

K-12 Student Information System (SIS) Capability Map

This capability map outlines the typical core and supplementary features of a SIS system.

	Student Information Systems Capabilities						
	Enrollment & Registration	**Student Data management**	**Scheduling**	**Student Financial Management**	**Grading & Graduation**	**Portal Management**	**Reporting & Analytics**
Core	• Admission management • Credit transfer management • Program enrollment • Integration with learning management system	• Student demographic data management • Student profile management • Integration with Learning management system	• Academic calendar Management • Attendance tracking • Integration with Learning management system	• Tuition billing management • General fee management • Financial waivers • Payment processing and reconciliation • Student financial aid • Integration with Funding management system	• Grades / Transcripts / report cards management • Graduation / dropout management • Integration with Learning management system	• Portals (teachers / faculty, administrators) • Integration with learning management system	• Regulatory reporting • Management reporting • Operational reporting • Funding related reporting • Integration with Learning management
Supplementary	• Single Sign-on • Mobile Access • Case and transition management • Predictive modeling for enrollment and progression of students • Integration with HR system • Integration with Finance system	• Student behavior records • Student health and medical records • Mobile Access	• Flexible classes • Mobile Access • Language support • Multi-schools calendar management	• Online payment processing • Mobile Access	• Competency-based grading • Customizable report cards • Mobile Access	• Family involvement / participation reports • Mobile Access	• Learning needs / behavior / performance tracking • Mobile Access

Capability Maps | K-12 Learning Management System (LMS)

This capability map outlines the typical core and supplementary features of a LMS system.

	Learning Management System Capabilities					
	Class Enrollment	**Curriculum Management**	**Assignment & Exam Management**	**Grading and Evaluation**	**Engagement Hub**	**Reporting and Analytics**
Core	• Class Search • Class registration & enrollment • Integration with Student Information System • Accessibility support	• Class scheduling management • Learning Content creation • Course catalogue management • Learning content delivery • In-class discussion management • Learning repository management • Attendance tracking • Accessibility support • Notification management	• Assignment handling • Assignment grading • Assignment feedback management • Quiz management • Exam handling • Accessibility support	• Grading management • Course evaluation • Integration with Student Information System	• Portals (student, teachers / faculty, parent, administrators) • Events management • Accessibility support	• Regulatory reporting • Management reporting • Operational reporting • Integration with student information system
Supplementary	• Single Sign-on • Mobile Access • Integration with HR system • Integration with Finance system	• Virtual Classroom (enabled by VR / AR) • Flexible classes • Mobile Access • Language support • Competency-based learning • Personalized learning management	• Group assignment collaboration • Virtual individual / group presentation • Mobile Access	• Competency-based grading • Mobile Access	• Virtual assistant • Social media integrations • Family involvement / participation monitoring • Mobile Access	• Learning needs / behavior / performance tracking • Mobile Access

Six Nations' Top Education Technology Challenges (1 of 2)

Based on our stakeholder interviews, we have outlined the following education technology challenges for Six Nations education entities.

#	Category	Area	Description	Impacted entity
1	General	Technology strategy	• Technology systems have been acquired by or foisted upon entities without a proper requirements gathering exercise, leading to technologies not meeting key business needs	Majority of the entities
2	General	Process Automation	• Student information management and learning management are heavily relied on manual data entry and bulky processes, resulting in user frustration and operational inefficiency.	Majority of the entities
3	General	Training and Support	• Lack of adequate technology training and support is impeding optimal use of technologies and user adoption	Majority of the entities
4	General	Reporting and analytics	• Data is captured, stored, and managed by each individual entity separately and in multiple places such as paper forms, spreadsheets, and tech systems (e.g., each federal school has a separate Maplewood instance) • Lack of formalized data transition process and procedures within and across different entities, leading to siloed data sources management • Entities do not have access to reliable and comprehensive data, thus hindering reporting and ability to make informed education decisions.	Majority of the entities
5	General	User experience	• SIS: Maplewood and Orbund's user interfaces are not intuitive – hard for administrators to access, navigate, and generate reports out of it. • SIS: Teacher requires manual entries of attendance records and grades to Maplewood • LMS: Edmodo was set up on March, 2020. Students and parents may not have sufficient understandings and knowledge to adopt to it due to lack of adequate guidance and support	• Federal Schools • SNP STEAM Academy • OSTTC
6	General	SIS-LMS Integration	• Lack of real-time integration between SIS and LMS • Student enrolment information is not automatically transferred to the LMS even if that data is in the SIS • Teachers who enters grades in D2L / Edmodo need to manually update grades to Maplewood	• Federal Schools • SNP STEAM Academy
7	SIS	Enrollment & Registration	• Registration process are done primarily through paper forms. Manual efforts are required to update information to Maplewood, increasing potential errors and process inefficiency	• Federal Schools • SNP STEAM Academy

Six Nations' Top Education Technology Challenges (2 of 2)

Based on our stakeholder interviews, we have outlined the following education technology challenges for Six Nations education entities.

#	Category	Area	Description	Impacted entity
8	SIS	Enrollment & Registration	• Maplewood is unable to transfer credits earned from other entities or systems as well as segregating credits internally	SNP STEAM Academy
9	SIS	Student Data management	• Maplewood and Cardinal do not integrate with each other. Health and medical records, reading assessment data, EQAO data etc. are captured in paper-based forms or spreadsheets, resulting in poor student profile management in Maplewood	Federal Schools
10	SIS	Student Data Management	• Unable to upload data in a batch to Maplewood	SNP STEAM Academy
11	SIS	Student Data Management	• Lack of integration across key modules of Maplewood. E.g., Student profile needs to be manually created based on its enrolment and registration data	• Federal Schools • SNP STEAM Academy
12	SIS	Student Data Management	• Maplewood is not managing student demographic data. There is no function to track the progress of the students and registered data	• Federal Schools • SNP STEAM Academy
13	SIS	Scheduling	• Attendance tracking is done manually on paper and requires manual upload to Maplewood	• Federal Schools • SNP STEAM Academy
14	SIS	Student Financial Management	• Limited financial management functionality available in Maplewood. Payments are processing by cheques or cash; online payments options are not available in Maplewood.	• Federal Schools • SNP STEAM Academy
16	SIS	Reporting & Analytics	• Poor student information reporting generated from Maplewood; cannot report based on different demographic groups.	Federal Schools
17	SIS	Reporting & Analytics	• Integration between Maplewood and OnSIS is not meeting expectations (e.g., requires RDP connection); Annual reports to OnSIS requires manual upload	SNP STEAM Academy
18	SIS	Localization	• Orbund is a U.S based the system which has not been localized to meet Canadian's needs	OSTTC
19	LMS	Integration	• D2L does not have the functionality that myBlueprint offers (i.e., student education planning) and these two systems are not integrated with each other.	SNP STEAM Academy

Six Nations' Top Education Technology Aspirations

Based on our stakeholder interviews, we have outlined the following education technology aspirations for Six Nations education entities.

#	Category	Area	Description	Impacted entity
1	General	Technology Strategy	• Six Nations aspires to develop a stand-alone education ecosystem separate from federal systems and unified across Six Nations entities. • The current COVID-19 pandemic has accelerated the transition to online and remote learning and increased expectations on digital capabilities support • Moving to full cloud-based environment to improve access to data and reduce operational complexity and cost	Majority of the entities
2	General	Process Automation	• Improve business operation efficiency by accelerating process automation instead of heavily relying on paper-based processes.	Majority of the entities
3	General	Reporting and analytics	• ECO wants to build a common database or SharePoint to share information across different education entities • Six Nations need to develop a data sharing policy and procedure across different education entities to enable data transition / consolidation across different systems and entities (e.g., Transferring of specific education documents from feeder schools will make the high school registration process more efficient; Sharing of attendance data is needed from feeder schools) • Reporting processes need to be more robust and transparent; Data analytics capability needs to be enhanced to make informed and timely decisions	Majority of the entities
4	General	User experience	• Technology systems need to provide easy and interactive experience to improve technology adoption and user engagement • Increasing awareness of how to use technology optimally among key persona (e.g., teachers, students, parents, admins) is imperative to drive ongoing education transformation journey • Enable effective single-sing-on solution to simplify user and password management within different devices	Majority of the entities
5	General	Training and Support	• There needs to be dedicated training sessions and in-time technology guidance and support in place for users to utilize technology to its full potential	Majority of the entities
6	General	SIS & LMS Integration	• Desire to enable real-time responses and updates by integrating SIS and LMS within and across K-12 entities, enabling consistent user learning experience	SNP STEAM Academy, Federal Schools

Education Technology Market Trends

Key Emerging Trends in the K-12 Education Technology Market

The "digitalization of education" continues on at a rapid pace in K-12 education, which allows technology acts as a significant strategic enabler with business leadership in the complex pursuits of improving teaching and learning outcomes. The following are the top latest strategic technology trends impacting K-12 education transformation:

Adaptive Learning

- Adaptive learning technologies dynamically adjusts the way content is presented to the students based on their responses or preferences, which provides a **personalized and competency-based learning path** to each learner
- Gartner predicts that **60%** of K-12 organizations will be actively experimenting some level of adaptive learning solutions in their regular instructional offerings by 2025

Immersive Technologies (Augmented Reality / Virtual Reality)

- The use of immersive technologies in K-12 education has drawn a **high degree of novelty** due to science simulations and virtual explorations
- Working with curriculum leadership by experimenting with small, contained pilots at school will help to **identify the specific needs and avoid costly mistakes**

Artificial Intelligence (AI) / Conversational technologies

- The adoption of AI-enabled products provide **real-time data insights and predictive trends** for users, which helps organizations make **informed decisions and timely actions**
- Leveraging conversational technologies (e.g., virtual learning assistant, AI chatbots) will significantly improve **user interactions and technology operational efficiency**

Digital Assessment

- Explore opportunities to enable digital assessment capabilities by using it to decrease the load on teachers and **enable faster, easier means of assessing student learning**
- Gartner states that **71%** of K-12 CIOs report they have already invested or are in short-term planning/experimentation in some aspect of this area

Omnichannel User Engagement

- Multichannel user engagement technologies will create a **customer-centric experience for learners**, meeting users when and where they want to be engaged
- Analyzing and improving **customer-facing processes and technology touchpoints** are the foundations to start organization's user personalization journey

Data Security and Privacy

- K-12 entities are **increasingly prime targets for cyberattacks** because of the large amount of student and employee data they collect, store, and analyze
- **Adopt security and privacy policies** that enable faculty, staff and students/parents to control what personal data is collected and on what legal grounds that processing takes place are becoming imperative

Source: Gartner K-12 education related reports, 2019 – 2020

Technology Vendor Landscape | Student Information Systems

A student Information System is a mission-critical organizational wide system that sits at the center of data management and provides student-, parent-, faculty-facing as well as back-office administrator functionalities to manage key organizational information assets.

The SIS market is **fairly mature** and an SIS purchase is generally considered "sticky". But the market is increasingly being shaken up due to the migration to **SaaS solutions.** SIS vendors are also facing pressure to build **LMS-like features**.

As central student database, SIS is moving off from old legacy systems by **promoting system interoperability and full data integrations** with other essential systems, especially LMS and to a less extent, ERP (Finance/HR management systems)

Merge and acquisition (M&A) activities are growing fast in SIS market. The M&A activity is not limited to acquiring other SIS vendors but also includes several acquisitions of related products that can be tightly integrated into the core SIS

K-12 SIS Representative Vendors*

aequitas SOLUTIONS
alma
PowerSchool
Follett
frontline education
illuminate education
Aeries Student Information System
blackbaud
Edupoint
CAPITA SIMS
Genius
Infinite Campus
Serosoft
engage
FOCUS School Software
Gradelink Student Information System
SENTRAL EDUCATION
SKYWARD
tyler technologies
edsembli
maplewood
Sycamore education

Source: Gartner K-12 education related reports, 2019 – 2020

*Note: *The vendors listed above do not imply an exhaustive list.*

Technology Vendor Landscape | Learning Management Systems

The adoption of learning management systems (LMSs) in K-12 education continues to grow globally as education organizations continue the push for more digital schools. As the K-12 LMS market continues to evolve, some representative vendors can be summarized as the following three categories:

K-12 LMS is relatively less mature than SIS with many organizations not having any LMS. But the market is seeing high growth with many first-time buyers emerging.	Organizations looking to adopt an LMS for the first time often discover that many teachers are already using an LMS. Often, it is a lightweight LMS that the teacher has taken up on her own.	Many K-12 organizations are consequently making evaluating consolidating their LMS technology landscape considering ability to provide consolidated reporting and analytics, need for centralization etc.

Proprietary general-purpose LMS

- The Proprietary general-purpose LMS offers **enterprise-wide and standard suit of capabilities** for many K-12 organizations today
- The solution usually has **robust learning tools, assessment modules, and analytics options** with **higher cost and complexity** on training and support
- The demand for moving this system to the cloud has evolved into a state where almost all new sales today are of **cloud-hosted solutions**

Open-source LMS

- Open LMS enables a **strong, open source foundation for competency-based blended, online learning experience to learners,** improving organizational learning outcomes and user engagement

"Lightweight" LMS

- The impact of lightweight LMS solutions **has grown exponentially** in last 5 years, changing how organizations determine their initial LMS adoption and influencing vendors' offerings
- The "Lighweight" LMS solutions are usually f**ree (or nearly so) and simple to use**. However, it does not necessarily offering the full spectrum of enterprise-wide functionalities

K-12 LMS Representative Vendors*

Blackboard, brightspace by D2L, edmodo, Edsby, INSTRUCTURE, its learning, canvas BY INSTRUCTURE, PowerSchool, schoology

moodle, Blackboard Open LMS, DOKEOS eLearning made easy, canvas BY INSTRUCTURE, talentlms, Sakai, forma.lms, ATutor

Google Classroom, Microsoft Teams, Hapara

Source: Gartner K-12 education related reports, 2019 – 2020

**Note: The vendors listed above do not imply an exhaustive list.*

Technology Vendor Landscape | HR Management Systems

The mid-market is witnessing rapid adoption of HR technology due to a need for more automation, better talent management, and enhanced employee experience

NOT EXHAUSTIVE

Top expectations from HR technology in the small to mid-market space

- Achieve more automation, better efficiency, and lower costs
- Integrated talent management
- Elevated employee experience
- Business strategy (e.g., M&A) enablement
- Reliable reporting and data-driven decision-making

Leading research[1] indicates that small to mid-market space is seeing rapid HR technology adoption

Rapid adoption

Companies with less than 2.5k EEs constitute the fastest growing segment of new HR tech buyers.

Increased spending

35% of such companies are planning to increase HR technology investments in the next one year.

Strategy focus

57% of such companies are regularly updating existing HR tech strategy or in the process of developing one

Digital orientation

Such companies have the highest percentage adoption of SaaS systems for HRMS (*73%*) and Payroll (*70%*)

Top vendors in the small to mid-market space

ADP, CERIDIAN, Ultimate SOFTWARE

Other vendors in the small to mid-market space

AVANTI, bambooHR, collage, RISE, Payworks

1 *Insights obtained from Sierra-Cedar HR Systems Survey 2019-2020*

Technology Vendor Landscape | Finance Management Systems

The mid-market for cloud core financial management suites are growing fast in recent years and benefiting from the addition of new functionalities and the rise of digital capabilities.

Key Market Trends

Cloud Transformation

The maturity and sophistication of cloud core financial management systems continue to drive adoption. 60% of the midsize organizations will implement cloud-based financial management tool by 2024

Rapid Adoption of Emerging Technologies

Vendors aspire to leverage emerging technologies such as AI, Machine learning, and robotic process automation (RPA) to improve financial controls, optimize cash flow, and make strategic decisions faster by using embedded analysis and predictive insights

Unified Administration Approach

Leading vendors provide an integrated cloud solution for HR and Finance management to streamline K-12 administration processes, to unlock team productivity and provide consistent user experience for teachers and admins.

Expectations on K-12 Finance Management

Improved Efficiency

Standardize and automate financial operational processes across functions or departments help improve overall organization's agility and productivity

Better Planning

Integrated budget planning and forecasting processes and analysis increases precision of funding management and financial stability

Data-driven Decisions

Equip leaders with deeper and dimensional reporting and data insights on any device to make timely and actionable decisions

Security & Compliance

Harness real-time visibility and control over financial operations to ensure security and compliance through a best-in-class cloud hosting environment

Small to Mid-Market Representative Vendors*

Microsoft
sage Intacct
FINANCIALFORCE
ORACLE | NETSUITE
UNIT4
ramco
PowerSchool
Acumatica

Source: Gartner Magic Quadrant for Cloud Core Financial Management Suites, 2019; vendor websites

Note: The vendors listed above do not imply an exhaustive list.

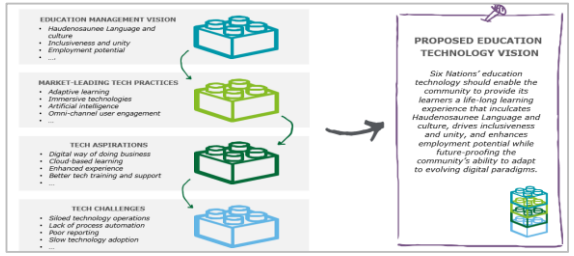
Future State Vision

Future State Visioning Approach

Three interactive exercises were conducted during the current state playback and future visioning workshop, which helped define Six Nations' Education Technology vision, guiding principles for transformation, and high-priority areas for transformation.

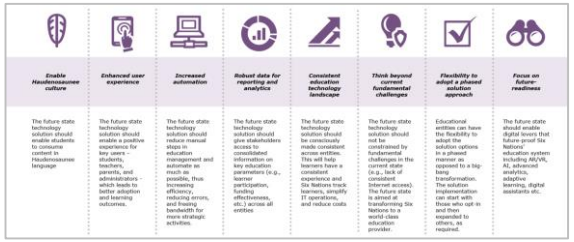
Review Education Technology vision

After reviewing current state findings and market scan insights, workshop participants aligned on Six Nations' education technology vision. This vision will guide our next steps including Signature Requirements, solution options analysis, and roadmap creation.



Define Guiding Principles

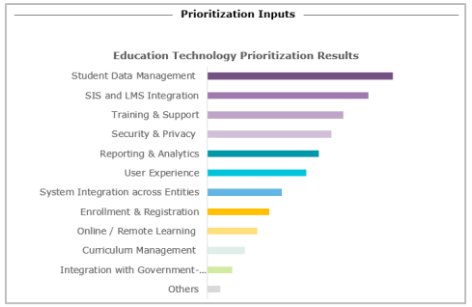
Workshop participants reviewed and aligned on the education technology transformation guiding principles, which will act as guard rails as we collaboratively determine the optimal solution options.



Prioritize Education Technology Areas

Workshop participates voted on their top education technology priorities during workshop. We will develop Signature Requirements for each of these prioritized areas.

#	Category	Priority area	Rationale
1	SIS & LMS	User experience	• Smooth user experience will improve technology adoption and user satisfaction (e.g., promoting better communication and engagement with students and parents will help teachers deliver desired learning content)
2	SIS & LMS	Training and Support	• Effective technology training and support helps users utilize technology to its full potential
3	SIS & LMS	Reporting & Analytics	• Robust reporting and analytics helps make informed data-driven decisions
4	SIS & LMS	Security & Privacy	• Dedicated security support and robust privacy requirements reduces legal and compliance risk
5	SIS&LMS System Integration	LMS and SIS Integration	• Integrating SIS and LMS within SN entities will reduce manual data entry and increase accuracy
6	SIS&LMS System Integration	System Integration Across Entities	• Consistent LMS technology landscape across SN education entities will help provide learners a consistent experience across their life-long learning process thus increasing adoption and improving learner outcomes • Smooth SIS and LMS integration across SN education entities will ease administrative burden associated with students moving across schools (processes need to continue to be in place) • Smooth SIS and LMS integration across SN education entities will also provide data on learners which will help educators and leaders take robust decisions to improve learner outcomes
7	System Integration	Integration with Government-Appointed Systems	• Smooth integration with government-appointed systems will help SN education entities simplify compliance reporting as well as stay head of compliance requirements to ensure your school receive optimal funding
8	SIS	Enrollment & Registration	• Digitization of enrollment and registration processes in SIS will help minimize administrative overhead, reduce paper work, as well as simplifying admissions processes for students and parents
9	SIS	Student Data Management	• Robust and comprehensive student demographic data management and student profile management help education providers access data on student performance, behavioral trends, and key demographic information to personalize instruction and learning, so leaders can make informed decisions that lead to students success
10	LMS	Online / Remote learning	• Developing and upgrading digital capabilities for online learning is imperative to respond to current Covid-19 pandemic and align with long-term education trends
11	LMS	Curriculum Management	• Optimizing overall curriculum management as well as class scheduling, attendance tracking, and outcomes delivery in LMS, ensuring every student's success in their customized learning path



Future State Education Technology Vision

The Education Technology Vision will guide our next steps including Signature Requirements, solution options analysis, and roadmap creation.

Vision

Guiding Principles

Prioritized Areas

EDUCATION MANAGEMENT VISION

- *Haudenosaunee Language and culture*
- *Inclusiveness and unity*
- *Employment potential*
- *….*

MARKET-LEADING TECH PRACTICES

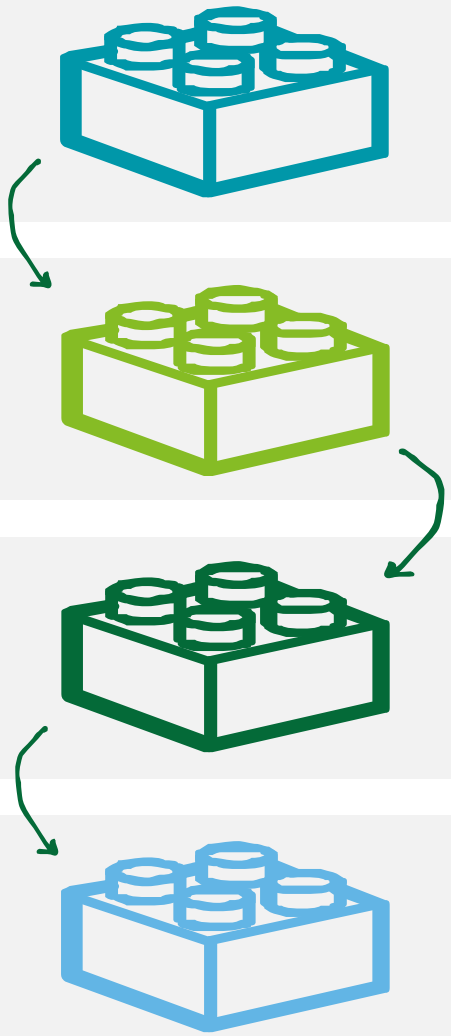
- *Adaptive learning*
- *Immersive technologies*
- *Artificial intelligence*
- *Omni-channel user engagement*
- *…*

TECH ASPIRATIONS

- *Digital way of doing business*
- *Cloud-based learning*
- *Enhanced experience*
- *Better tech training and support*
- *…*

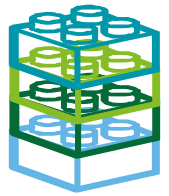
TECH CHALLENGES

- *Siloed technology operations*
- *Lack of process automation*
- *Poor reporting*
- *Slow technology adoption*
- *…*



PROPOSED EDUCATION TECHNOLOGY VISION

Six Nations' education technology should enable the community to provide its learners a life-long learning experience that inculcates Haudenosaunee language and culture, drives inclusiveness, equity, and unity, and supports learner success. The technology should enhance student, teacher, parent, and community experience with education while future-proofing their ability to adapt to evolving digital paradigms.



Education Technology Transformation Guiding Principles

The guiding principles will be the guard rails as we collaboratively determine the optimal solution option during the education technology transformation journey.

Vision

Guiding Principles

Prioritized Areas

Enable Haudenosaunee culture	***Enhanced user experience***	***Increased automation***	***Robust data for reporting and analytics***	***Consistent education technology landscape***	***Think beyond current fundamental challenges***	***Flexibility to adopt a phased solution approach***	***Focus on future-readiness***
The future state technology solution should enable students to consume content in their language and support students imbibe their culture as much as possible.	The future state technology solution should enable a positive experience for key users – students, teachers, parents, and administrators - which leads to better adoption and learning outcomes.	The future state technology solution should reduce manual steps in education management and automate as much as possible, thus increasing efficiency, reducing errors, and freeing bandwidth for more strategic activities.	The future state technology solution should give stakeholders access to consolidated information on key education parameters (e.g., learner participation, funding effectiveness, etc.) across all entities	The future state technology solution should be consciously made consistent across entities. This will help learners have a consistent experience and Six Nations track learners, simplify IT operations, and reduce costs	The future state technology solution should not be constrained by fundamental challenges in the current state (e.g., lack of consistent Internet access). The future state is aimed at transforming Six Nations to a world-class education provider.	Educational entities can have the flexibility to adopt the solution options in a phased manner as opposed to a big-bang transformation. The solution implementation can start with those who opt-in and then expanded to others, as required.	The future state should enable digital levers that future-proof Six Nations' education system including AR/VR, AI, advanced analytics, adaptive learning, digital assistants etc.

Education Technology Prioritized Areas (1 of 2)

A list of prioritized areas for Six Nations' education technology transformation were developed based on current state pain points and aspirations and leading market practices.

Vision

Guiding Principles

Prioritized Areas

#	Category	Priority area	Rationale
1	SIS & LMS	User experience	• Smooth user experience will improve technology adoption and user satisfaction (e.g., promoting better communication and engagement with students and parents will help teachers deliver desired learning content)
2	SIS & LMS	Training and Support	• Effective technology training and support helps users utilize technology to its full potential
3	SIS & LMS	Reporting & Analytics	• Robust reporting and analytics helps make informed data-driven decisions
4	SIS & LMS	Security & Privacy	• Dedicated security support and robust privacy requirements reduces legal and compliance risk
5	SIS&LMS System Integration	LMS and SIS Integration	• Integrating SIS and LMS within SN entities will reduce manual data entry and increase accuracy
6	SIS&LMS System Integration	System Integration Across Entities	• Consistent LMS technology landscape across SN education entities will help provide learners a consistent experience across their life-long learning process thus increasing adoption and improving learner outcomes • Smooth SIS and LMS integration across SN education entities will ease administrative burden associated with students moving across schools (processes need to continue to be in place) • Smooth SIS and LMS integration across SN education entities will also provide data on learners which will help educators and leaders take robust decisions to improve learner outcomes
7	System Integration	Integration with Government-Appointed Systems	• Smooth integration with government-appointed systems will help SN education entities simplify compliance reporting as well as stay head of compliance requirements to ensure your school receive optimal funding
8	SIS	Enrollment & Registration	• Digitization of enrollment and registration processes in SIS will help minimize administrative overhead, reduce paper work, as well as simplifying admissions processes for students and parents
9	SIS	Student Data Management	• Robust and comprehensive student demographic data management and student profile management help education providers access data on student performance, behavioral trends, and key demographic information to personalize instruction and learning, so leaders can make informed decisions that lead to students success
10	LMS	Online / Remote learning	• Developing and upgrading digital capabilities for online learning is imperative to respond to current Covid-19 pandemic and align with long-term education trends
11	LMS	Curriculum Management	• Optimizing overall curriculum management as well as class scheduling, attendance tracking, and outcomes delivery in LMS, ensuring every student's success in their customized learning path

Education Technology Prioritized Areas (2 of 2)

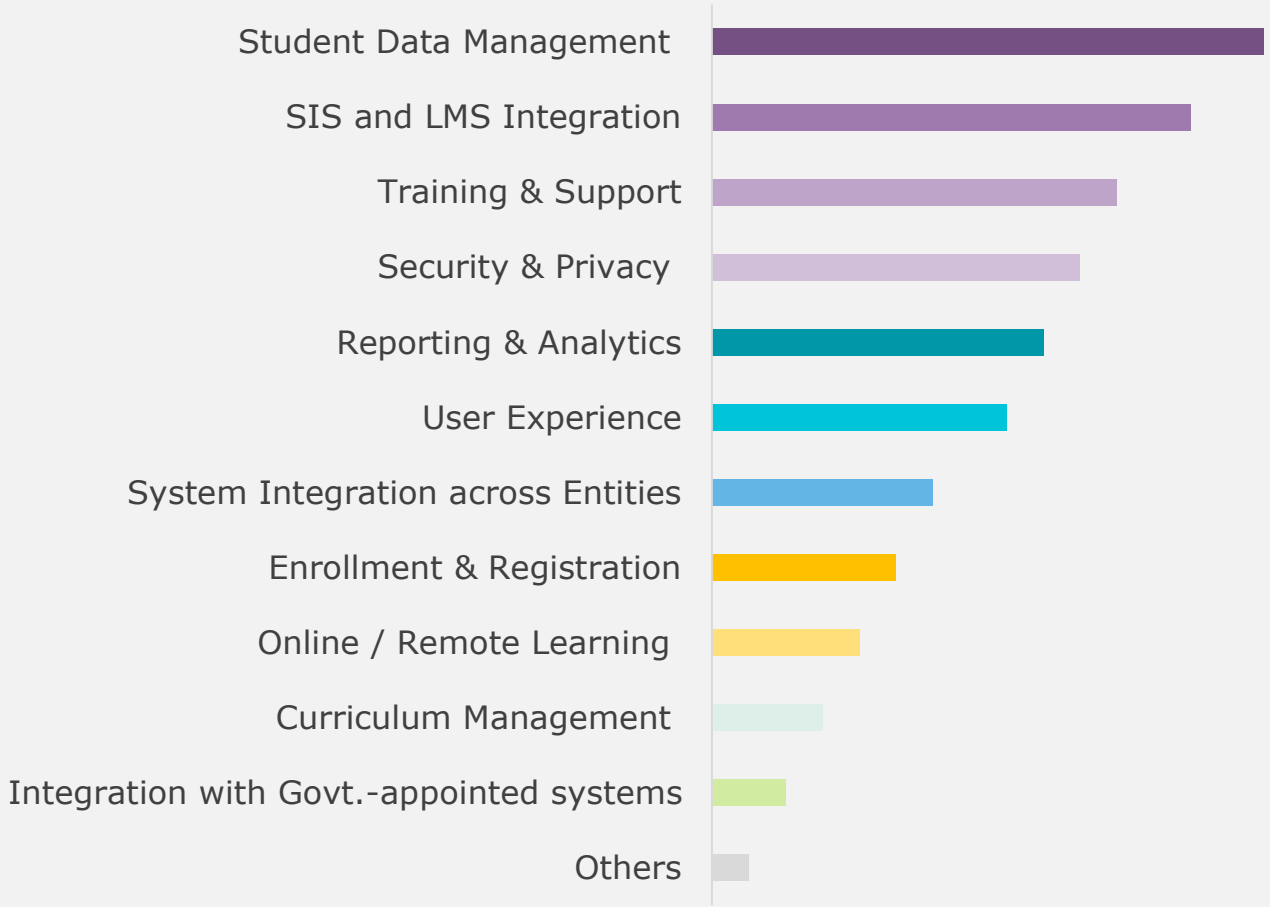
Workshop participants assigned priorities to the areas identified in the last page. We will develop Signature Requirements (unique/must-have requirements) for each of these prioritized areas.

Vision

Guiding Principles

Prioritized Areas

Prioritized areas



Key Observations

- Student Data Management function and real-time SIS-LMS integration with LMS emerged as the highest priority areas for transformation
- Effective training & support, security and privacy, robust reporting & analytics, better user experiences, and system integration across entities featured as some of the other top priority areas
- Certain SIS-specific capabilities such as enrollment & registration and LMS-specific capabilities such as online/remote learning and curriculum management were also ranked highly
- Integration with government-appointment systems, a highly entity-specific area, came in last in the list of priority areas.

Phase 1 Workshop Participation

Phase 1 Workshop Participation

The following list provides a snapshot of attendees of Phase 1 workshop on May 1st

List of Workshop Participants

Six Nations

- Michael Hill
- Julia Candlish
- Arielle Monture
- Caroline VanEvery-Albert
- Erin Monture
- Feather Maracle
- Hazel Johnson
- Judy Reuben
- Karen Sandy
- Linda Staats
- Lori Davis Hill
- Rebecca Jamieson
- Reva Bomberry
- Zandra Bear-Lowen
- Aaron Hobbs
- George Georgopoulos
- Kathleen Manderville

Deloitte

- Mario Glumpak
- Craig Robinson
- Harsh Kundulli
- Christine Qian

Engagement Deliverable #4 – Signature Requirements and User Journey Maps Report

Future State Signature Requirements

Signature Requirements Primer

Signature Requirements are the must-have requirements for each K-12 education provider related to Six Nations to consider while moving to the desired future state. The SIS and LMS signature requirements are developed based on phase 1 findings and industry best practices.

Signature Requirements Business Definition

Types of Requirements

*The objective is to **capture unique / must-have signature requirements** across each of the prioritized areas*

Must-Have Requirements

Standard

Industry standard requirements which are often default requirements / common-place in Six Nations.

Signature

Some of the unique / must-have requirements which are acting as differentiators to Six Nations, where additional maturity is expected to attain in the immediate future.

Project Focus

Future Priorities

These are "nice to have" / future priorities which are out of the project scope (i.e., not the primary focus of Six Nations education transformation)

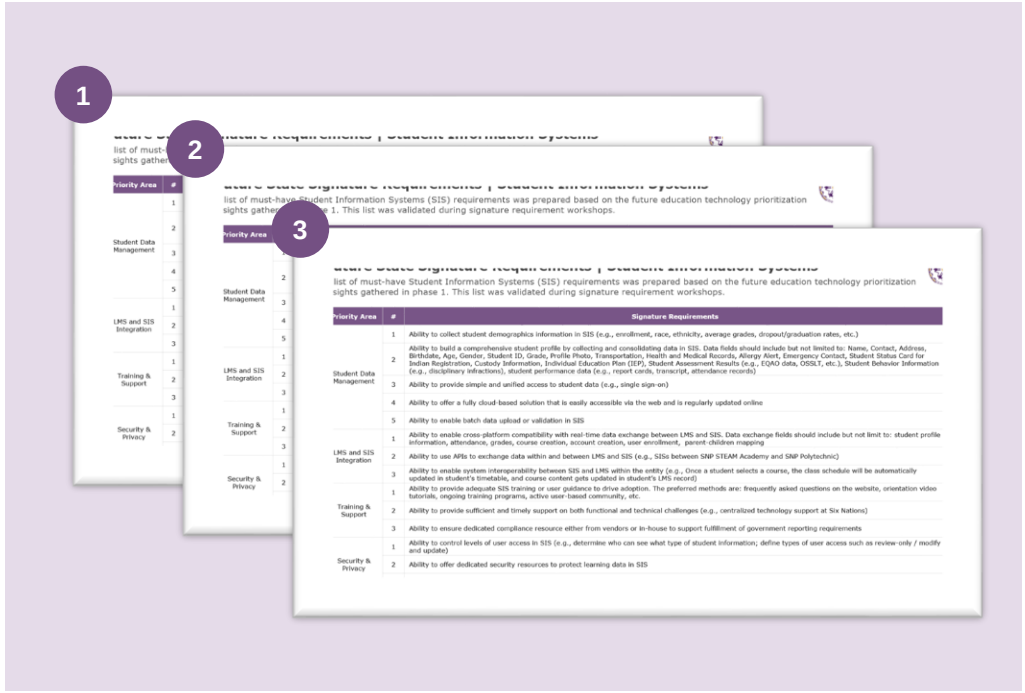
Validation Approach

1. Deloitte has developed a set of technology-agnostic requirements based on Six Nations' challenges, aspirations, and leading market practices
2. The priority areas are based on the outcome of phase 1 future state visioning exercise
3. Deloitte has validated SIS and LMS signature requirements with various stakeholders from STEAM Academy, OSTTC during workshops
4. Further validations with other K-12 education entities (e.g., federal schools, GEDSB, etc.) are required after this phase

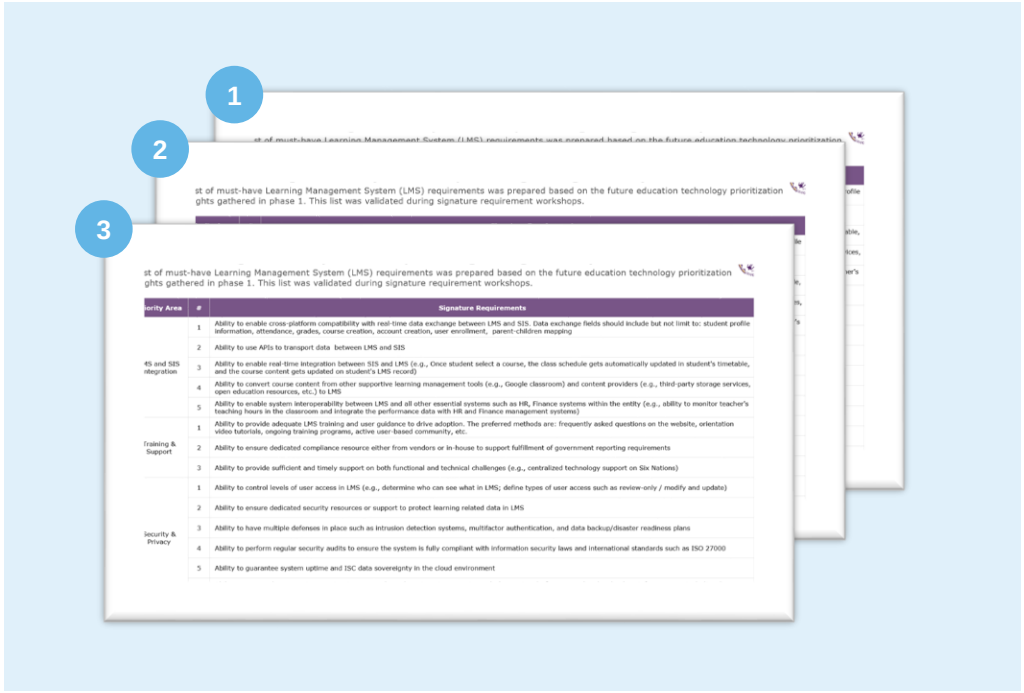
Signature Requirements Outcomes

This section contains the consolidated signature requirements defined by Six Nations' stakeholders to support the education technology transformation initiative. Both SIS and LMS signature requirements were validated and refined during three workshops, held during the week of May 11th.

41 SIS related Signature Requirements



45 LMS related Signature Requirements



Aligning on SIS and LMS signature requirements with various Six Nations' education entities will help to inform the subsequent vendor-selection process on the transformation journey.

Future State Signature Requirements | Student Information Systems (1 of 3)

A list of must-have Student Information Systems (SIS) requirements was prepared based on the future education technology prioritization insights gathered in phase 1. This list was validated during signature requirement workshops.

Priority Area	#	Signature Requirements
Student Data Management*	1	Ability to collect student demographics information in SIS (e.g., enrollment, race, ethnicity, average grades, dropout/graduation rates, etc.)
	2	Ability to build a comprehensive student profile by collecting and consolidating data in SIS. Data fields should include but not limited to: Name, Contact, Address, Birthdate, Age, Gender, Student ID, Grade, Profile Photo, Transportation, Health and Medical Records, Allergy Alert, Emergency Contact, Student Status Card for Indian Registration, Custody Information, Individual Education Plan (IEP), Student Assessment Results (e.g., EQAO data, OSSLT, etc.), Student Behavior Information (e.g., disciplinary infractions), student performance data (e.g., report cards, transcript, attendance records)
	3	Ability to provide simple and unified access to student data (e.g., single sign-on)
	4	Ability to offer a fully cloud-based solution that is easily accessible via the web and is regularly updated online
	5	Ability to enable batch data upload or validation in SIS
LMS and SIS Integration	1	Ability to enable cross-platform compatibility with real-time data exchange between LMS and SIS. Data exchange fields should include but not limit to: student profile information, attendance, grades, course creation, account creation, user enrollment, parent-children mapping
	2	Ability to use APIs to exchange data within and between LMS and SIS (e.g., SISs between SNP STEAM Academy and SNP Polytechnic)
	3	Ability to enable system interoperability between SIS and LMS within the entity (e.g., Once a student selects a course, the class schedule will be automatically updated in student's timetable, and course content gets updated in student's LMS record)
Training & Support	1	Ability to provide adequate SIS training or user guidance to drive adoption. The preferred methods are: frequently asked questions on the website, orientation video tutorials, ongoing training programs, active user-based community, etc.
	2	Ability to provide sufficient and timely support on both functional and technical challenges (e.g., centralized technology support at Six Nations)
	3	Ability to ensure sufficient regulatory compliance training and support
Security & Privacy	1	Ability to control levels of user access in SIS (e.g., determine who can see what type of student information; define types of user access such as review-only / modify and update)
	2	Ability to ensure dedicated support on data security & privacy management in SIS
	3	Ability to have multiple defenses in place such as intrusion detection systems, multifactor authentication, and data backup/disaster readiness plans

*Note: As of May 2020, there's an ongoing discussion about digitizing Ontario Student Record (OSR) at the Ministry of Education level; Ontario calls for storing OSR info for 50 years.

Future State Signature Requirements | Student Information Systems (2 of 3)

A list of must-have Student Information Systems (SIS) requirements was prepared based on the future education technology prioritization insights gathered in phase 1. This list was validated during signature requirement workshops.

Priority Area	#	Signature Requirements
Security & Privacy (Cont.)	4	Ability to perform regular security audits to ensure the system is fully compliant with information security laws and international standards such as ISO 27000
	5	Ability to guarantee system uptime and Indigenous Services Canada (ISC) data sovereignty while considering moving to cloud environment
	6	Ability to ensure there is no interruption in service where there is an issue arising with the services/software or related technology infrastructure, including disaster recovery and business continuity plans
	7	Ability to restrict IP addresses that are allowed to grant security access to other users of the system
Reporting & Analytics	1	Ability to consolidate and present student data in a usable, clean, and organized way for robust and real-time reporting and analytics
	2	Ability to offer a library of pre-built reports most commonly used across K-12 schools
	3	Ability to streamline reporting processes with automated workflow (e.g., transfer mid-term / final grades automatically from LMS to SIS for reporting)
	4	Ability to enable effective and automated data importing and exporting processes in SIS (e.g., support for different file formats)
	5	Ability to customize and generate reports with the right data in the format that meets users' needs (e.g., offer student activities/behaviors/incidents related reporting in SIS)
User Experience	1	Ability to provide an easy-to-use interface with clean, modern navigation for administration staff, teachers, and parents
	2	Ability to easily access student information and dashboards with smart search function (e.g., find student information faster by typing first a few letters of their name and select the results from the drop-down list)
System Integration Across Entities	1	Ability to enable system interoperability between SIS systems across different entities (e.g., feeder school, transfer schools, etc.)
	2	Ability to enable system interoperability between SIS and other essential systems (e.g., LMS, ERP systems) across different entities where necessary
Enrollment & Registration	1	Ability to intake student enrollment data online and automatically populating SIS
	2	Ability to provide parents and students an instance access to enrollment & registration forms for self-serve purposes in SIS

Future State Signature Requirements | Student Information Systems (3 of 3)

A list of must-have Student Information Systems (SIS) requirements was prepared based on the future education technology prioritization insights gathered in phase 1. This list was validated during signature requirement workshops.

Priority Area	#	Signature Requirements
Enrollment & Registration (Cont.)	3	Ability to export and share relevant information to other departments or schools to simplify learner's enrollment and registration process across entities
	4	Ability to provide simple and unified access to enrollment and registration data (e.g., single sign-on)
	5	Ability to allow staff to transfer credits for students transferring from one school to another
	6	Ability to easily extend and configure SIS with custom online registration forms or tools (e.g., Cardinal)
	7	Ability to review historical enrollment & registration data
Integration with Government-Appointed Systems	1	Ability to update reporting format and content to be compliant with regulatory reporting requirements
	2	Ability to enable seamless system integration between SIS and government-managed system (e.g., OnSIS) to ensure accurate data reporting
Other	1	Ability to monitor teacher's teaching hours in the classroom
	2	Ability to integrate teacher’s performance data with HR and Finance management systems
	3	Ability to enable in-built online payment processing for parents
	4	Ability to enable effective communication and real-time collaborations with SIS users (e.g., faulty / teachers, admins, parents potentially) through portal management
	5	Ability to inform SIS users for upcoming important events or deadlines via email / text message notifications

Future State Signature Requirements | Learning Management Systems (1 of 3)

A list of must-have Learning Management System (LMS) requirements was prepared based on the future education technology prioritization insights gathered in phase 1. This list was validated during signature requirement workshops.

Priority Area	#	Signature Requirements
LMS and SIS Integration	1	Ability to enable cross-platform compatibility with real-time data exchange between LMS and SIS. Data exchange fields should include but not limit to: student profile information, attendance, grades, course creation, account creation, user enrollment, parent-children mapping
	2	Ability to use APIs to transport data between LMS and SIS
	3	Ability to enable real-time integration between SIS and LMS (e.g., Once student select a course, the class schedule gets automatically updated in student's timetable, and the course content gets updated on student's LMS record)
	4	Ability to convert course content from other supportive learning management tools (e.g., Google classroom) and content providers (e.g., third-party storage services, open education resources, etc.) to LMS
	5	Ability to enable system interoperability between LMS and all other essential systems such as HR, Finance systems within the entity (e.g., ability to monitor teacher's teaching hours in the classroom and integrate the performance data with HR and Finance management systems)
Training & Support	1	Ability to provide adequate LMS training and user guidance to drive adoption. The preferred methods are: frequently asked questions on the website, orientation video tutorials, ongoing training programs, active user-based community, etc.
	2	Ability to ensure sufficient regulatory compliance training and support
	3	Ability to provide sufficient and timely support on both functional and technical challenges (e.g., centralized technology support on Six Nations)
Security & Privacy	1	Ability to control levels of user access in LMS (e.g., determine who can see what in LMS; define types of user access such as review-only / modify and update)
	2	Ability to ensure dedicated support on data security & privacy management in LMS
	3	Ability to have multiple defenses in place such as intrusion detection systems, multifactor authentication, and data backup/disaster readiness plans
	4	Ability to perform regular security audits to ensure the system is fully compliant with information security laws and international standards such as ISO 27000
	5	Ability to guarantee system uptime and Indigenous Services Canada (ISC) data sovereignty in the cloud environment
	6	Ability to ensure there is no interruption in service where there is an issue arising with the services/software or related technology infrastructure, including disaster recovery and business continuity plans

Future State Signature Requirements | Learning Management Systems (2 of 3)

A list of must-have Learning Management System (LMS) requirements was prepared based on the future education technology prioritization insights gathered in phase 1. This list was validated during signature requirement workshops.

Priority Area	#	Signature Requirements
Reporting & Analytics	1	Ability to consolidate and present learning data in a usable, clean, and organized way for robust and real-time reporting and analytics
	2	Ability to offer a library of pre-built reports most commonly used across K-12 schools
	3	Ability to enable effective and automated learning data importing and exporting processes
	4	Ability for teachers, parents, and students themselves to track their learning needs, behaviors, and performance at both aggregated and detailed levels through dashboards
	5	Ability to customize and generate reports with the right data in the format that meets users' needs
	6	Ability to track student performance and engagement against preloaded standards as well as custom learning objectives
	7	Ability for decision-makers to track student learning engagement at the individual, course, school, and district levels so that leadership could develop well-informed strategies at both school and district levels
User Experience	1	Ability to provide an easy-to-use interface for students, teachers, parents, and administrators with clean, and modern navigation (e.g., user-friendly interface works on any device: laptop, tablet, or mobile)
	2	Ability to easily access student learning information and dashboards with smart search function (e.g., class search by typing first a few letters and select the results from the drop-down list)
	3	Ability to adapt to different screen sizes and work on any device with the help of responsive design
System Integration Across Entities	1	Ability to enable system interoperability between LMS systems across different entities (e.g., feeder school, transfer schools, etc.) in order to provide consistent learning experience for the same learners
	2	Ability to enable system interoperability between LMS and other essential systems (e.g., SIS, ERP systems) across different entities where necessary
Online / Remote learning	1	Ability to enable digital assessment by including proctoring function (e.g., authentication such as student ID verification, testing environment assurance such as browser monitoring, test taker behavior review including live monitoring, plagiarism testing, etc.,)
	2	Ability to support users with disabilities
	3	Ability to offer a fully cloud-based learning management system for creating, hosting, and editing custom learning resources

Future State Signature Requirements | Learning Management Systems (3 of 3)

A list of must-have Learning Management System (LMS) requirements was prepared based on the future education technology prioritization insights gathered in phase 1. This list was validated during signature requirement workshops.

Priority Area	#	Signature Requirements
Curriculum Management	1	Ability for administrators to manage course calendar and organization-wide school calendar in LMS
	2	Ability to manage and update course catalogue in an efficient way (e.g., ability to update course catalogue from year to year or course to course using copy functionality)
	3	Ability to inform users for important tasks or announcements via email / text message notifications (e.g., provide potential missed due dates reminders for students and / or parents)
	4	Ability to create an online learning repository to store, manage, and sharing learning resources
	5	Ability to conduct productive in-class discussion between teachers and every student / groups of students
	6	Ability to help students track and manage their own learning progress within courses
	7	Ability to offer differentiated / tailored class instruction to enable blended learning and achieve competency-based learning, full inclusion, and equitable access for all learners
	8	Ability for teachers to add, change, and arrange content quickly and easily
	9	Ability to offer flexible class scheduling to accommodate each learner's schedule preference (esp. for supplementary course)
Others	1	Ability to provide a course portal for teachers and students to communicate easily on Q&A, assignments, course feedback, etc.
	2	Ability to allow students to demonstrate their learning experiences including progress and reflections via an intuitive approach (e.g., photo, video, audio, etc.,)
	3	Ability to provide parents or guardians aggregated as well as detailed view of their children's learning contents, upcoming work, and learning progress in order for them to support their children in reaching their potential
	4	Ability to enable structured video workflows to allow teachers to issue video assignment or quiz to learners
	5	Ability to accurately and efficiently align grades on assignments and quizzes with specific learning outcomes
	6	Ability to provide personalized and targeted feedback to learners by leveraging feedback tools
	7	Ability to provide simple and unified access to learning data (e.g., single sign-on)

Future State
User Journey Maps

Key Personas Overview

A human-centered design approach involving personas design allows Six Nations to think about different users' education technology needs, identify the Moments that Matter the most and the key technology interactions in the future education technology transformation.

Jim is a student who is living on the Six Nations' reserve. His parents helped him to apply for one of the federal schools – IL Thomas Elementary School for elementary school education. When Jim is in grade 7th, his parents decide to transfer Jim from IL Thomas to Jamieson Elementary school as their family moves their home which is closer to Jamieson. After finishing last year at middle-school, Jim intends to apply to SNP STEAM Academy for high-school education.

Sam applies for a secondary-level math instructor position with SNP STEAM Academy through an online application. After several rounds of interviews, he is hired by SNP STEAM Academy starting.

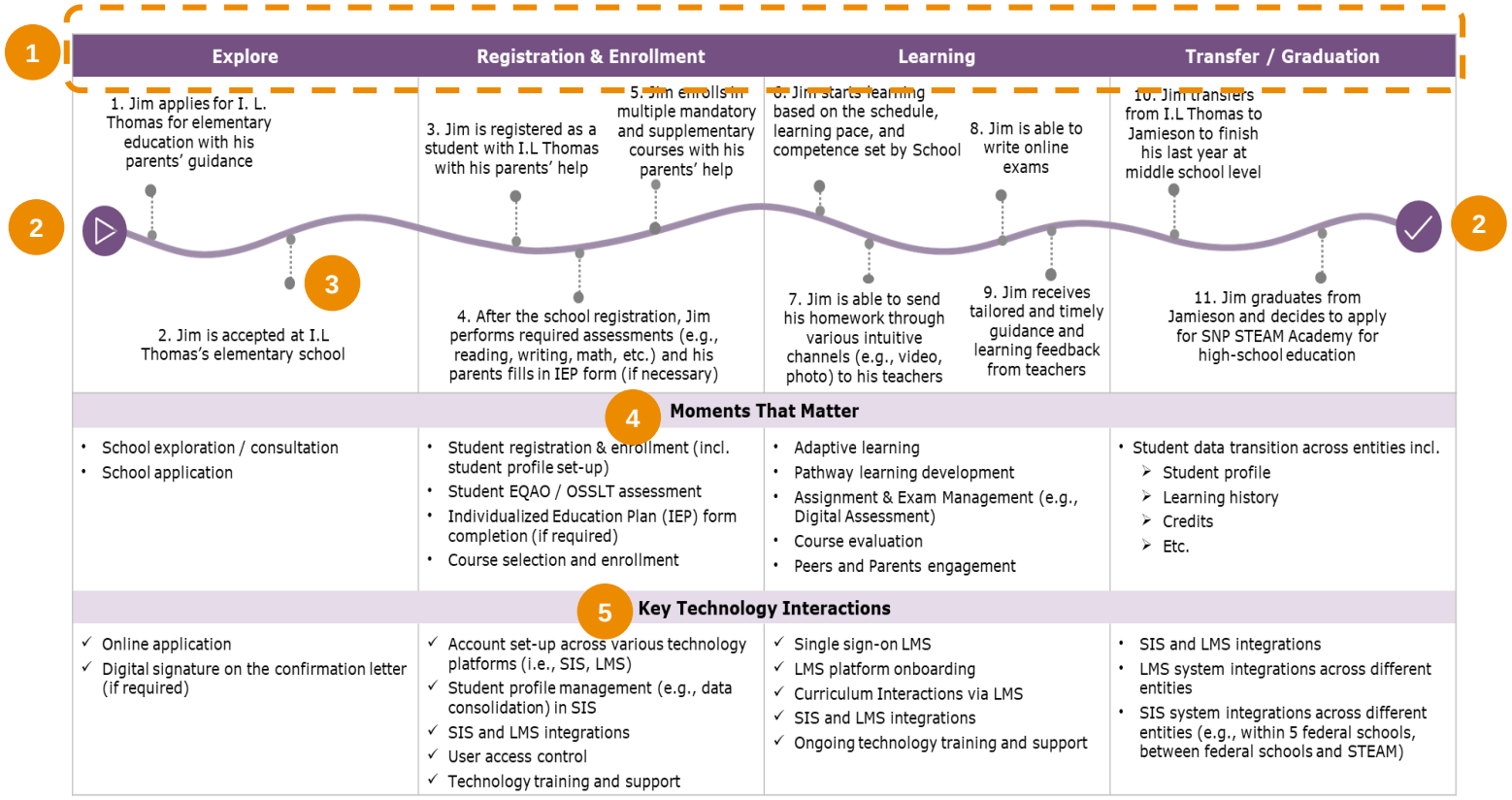
Linda and Mike are Emily's parents. They are a young family living on Six Nations' territory. They decide to send Emily to one of Six Nations' provincial schools - Grand Erie Learning Alternatives after consultation with the school's representative. Linda and Mike are proactively communicating with teachers through parent-child programs for Emily's learning performance and helping Emily with some homework if needed. Mike and Linda aren't tech-savvy, so they also enroll in parent portal training to learn how to best use the parent portal. They actively participate in diversified parent-child programs.

Kevin is an experienced administrator in Six Nation's central IT department responsible for SIS and LMS related business. He manages two junior administrators in his team.

Sue is an experienced administrator in Six Nation's central IT who is responsible for all HR and Finance related business and technology. She manages three other staff members in her team.

High-Level Future State User Journey Maps Instruction

This user guide illustrates how key personas' future state journeys will look like based on the real-life scenarios. It lists key considerations including Moments that Matter the most and key technology interactions at each stage of the user journey



1 **Stage of the Journey:** highlights key phases during each key persona's end-to-end journey

2 **Start / End point of the Journey:** represents the potential beginning and closure on the user's end-to-end journey

3 **Steps on the Journey:** depicts detailed activities a user is involved in under every stage of the journey

4 **Moments that Matter:** provides all the important moments that helps to in creating a positive experience for the end users

5 **Key Technology Interactions:** includes all the key interaction touchpoints with technology planforms (e.g., SIS, LMS, HR, Finance, etc.) within as well as across different Six Nations education entities

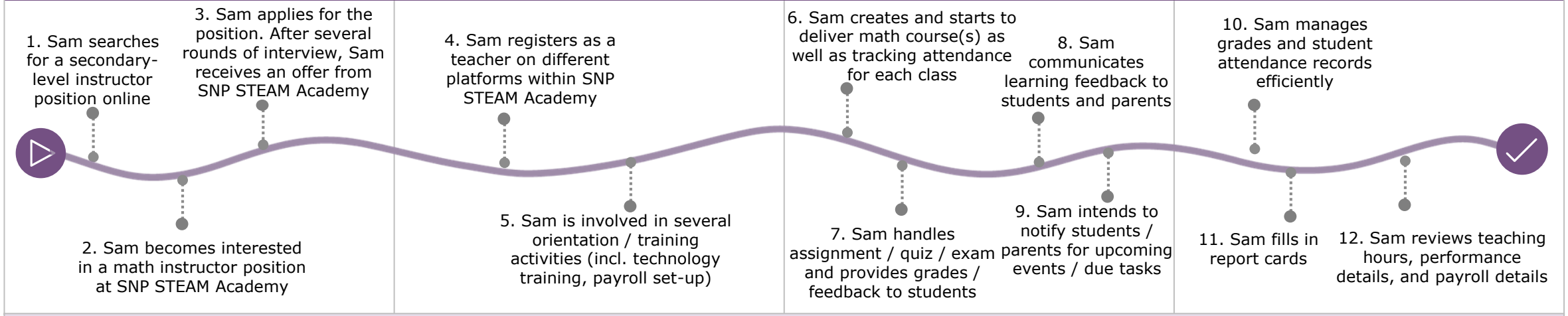
ILLUSTRATIVE

High-Level Future State User Journey Map | Students

Explore	Registration & Enrollment	Learning	Transfer / Graduation
1. Jim applies for I. L. Thomas for elementary education with his parents' guidance 2. Jim is accepted at I.L Thomas's elementary school	3. Jim is registered as a student with I.L Thomas with his parents' help 4. After the school registration, Jim performs required assessments (e.g., reading, writing, math, etc.) and his parents fills in the IEP form (if necessary) 5. Jim enrolls in multiple mandatory and supplementary courses with his parents' help	6. Jim starts learning based on the schedule, learning pace, and competence set by School 7. Jim is able to send his homework through various intuitive channels (e.g., video, photo) to his teachers 8. Jim is able to write online exams 9. Jim receives tailored and timely guidance and learning feedback from teachers	10. Jim transfers from I.L Thomas to Jamieson to finish his last year at middle school level 11. Jim graduates from Jamieson and decides to apply for SNP STEAM Academy for high-school education
Moments That Matter			
• School exploration / consultation • School application	• Student registration & enrollment (incl. student profile set-up) • Student EQAO / OSSLT assessment • Individualized Education Plan (IEP) form completion (if required) • Course selection and enrollment	• Adaptive learning • Pathway learning development • Assignment & Exam Management (e.g., Digital Assessment) • Course evaluation • Peers and Parents engagement	• Student data transition across entities incl. ➢ Student profile ➢ Learning history ➢ Credits ➢ Etc.
Key Technology Interactions			
✓ Online application ✓ Digital signature on the confirmation letter (if required)	✓ Account set-up across various technology platforms (i.e., SIS, LMS) ✓ Student profile management (e.g., data consolidation) in SIS ✓ SIS and LMS integrations ✓ User access control ✓ Technology training and support	✓ Single sign-on LMS ✓ LMS platform onboarding ✓ Curriculum Interactions via LMS ✓ SIS and LMS integrations ✓ Ongoing technology training and support	• SIS and LMS integrations • LMS system integrations across different entities • SIS system integrations across different entities (e.g., within 5 federal schools, between federal schools and STEAM)

ILLUSTRATIVE

High-Level Future State User Journey Map | Teachers



Explore	Onboarding	Teaching	Administration
Moments That Matter			
• Jobs exploration • Job application for math instructor role at SNP STEAM Academy • Interview with HR and School Leaders • Offer acceptance	• Teacher's orientation at SNP STEAM Academy • Onboarding training activities completion	• Curriculum Management • Assignment & Exam Management • Grading and Evaluation • Student and Parents engagement • Customized reporting on student learning needs / behavior / progress	• Grades and attendance management • Report cards completion • Teacher's performance management • Teacher's finance management (e.g., payroll)
Key Technology Interactions			
✓ Paper-formed / Online application (preferred) ✓ Virtual interviews through online meeting tools ✓ Digital signature on the offer (if required)	✓ Overall Technology platforms onboarding ✓ Account set-up across various platforms (i.e., LMS, SIS, HR, Finance systems) ✓ User access controls ✓ Technology training and support	✓ LMS teacher portal management ✓ SIS and LMS integration ✓ Class management via LMS ✓ System integrations with other learning tools (if required) ✓ Ongoing technology training and support	✓ System integrations between LMS and SIS for grades and attendance tracking ✓ Data exchange between SIS, HR and finance systems for the same user ✓ Ongoing technology training and support

ILLUSTRATIVE

High-Level Future State User Journey Map | Parents

Explore	Registration & Enrollment	Engagement
1. Emily's parents Linda and Mike help her to search for a secondary-level education institutions on the Six Nations Reserve 2. After consultation with school, Mike and Linda help Emily to apply to school. 3. Emily gets accepted at the school	3. Emily's mom Linda helps her register as a grade 6th student at school in SIS 4. Linda creates / updates Emily's profile information (e.g., health / medical history, allergic info, transportation, emergency contact, etc.) directly in SIS 5. Mike helps Emily to enroll in multiple mandatory and supplementary courses	6. Mike and Linda help Linda to get acquainted with online learning environment 7. Mike and Linda stay connected with school on Emily's class attendance and upcoming events 8. Mike and Linda are engaging with teachers for Linda's assignment / course feedback 9. Mike and Linda help Emily to formulate or adjust personalized learning objectives and overall education planning 10. Mike and Linda pay any additional fees to school through online payment 11. Mike and Linda participate in GEDSB's parent-child events / programs 12. Mike and Linda are proactively involved in Parent committees
Moments That Matter		
• School exploration / consultation • School application • Decision making	• Student registration & enrollment • Student profile set-up and update (incl. parents information) • Individualized Education Plan form (IEP) completion (if required) • Course selection and enrollment	• Online learning adoption for both parents and their children • Notification management • Course evaluation • Pathway learning development • Online payments processing • Parent-child activity involvement
Key Technology Interactions		
✓ Online application ✓ Digital signature on the confirmation letter (if required)	✓ Parents account set-up across various technology platforms (i.e., SIS, LMS) ✓ Parents – children mapping in SIS ✓ SIS and LMS integrations ✓ User access control ✓ Technology training and support	✓ LMS platform onboarding for parents ✓ LMS system support ✓ SIS system support ✓ SIS and LMS integrations ✓ Ongoing technology training and support

ILLUSTRATIVE

High-Level Future State User Journey Map | SIS & LMS Administrators

Onboarding	Business & Technology Operation
1. Kevin is registered as a staff member on different platforms within SN's IT infrastructure 2. Kevin is involved in several orientation / training activities (incl. process)	3. For students or parents who are not able to perform self-serve registration directly in SIS, Kevin's team ensure registration data is consolidated in SIS 4. Kevin's team ensures student data (incl. demographic info and student profile) are consolidated and managed into SIS 5. Kevin's team manages data transition and updates (e.g., attendance, grades, credits transfer, etc.) between SIS and LMS at STEAM effectively 6. Kevin's team manages student and learning data integration with other Six Nations education entities as well as government-issued systems (e.g., OnSIS) 7. Kevin's team manages different level of users are able to generate customized reports for real-time reporting 8. Kevin's team is committed to continuously improving process optimization, data security, access control in SIS and LMS
Moments That Matter	
• New hire orientation • Onboarding training activities • Comprehensive LMS and SIS systems trainings (admin focused)	• Efficient business and technology operations in SIS and LMS • Data governance and consolidation in both SIS and LMS • Seamless system integrations between SIS and LMS • Appropriate SIS and / or LMS system integrations across entities (if required) • Appropriate system integrations with other essential systems (e.g., HR, Finance) if required • Accurate data reporting to meeting regulatory compliance (e.g., OnSIS reporting) • Opportunities to improve process efficiency, data security, and user access control in LMS and SIS • Regular vendor training or touchpoint to ensure systems are up to date
Key Technology Interactions	
✓ Overall Technology platforms onboarding ✓ Staff account set-up across various technology platforms (i.e., LMS, SIS, HR, Finance systems) ✓ Admin access on both LMS and SIS ✓ Familiarity with LMS and SIS systems	✓ System support on SIS ✓ System support on LMS ✓ System integrations between LMS and SIS ✓ System integrations with HR, Finance systems (if required) ✓ Integration with government-appointed systems ✓ Data transition among HR and / or finance systems for the same user ✓ Ongoing technology training and support

ILLUSTRATIVE

High-Level Future State User Journey Map | HR & Finance Administrators

Onboarding	Business & Technology Operation
1. Sue and her team members are registered as staff on different platforms within Six Nations 2. Sue and her team are involved in several orientation / training activities 3. Sue's team completes a comprehensive training on Six Nation's HR and Finance systems	4. Sue's team ensures employee information is consolidated into one place (e.g. an integrated HR and Finance system) 5. Sue's team ensures both HR and finance systems function effectively (e.g., performance management, payroll operation, leave and time off request management, IT budgeting, funding management, etc.) 6. Sue' team ensure all HR and Finance data are exchanged and consolidated effectively within Six Nations platforms 7. Sue's team manage system integrations with other essential systems (if required) at Six Nations 8. Sue's team ensures that staff could generate customized reports for data-driven decisions making 9. Sue's team ensures that all reports are staying in compliance with changing regulatory requirements and internal audit standards 10. Sue's team is looking to increase operational productivity across functional silos and enable appropriate access and financial controls
Moments That Matter	
• Staff orientation • Onboarding training activities • Comprehensive HR management and Finance management systems trainings (admin focused)	• Efficient business and technology process operations in HR and Finance systems • Data governance and management in both HR and Finance systems • Seamless system integrations between HR and Finance systems • Appropriate system integrations with other essential systems if required • Accurate data reporting to meeting regulatory compliance • Opportunities to unlock operational efficiency across functional silos • Regular vendor training or touchpoint to ensure systems are up to date
Key Technology Interaction Points	
✓ Overall Technology platforms onboarding ✓ Staff account set-up across various technology platforms ✓ Admin access on HR/Finance systems ✓ Familiarity with HR/Finance systems	✓ System support on HR and Finance systems ✓ System integrations between HR and Finance systems ✓ System integrations with other essential systems (e.g., LMS) if required ✓ Integration with government-appointed systems ✓ Data transition among HR and / or finance systems for the same user ✓ Ongoing technology training and support

Phase 2 Workshop Participation

Phase 2 Workshop Participation

The following list provides a snapshot of attendees of Phase 2 workshop on May 15th

List of Workshop Participants

Six Nations

- Michael Hill
- Julia Candlish
- Rebecca Jamieson
- Robin Staats
- Zandra Bear-Lowen
- Judy Reuben
- Linda Staats
- Clinton Powless

Deloitte

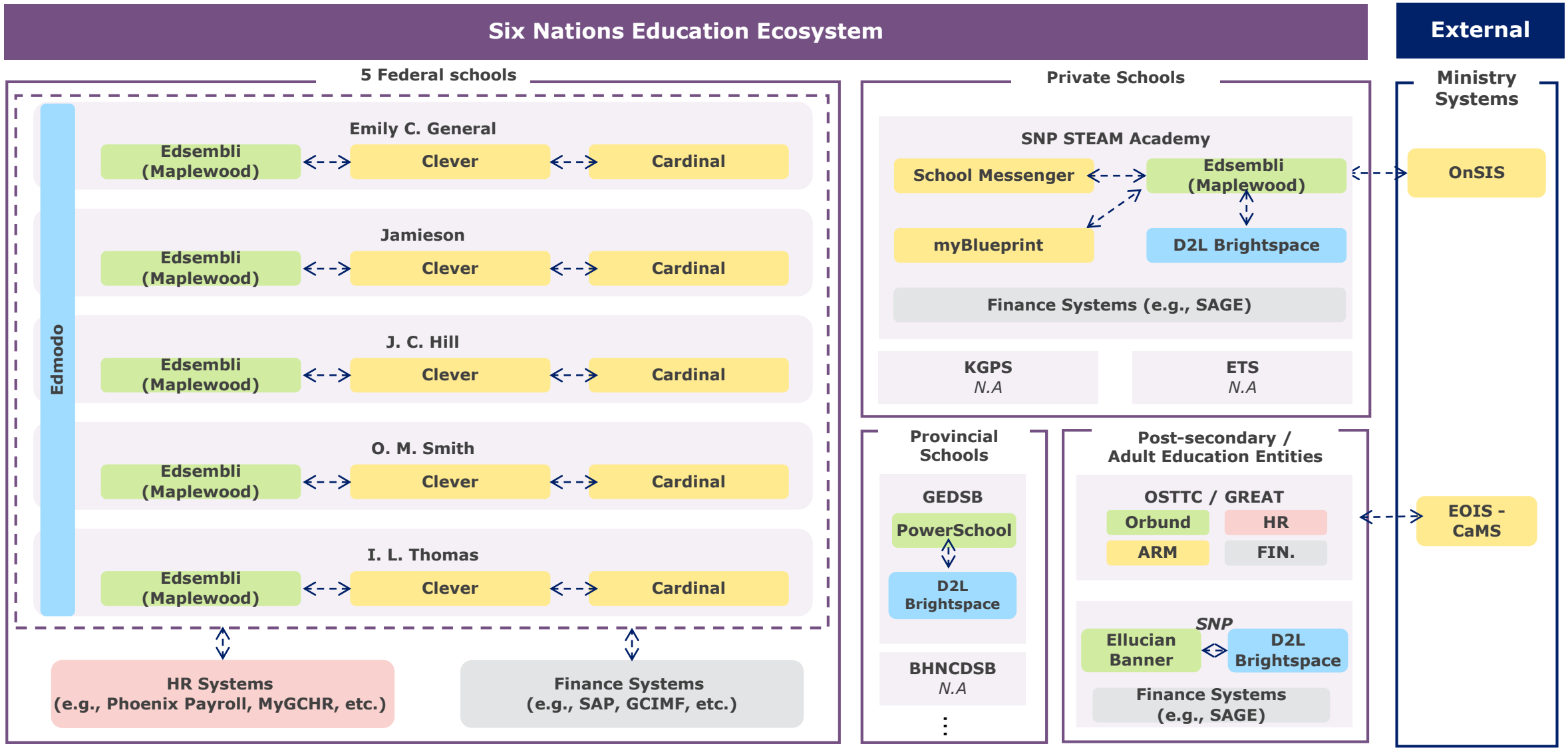
- Mario Glumpak
- Craig Robinson
- Ricky Singh
- Christine Qian

Engagement Deliverable #5 – Technology Solutions and Roadmap Workshop Report

Technology Solution Overview

A Snapshot of the Current State Education Technology Landscape*

The visual below highlights the education technology interactions among Six Nations K-12 entities and external parties based on the inputs received from stakeholder interviews. Siloed technology operation within each SN entities increases technology complexity and operational inefficiency.

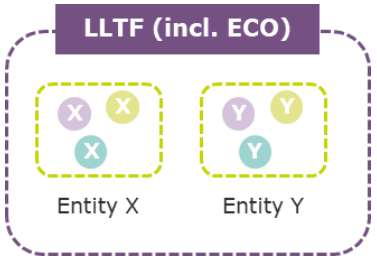
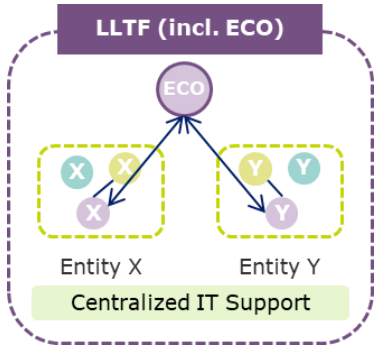
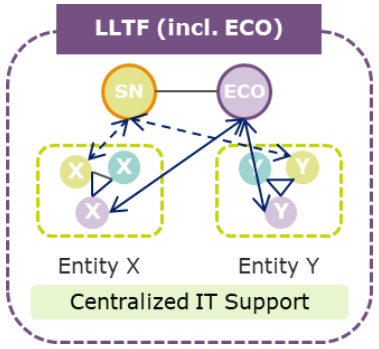
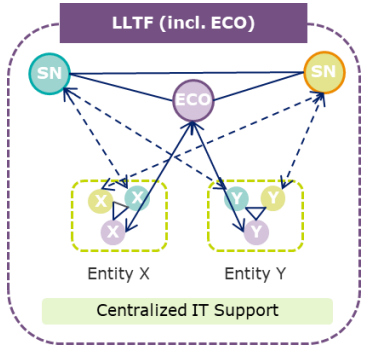


Legend: SIS | LMS | HR Mgmt. | Finance Mgmt. | Others | Some level of integration

*This landscape is based on inputs from key stakeholders. It highlights key technologies and is not intended to be exhaustive

Technology Solution | Phased-Transition Plan

A phased-transition plan has been developed to support Six Nations' education technology transformation initiative:

	Current State	Future State		
	Status Quo	**Phase 1 – Remediation**	**Phase 2 – Partial Transformation**	**Phase 3 – Full Transformation**
Technology Landscape				
Community-Level Overview	• No enterprise level technology architecture in place.	• In phase 1, ECO will setup a new SIS which is integrated with entities' SIS to retrieve information on ECO sponsored students. • Six Nations will set up centralized IT support function.	• During phase 2, ECO can introduce LMS to complement the SIS introduced during phase 1. • The LMS will work in conjunction with entities' LMS to deliver educational content related to Haudenosaunee Language and culture. • ECO in-house IT expertise will support both SIS and LMS and the integrations with entities.	• During phase 3, Six Nations can introduce HR and Finance ERP systems to achieve full transformation. • The SIS/LMS/HR/Fin integration at ECO will help to provide a 360-degree view on students, parents, teachers, and staff. • Similar to the SIS and LMS, HR and Finance systems should integrated with entities' HR and Finance systems to some extent
Entity-Level Overview	• Entities maintain siloed technology operations, resulting in technology complexity and operational inefficiency.	• Entities to provide data on ECO sponsored students back to ECO SIS via SISs integration. • No new system is required at the entity level, but entities need to be part of the integration activities. • SIS and LMS integration within entities is highly encouraged to reduce manual processes and to increase efficiency.	• Entities aren't required to introduce any new system but need to support ECO to integrate ECO SIS and LMS with their SISs and LMSs. • Integration across various platforms (SIS, LMS, HR and Fin) within entities is highly encouraged to eliminate manual processes.	• Entities aren't required to introduce any new system but need to support ECO to integrate ECO SIS, LMS, HR and Finance system with similar systems at the entity level

Legend

Within entity: SIS LMS ERP systems

LLTF / ECO level: SIS LMS ERP systems

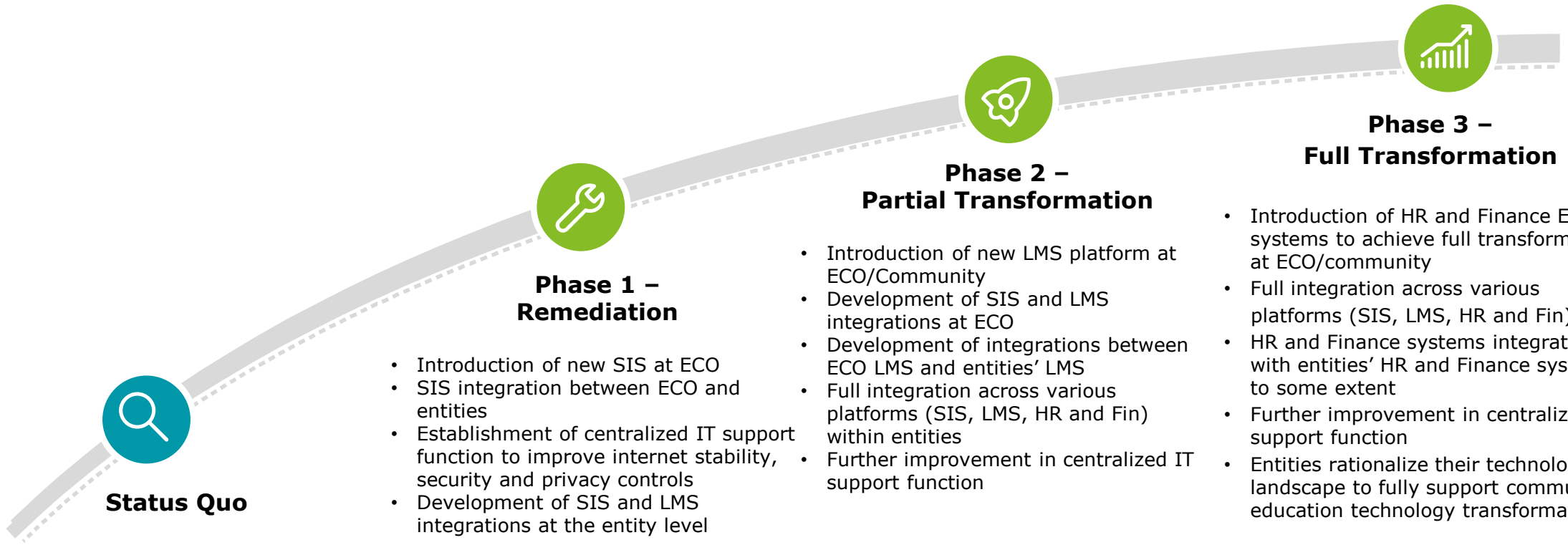
↔ Seamless Integration across entities

<-> Some level of Integration Between ECO and entities

— Seamless Integration within entities / community

Technology Solution | Transformation Evolution

The evolution of Six Nations education technology transformation has three key milestones including enhancement of technology operation, centralized IT support, and improved change management



Status Quo

Phase 1 – Remediation

- Introduction of new SIS at ECO
- SIS integration between ECO and entities
- Establishment of centralized IT support function to improve internet stability, security and privacy controls
- Development of SIS and LMS integrations at the entity level

Phase 2 – Partial Transformation

- Introduction of new LMS platform at ECO/Community
- Development of SIS and LMS integrations at ECO
- Development of integrations between ECO LMS and entities' LMS
- Full integration across various platforms (SIS, LMS, HR and Fin) within entities
- Further improvement in centralized IT support function

Phase 3 – Full Transformation

- Introduction of HR and Finance ERP systems to achieve full transformation at ECO/community
- Full integration across various platforms (SIS, LMS, HR and Fin)
- HR and Finance systems integrations with entities' HR and Finance systems to some extent
- Further improvement in centralized IT support function
- Entities rationalize their technology landscape to fully support community's education technology transformation

Technology Operation: System Integration; Process Automation

Centralized IT Support: System Training; IT Support Consultation; Internet Stability; Data Governance; Security and Privacy Control

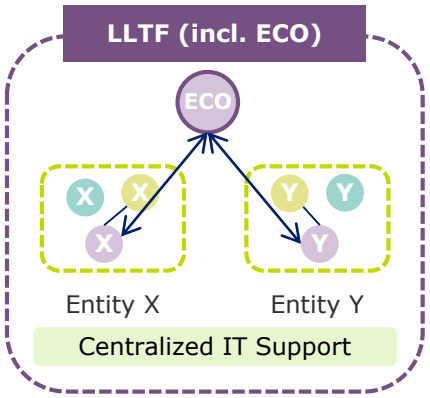
Change Management: Collaborative Working Culture; Effective Communication

Low **High**

Technology Solution Deep-Dive | Phase 1 Remediation

Phase 1 Overview	Phase 1 of the education technology transformation focuses on addressing critical pain points, including the need for a centralized location to retrieve information on ECO sponsored students studying at K-12 entities. This phase can be considered as a quick win in the immediate future (i.e., 6 months ~ 1 year)

Technology Landscape



On the Community level

- Introduction of new SIS at ECO, which will be integrated with all K-12 entities' SISs to retrieve information on ECO sponsored students
- Inauguration of centralized IT governance and support to initiate the development of enterprise technology architecture
- Improvement in internet stability, security and privacy controls on the reserve

On the Entity Level

- Entities aren't required to introduce any new system but need to support ECO to integrate ECO SIS with their SISs
- Entities to integrate SIS and LMSs within at the entity level e.g., SNP Steam academy building end to end SIS and LMS integration at the entity level.

Key Benefits

- ✓ Using centralized SIS, ECO will be able to access vital information such as student demographics information, learning outcomes, student progression for sponsored students studying at K-12 entities.
- ✓ Centralized IT governance and support at the community level strengthens technology adoption, data security & privacy control, and internet stability on the reserve
- ✓ SIS and LMS integration within entities enables operational efficiency and reduce manual workflows

Strategic Considerations

Timeline: The remediation phase is the initial stage of the education technology transformation, which may take six months to 1 year based on the suggested level of change.

People: ECO will need resources to implement SIS and for ongoing SIS support, including integration between ECO and entities; Additional resources will also be required for a centralized IT team at the community level.

Budget: One-time costs are required to implement new SIS at ECO and to integrate SIS with entities; Ongoing costs are expected for new SIS licensing, centralized IT training and support, and annual compensations for required new resources.

Collaboration: The overall level of collaboration required between ECO and entities under phase 1 is higher than current levels. In addition, entities needs to collaborate to integrate their LMS and SISs.

Legend

Within entity: SIS LMS ERP systems

LLTF/ ECO level: SIS LMS ERP systems

↔ Seamless Integration across entities

<-> Some level of Integration Between ECO and entities

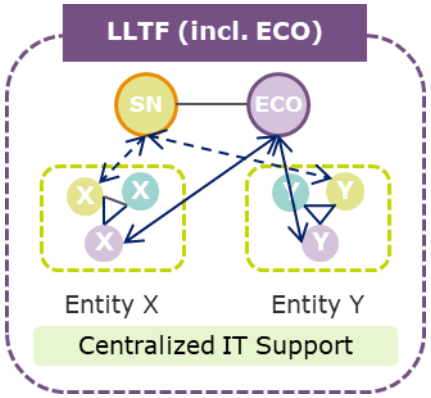
— Seamless Integration within entities / community

Technology Solution Deep-Dive | Phase 2 Partial Transformation

Phase 2 Overview

Phase 2 of the education technology transformation focuses on introducing a new LMS platform at ECO to deliver education content rich in Haudenosaunee Language and culture while improving the existing technology infrastructure that connects community and K-12 education entities.

Technology Landscape



On the Community level

- Introduction of LMS to complement the SIS introduced during phase 1. The LMS will work in conjunction with entities' LMS to deliver educational content related to Haudenosaunee Language and culture
- Further improvement in internet stability and security control on the reserve

On the Entity Level

- Entities aren't required to introduce any new system but need to support ECO to integrate ECO SIS and LMS with their SISs and LMSs.
- K-12 entities to integrate all technology platforms such as LMS, SIS, HR, Fin systems within entities (e.g., SNP STEAM Academy integrating its SIS, LMS, HR and Fin systems)

Key Benefits

- ✓ LMS platform at the community level will help Six Nations to build a repository of educational content that is rich in Haudenosaunee language and culture and also to deliver to its learners
- ✓ An integration between learning management system at ECO and K-12 entities will foster the delivery of learning content and helps to track learning outcomes
- ✓ Seamless system integrations across SIS, LMS, and ERP systems at the entity level will help each entity to build a unified approach on streamlining, securing, and scaling its technology operation and management

Strategic Considerations (On Top of Phase 1)

Timeline: the partial transformation phase is the intermediate stage of the education technology transformation, which can be set to complete in approximately **two years** after completion of the initial remediation phase.

People: ECO will need resources to implement LMS and to integrate it with SIS and also with LMSs at other entities. Similarly, entities need to provide resources to support integration efforts. ECO will also need to train its resources on the LMS platform.

Budget: One-time costs include implementing new LMS; LMS and SIS integration at the ECO level; and LMSs integration between community and entities; Ongoing costs include LMS licensing, additional centralized IT training and support costs, and annual compensations for support resources

Collaboration: The overall level of collaboration under phase 2 is higher than phase 1. It requires effective collaboration to integrate SIS and LMS at the ECO level, integrate LMS between ECO and entities and for entities' to integrate LMS, SIS, and ERP within entities.

Legend

Within entity: SIS LMS ERP systems

LLTF/ ECO level: SIS LMS ERP systems

↔ Seamless Integration across entities

<-> Some level of Integration Between ECO and entities

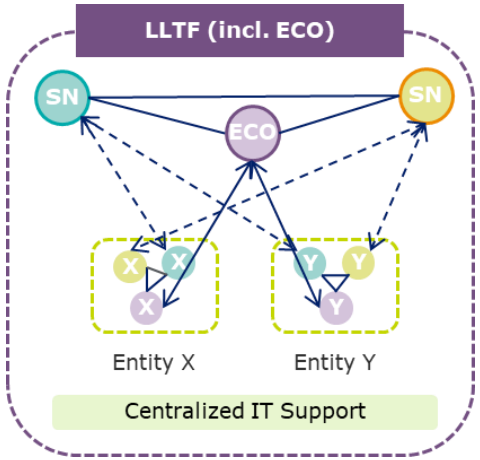
— Seamless Integration within entities / community

Technology Solution Deep-Dive | Phase 3 Full Transformation

Phase 3 Overview

Phase 3 of the education technology transformation aims to build a world-class education technology ecosystem on Six Nations, which is well integrated at both community and entity levels within the next 3~5 years

Technology Landscape



On the Community level

- Introduction of new ERP systems (e.g., HR and Finance management) at ECO and integration with SIS and LMS on the community level to achieve full transformation
- Integration of the new ERP systems (i.e., HR and Finance systems) with entities' HR and Finance systems
- Further improvement in internet stability, security and privacy controls on the reserve

On the Entity Level

- K-12 entities aren't required to introduce any new system but need to support ECO in integrating ECO's SIS, LMS, HR and Finance systems with similar systems at the individual entity level

Key Benefits

- ✓ The SIS/LMS/HR/Fin integration at ECO/community will help to provide a 360-degree view on students, teachers and staff, enabling an enhanced educational experience for all key stakeholders on the reserve
- ✓ Education leaders on both community and individual entity level will be able to access consolidated data for data-driven decision-making and reporting
- ✓ By centralizing the IT support, Six Nations can reduce the IT operating cost

Strategic Considerations (On Top of Phase 2)

Timeline: The full transformation phase aims to achieve ultimate goals of the education technology transformation, which may take at least 2-3 years after completing the previous partial transformation

People: ECO will need resources to implement an ERP system and to integrate it with existing SIS and LMS and also with HR and Finance systems at other entities. Similarly, entities need to provide resources to support integration efforts. ECO will also need to train its resources on the new ERP platforms.

Budget: One-time costs include implementing HR and Finance systems; integration with existing platforms (SIS and LMS at the ECO level); and ERP integration between community and entities; Ongoing costs include ERP licensing, additional centralized IT training and support costs, and annual compensations for support resources

Collaboration: The overall level of collaboration under phase 3 is higher than phase 2. It requires effective collaboration to integrate SIS, LMS, ERPs (HR & Finance) at the ECO level, and to integrate ECO ERPs with individual entities.

Legend

Within entity: SIS LMS ERP systems

LLTF/ ECO level: SIS LMS ERP systems

↔ Seamless Integration across entities

<-> Some level of Integration Between ECO and entities

— Seamless Integration within entities / community

Shortlisted Vendors

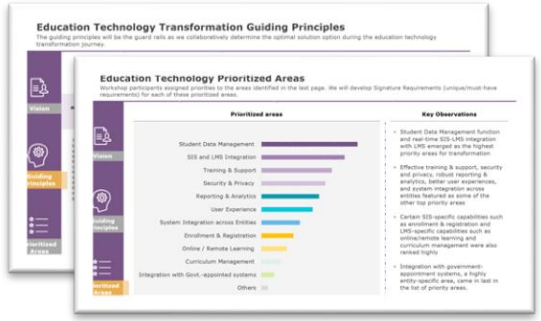
Vendor Shortlisting Approach

SIS, LMS, HR and Finance ERP systems Vendors have been identified for Six Nations to consider in the education technology transformation journey

The shortlisted vendors are selected based on the following three aspects:

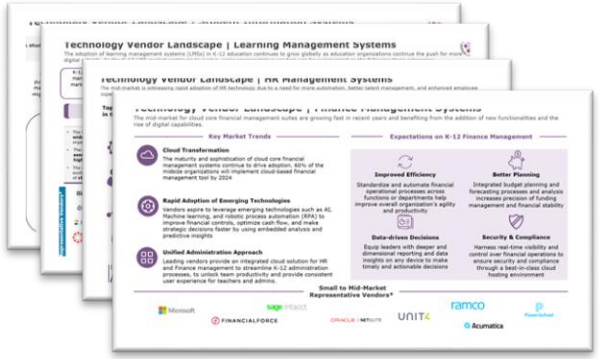
1

Vendors that can help to address Six Nation's current education technology challenges and help with future aspirations



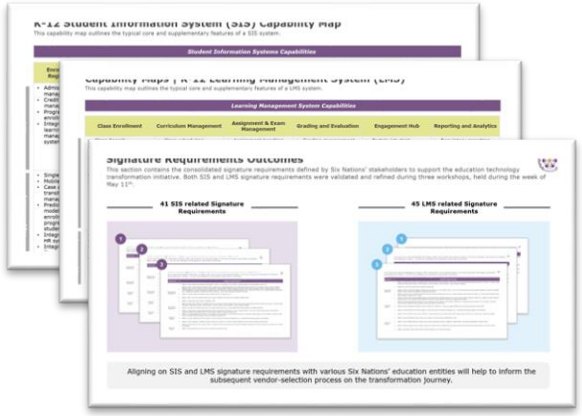
2

Vendors aligned with technology trends in K-12 education and industry best practices



3

Vendors meeting Six Nation's must-have SIS and LMS capabilities and signature requirements



Key Outcomes

11 **Education Technology prioritized areas reviewed**

6 **Key emerging trends in the K-12 education market identified**

70+ **vendors considered for selection, packaged into 4 functional areas**

85 **Must-have requirements captured**

17 **Leading vendors shortlisted for future consideration**

Shortlisted Vendors | Student Information System Vendors*

The following vendors have been identified and shortlisted based on Six Nation's current challenges, future aspirations, must-have SIS capabilities and requirements.

Well ranked SIS vendors in the K-12 sector

- ✓ Well Ranked K-12 SIS Representative Vendors in the world
- ✓ Defined and well articulated product roadmap with significant investment from the vendors
- ✓ Scalable Solution
- ✓ Cloud-hosting options

Top ranked SIS vendors for K-12 Schools in North America

- ✓ Well suited for K-12 schools in North America. However, the majority of the solutions are tailored to the USA K-12 market
- ✓ Canadian K-12 SIS market is dominated by four key SIS players including PowerSchool, Follet, Edsembli, and Orbund
- ✓ Well-suited for mid-market organizations

Shortlisted vendors that meet Six Nation's must-have needs

- ✓ Strong market presence in Ontario**
- ✓ Track record of successful Canadian K-12 schools' implementation
- ✓ Ability to meet Six Nations' SIS capability needs and desired user experience
- ✓ Ability to integrate / work with 3rd party solutions for niche areas (e.g., OnSIS reporting)
- ✓ Interoperable with other Six Nation's essential systems (e.g., LMS, ERPs)

*Note: *The vendors listed above do not imply an exhaustive list.*

**Note: In Nov 2019, 35 district school boards in Ontario has signed OECM student Information System (SIS) and related Service Agreements. Fujitsu and Follett of Canada Inc. ("Follett"), have partnered together to provide the Aspen Student Information System – Ontario Baseline Configuration (Aspen SIS OBC) to meet the requirements of District School Boards in Ontario.

Shortlisted Vendors | Learning Management System Vendors*

The following vendors have been identified and shortlisted based on Six Nation's current challenges, future aspirations, must-have LMS capabilities and requirements

Well ranked LMS vendors in the K-12 sector

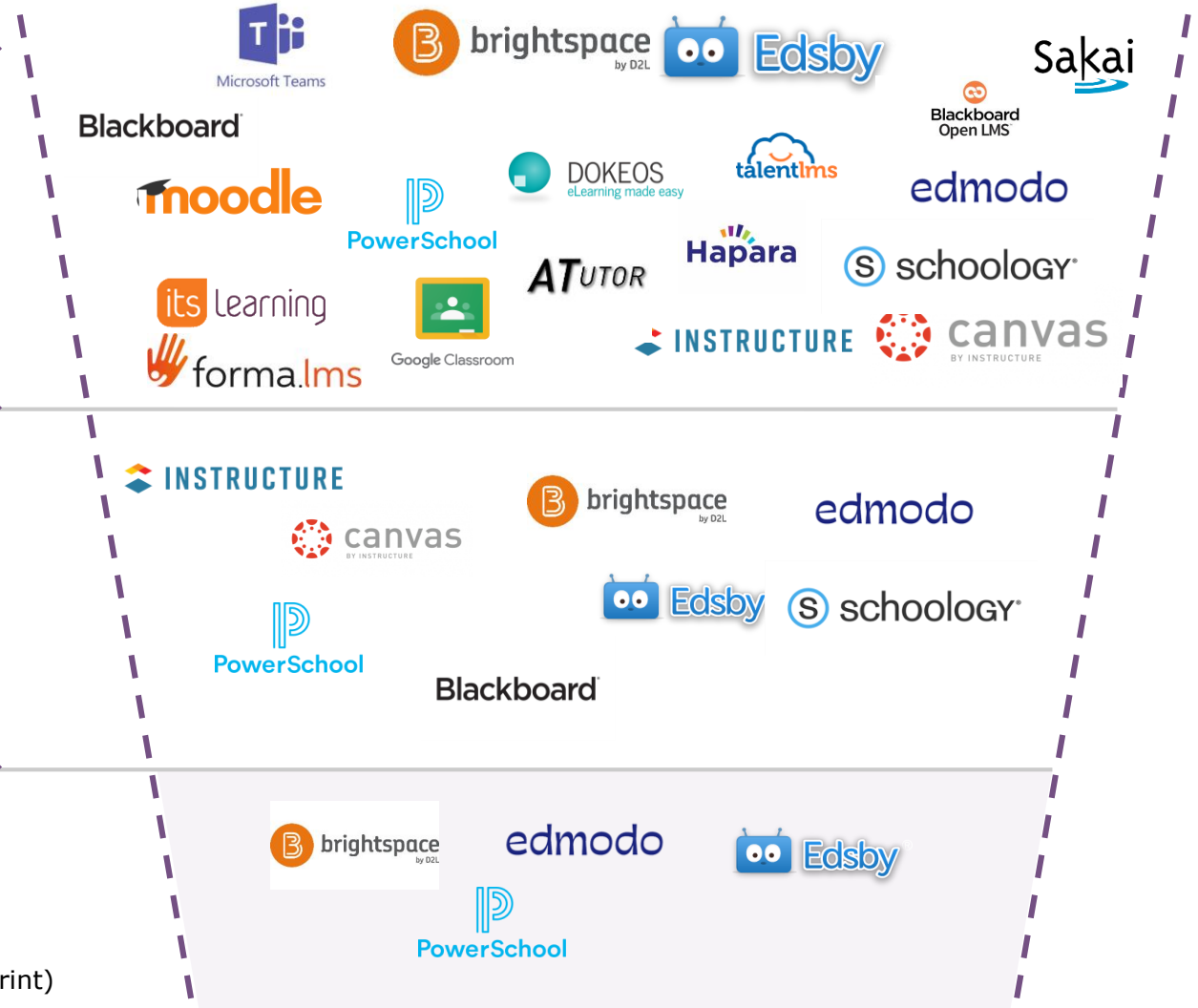
- ✓ Well ranked K-12 SIS Representative Vendors with a mix of product types spanning across Proprietary general-purpose LMS, open-source LMS, and "Lightweight" LMS in the world.
- ✓ Defined and well articulated product roadmap with significant investment from the vendors
- ✓ Scalable Options
- ✓ Cloud-hosting options

Top ranked LMS vendors for K-12 Schools in North America

- ✓ Well suited for K-12 schools in North America
- ✓ D2L BrightSpace, Edomodo, and Edsby have market presence in Canada
- ✓ Ability to offer the full spectrum of an enterprise-wide and standard suite of LMS capabilities
- ✓ Well-suited for mid-market organizations

Shortlisted vendors that meet Six Nation's must-have needs

- ✓ Strong market presence in Ontario public schools**
- ✓ Track record of successful implementations at Canadian K-12
- ✓ Ability to meet Six Nations' LMS capability needs and desired user experience
- ✓ Ability to integrate / work with 3rd party solutions for niche areas (e.g., MyBlueprint)
- ✓ Interoperable with other Six Nation's essential systems (e.g., SIS, ERPs)



*Note: *The vendors listed above do not imply an exhaustive list.*

**Note: Since March 2018, all K-12 public school teachers (at publicly-funded school boards) in Ontario have free access to Brightspace through Ontario's Virtual Learning Environment (VLE).

Shortlisted Vendors | HR ERP System Vendors

The following vendors have been identified and shortlisted based on Six Nation's HR related current challenges and future aspirations

Well ranked HR ERP vendors

- ✓ Well ranked HR ERP vendors in the world
- ✓ Defined and well articulated product roadmap with significant investment from the vendors
- ✓ End-to-end human capital management solution providers
- ✓ Scalable Options
- ✓ Cloud-hosting options

Top ranked HR ERP vendors in small-medium market

- ✓ Well suited for small-medium size institutions
- ✓ Track record of successful North American implementations

Potential vendors for Six Nations

- ✓ Small-medium size ERP vendors with presence in K-12 market in North America
- ✓ Ability to meet Six Nations' HR ERP capability needs and desired user experience
- ✓ Ability to integrate / work with 3rd party solutions used at the institution
- ✓ Interoperable with other Six Nation's essential systems (e.g., SIS, LMS)

*Note: *The vendors listed above do not imply an exhaustive list.*

Shortlisted Vendors | Finance ERP Systems

The following vendors have been identified and shortlisted based on Six Nation's finance related current challenges and future aspirations

Well ranked Finance ERP vendors

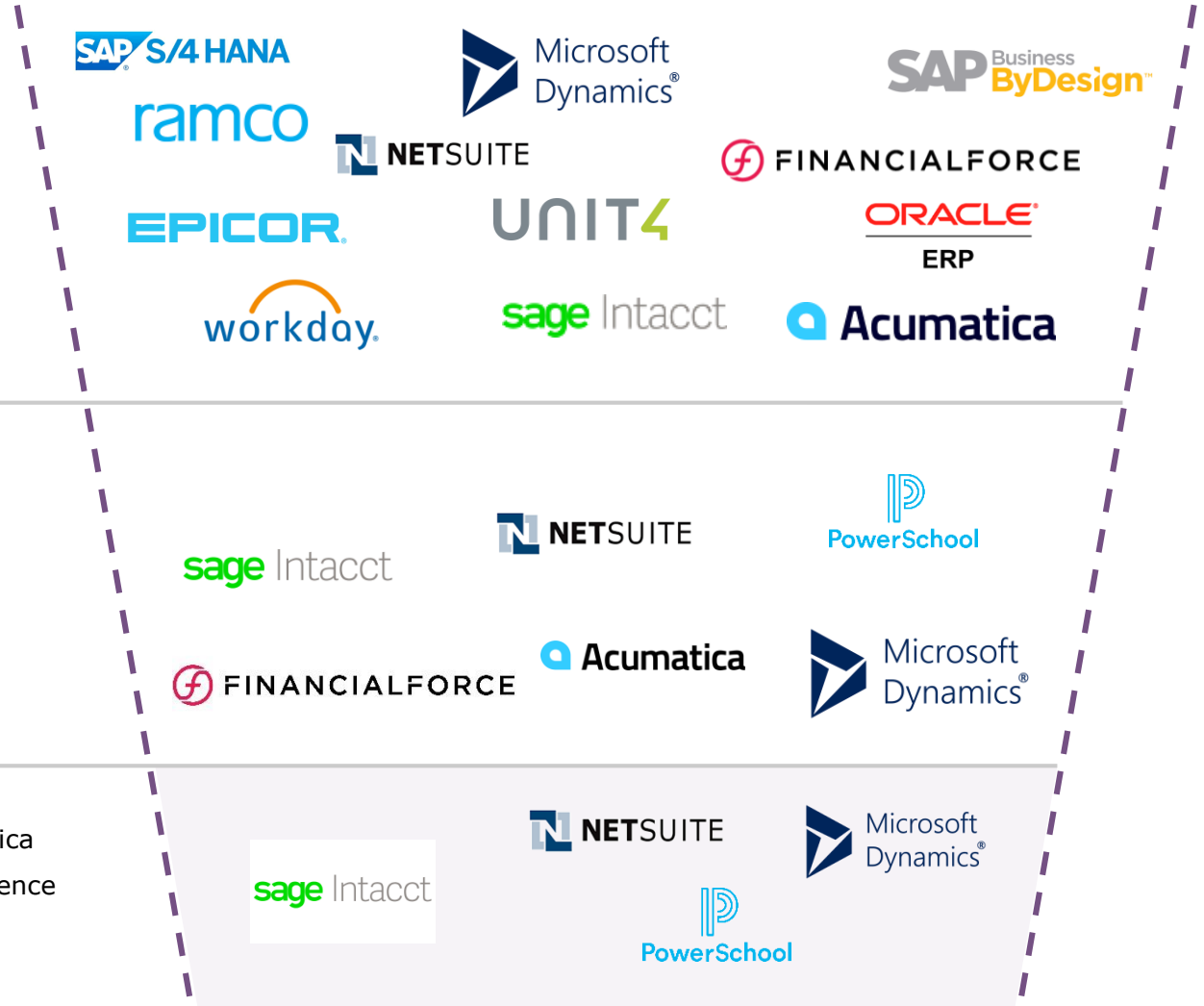
- ✓ Well ranked Finance ERP vendors in the world
- ✓ Defined and well articulated product roadmap with significant investment from the vendors
- ✓ End-to-end finance management solution providers
- ✓ Scalable Options
- ✓ Cloud-hosted options

Top ranked Finance ERP vendors in small-medium market

- ✓ Well suited for small-medium market clients
- ✓ Track record of successful North American implementations

Potential vendors for Six Nations

- ✓ Small-medium Finance ERP vendors with presence in K-12 market in North America
- ✓ Ability to meet Six Nations' Finance ERP capability needs and desired user experience
- ✓ Ability to integrate / work with 3rd party solutions used at the institution
- ✓ Interoperable with other Six Nation's essential systems (e.g., SIS, LMS, HR)



Transformation Roadmap

Key Transformation Themes

Key transformation themes to ensure the successful delivery of technology transformation initiative as part of the overall education strategy at Six Nations

Strong Transformational Strategies

Form a strong technology transformation plan by:

- Ensuring strategic objectives are clearly articulated
- Aligning initiatives with the future state visioning and priorities
- Setting up a realistic timeline and objectives through phases
- Fostering a collaborative culture and focusing on case for change communication

Community-Wide Integration

Transform how the community operates by:

- Streaming decision-making processes and empowering leaders with decision rights
- Establishing enterprise-wide governance
- Holding leaders accountable to objectives and outcomes and defining mechanisms to remove barriers
- Empowering staff, student, and parents to take initiatives based on Haudenosaunee values

Organizational Alignment

Become a trusted partner with different entities by:

- Ensuring business leaders are aligned on the strategic direction
- Proactively partnering with individual entities to understand their needs and expectations
- Jointly developing solutions to some of the most pressing challenges faced by the entities
- Setting up measurable goals and metrics for project execution

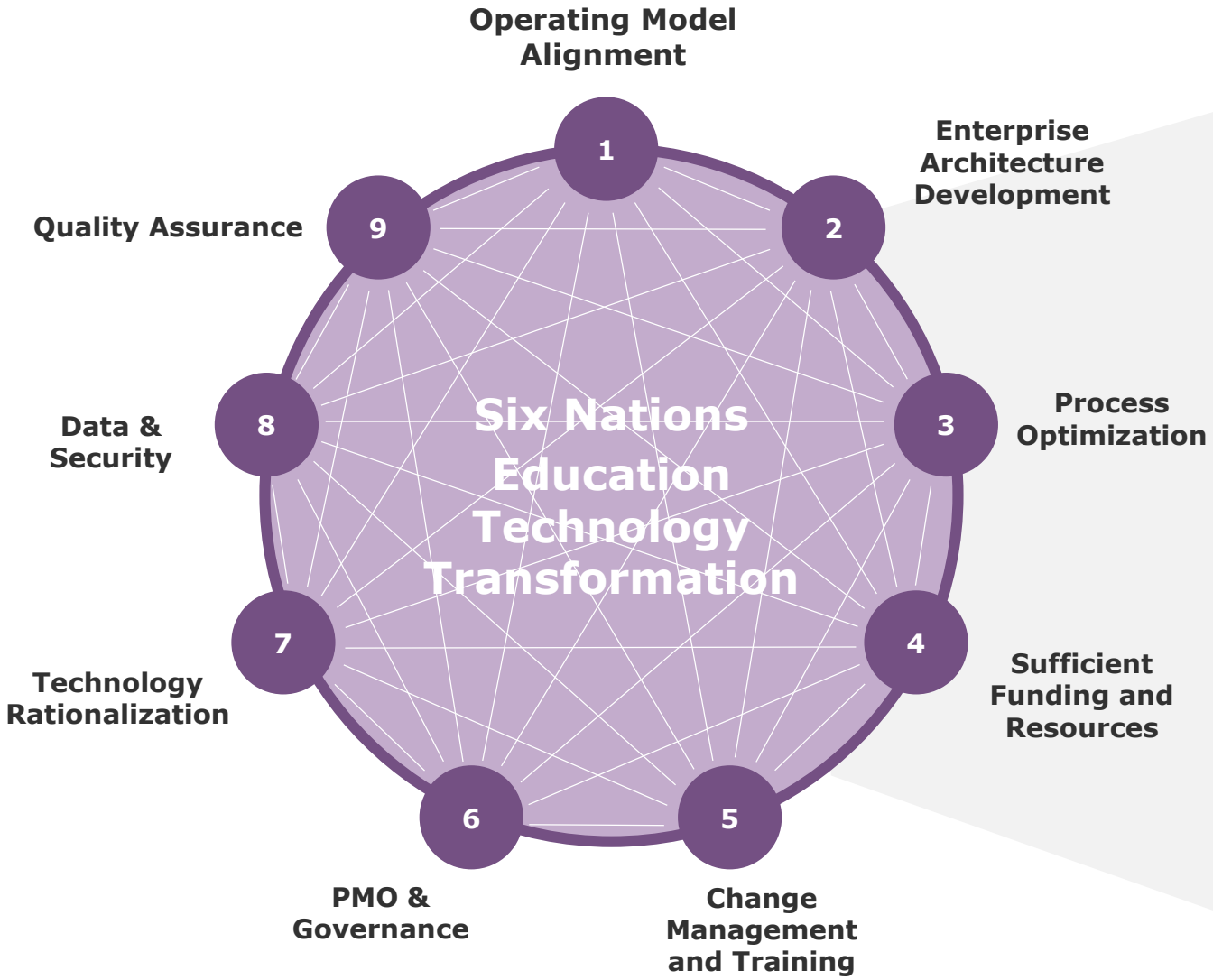
Sufficient Capability for Execution

Deliver fit-for-purpose education technology services by:

- Ensuring sufficient funding including capital investments
- Securing dedicated resources as early as possible
- Mobilizing early and plan the transformation journey ahead
- Preventing duplicative or conflicting efforts

Roadmap Components

The education transformation goes beyond technology implementation and requires several associated activities during the transformation journey to ensure desired improvement and transformation benefits realization in the future state.



Key Strategic Enablers

Establish **early strategic alignment and clear decision-making / accountabilities** on go forward activities according to the phased-transition plan

Provide Six Nations key stakeholders with **sufficient tools and knowledge training** to be successful during change management

Establish a **collaborative organizational culture and effective communication mechanism** via continuously stakeholder engagement

High-Level Transformation Roadmap

A high-level roadmap described below to guide Six Nations to transform its education technology operations.

Phase 0

Mobilization
~3-6 months

Key Activities
- Align on phased-transition solution
- Develop community-wide decision-making Process
- Set up Enterprise-level governance structure
- Define detailed project plans along with resource planning
- Secure sufficient funding to support phased-transition plan
- Conduct vendor evaluation and RFP activities
- Select pilot entities for quick-win transformation activities

Budget Estimation
- **Nearly none**

Phase 1

Remediation
~6 -12 months

Key Activities
- Introduction of new SIS at ECO
- SIS integration between ECO and entities
- Establishment of centralized IT support function to improve internet stability, security and privacy controls
- Development of SIS and LMS integrations at the entity level

Budget Estimation
- **One-time costs** are required to implement new SIS at ECO and to integrate SIS with entities
- **Ongoing costs** are expected for new SIS licensing, centralized IT training and support, and annual compensations for required new resources

Phase 2

Partial Transformation
~2 years

Key Activities
- Introduction of new LMS platform at ECO/Community
- Development of SIS and LMS integrations at ECO
- Development of integrations between ECO LMS and entities' LMS
- Full integration across various platforms (SIS, LMS, HR and Fin) within entities
- Further improvement in centralized IT support function

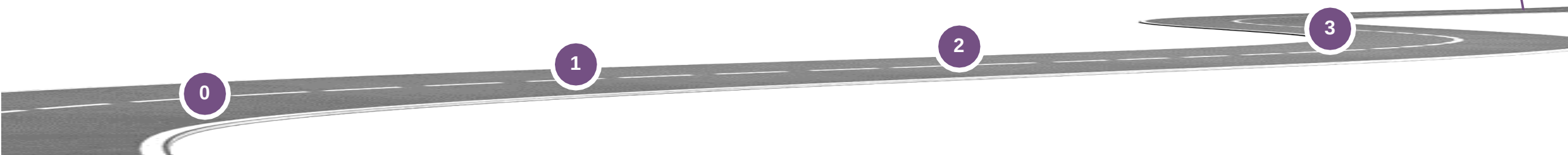
Budget Estimation
- **One-time costs** include implementing new LMS; LMS and SIS integration at the ECO level; and LMSs integration between community and entities;
- **Ongoing costs** include LMS licensing, additional centralized IT training and support costs, and annual compensations for support resources

Phase 3

Full Transformation
~ 2-3 years

Key Activities
- Introduction of HR and Finance ERP systems to achieve full transformation at ECO/community
- Full integration across various platforms (SIS, LMS, HR and Fin)
- HR and Finance systems integrations with entities' HR and Finance systems to some extent
- Further improvement in centralized IT support function
- Entities rationalize their technology landscape to fully support community's education technology transformation

Budget Estimation:
- **One-time costs** include implementing HR and Finance systems; integration with existing platforms (SIS and LMS at the ECO level); and ERP integration between community and entities;
- **Ongoing costs** include ERP licensing, additional centralized IT training and support costs, and annual compensations for support resources



Phase 3 Workshop Participation

Phase 3 Workshop Participation

The following list provides a snapshot of attendees of Phase 3 workshop on May 26th

List of Workshop Participants

Six Nations

- Michael Hill
- Julia Candlish
- Judy Reuben
- Clinton Powless
- Audrey Powless-Bomberry

Deloitte

- Mario Glumpak
- Craig Robinson
- Ricky Singh
- Christine Qian