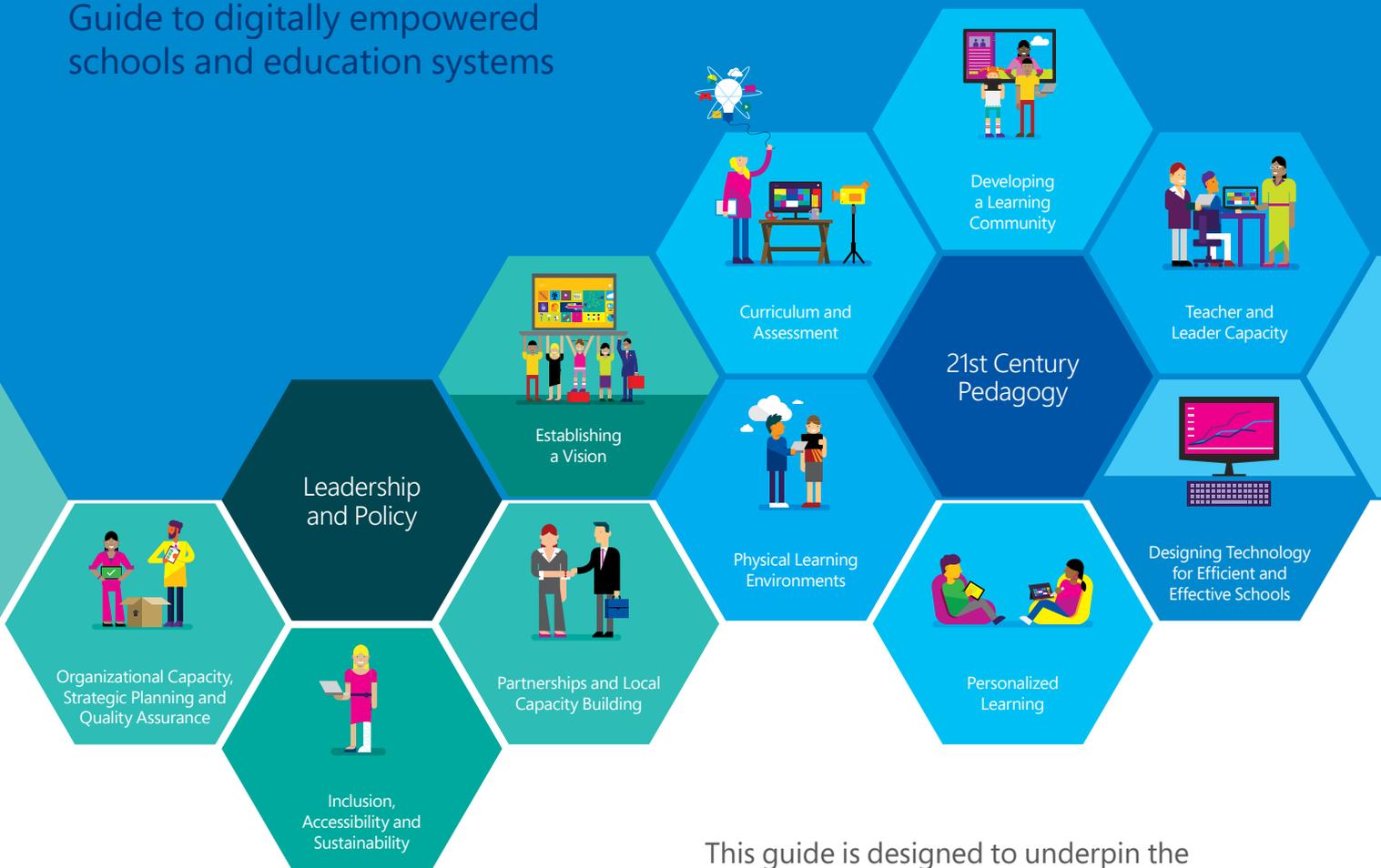




Education Transformation Framework

Guide to digitally empowered schools and education systems



This guide is designed to underpin the Microsoft Education Transformation Framework – a process that helps fast track system-wide transformation by summarizing decades of quality research into the ten critical components of transformation.



Building an IT Platform for Learning Transformation

The technology guide uses the CityNext for Education platform to provide schools and education systems with technology guidance on their journey towards a more automated and cost-efficient IT environment that supports learning transformation.

Once deployed, students, teachers, parents and school leaders enjoy a better user experience, with effective security and easy access to services and applications.

CityNext for Education

Microsoft CityNext solutions transform education to create more-innovative schools and teaching practices that lead to prosperous, competitive cities where families want to raise their children and businesses thrive.

To find out more about our smart solutions, visit enterprise.microsoft.com/en-us/industries/citynext/educated-cities/

This technology guide simplifies transition by proposing incremental changes and upgrades to existing school set-ups in order to minimize risk and disruption.

The recommended technology is cloud-based and includes Microsoft Office 365 Education, Microsoft Intune, Windows 10, Cortana Intelligence Suite and Microsoft Azure Active Directory (AD). This makes investment in new solutions manageable by moving schools from a Capital Expenditure to an Operational Expenditure model where IT costs are aligned with usage and calculated on a per user fee.

Transition involves using these components and solutions efficiently, as well as building automation and self-service capabilities to further reduce Total Cost of Ownership (TCO).

To use this blueprint, simply identify your stage of transformation and follow the best practice guidance on how to move to a more personal computing experience supported by a secure and holistic user-centric IT environment.

Why transform your IT?

Current Technology	The Impact on Your School
Your IT infrastructure is mostly hosted on-premises.	<ul style="list-style-type: none"> The cost of infrastructure is high
You have multiple, often overlapping applications and services, both cloud-based and on-premises with no single sign-on so teachers and students juggle multiple identities, user names and passwords	<ul style="list-style-type: none"> There is confusion and frustration when users are forced to do multiple manual logins for each service and application Identity management is also challenging and costly
Your infrastructure is usually outsourced to local services providers	<ul style="list-style-type: none"> It's difficult to move quickly on school initiatives and it can be costly
There is little IT automation so you are dependent on manual processes	<ul style="list-style-type: none"> Configurations, installations, patching and change management is not efficient Your set-up is time-consuming and insecure TCO on devices is high
Your current environment is not capable of fully stopping security risks and DoS attacks	<ul style="list-style-type: none"> You have security concerns and issues
Your school documentation and data are stored in multiple locations such as local disks, USB-sticks and 3rd party cloud based services	<ul style="list-style-type: none"> Sharing and maintaining security of information can be challenging
You allow BYOD, but students' and teachers' personal devices are unidentified but there are no mobile device management (MDM) solutions in place	<ul style="list-style-type: none"> Device management is inadequate and may cause security concerns There is little or no self-service There are multiple manual processes related to device configuration, installations, and support functions
You've invested in initial cloud adoption (e.g. O365 Education) but not gone beyond the basics – e.g. school email	<ul style="list-style-type: none"> You're missing opportunities for next level learning – using all the capabilities for collaboration, communication and creativity

How Technologies Support Learning Transformation

The combination of Windows 10, Office 365 Education, Azure and Microsoft Intune enables schools to support anywhere, anytime learning with brilliant tools for collaboration, creativity and communication. Plus they can reduce traditional infrastructure and costs while providing a more efficient, user-centric environment.

Devices, Mobility and Tools for Learning

- Windows devices cater for different subjects and learning styles with digital ink, touch, keyboard, voice and video allowing students to sketch notes, type essays, video lessons and more.
- Office 365 Education provides a suite of cloud-based productivity tools for student and staff collaboration and communication at home, at school and on the go.
- BYOD and/or school devices are managed with Microsoft Intune, providing secure single-sign on access to school services, applications and safe social media.
- Schools can register multiple third-party cloud applications in Azure Active Directory providing single sign-on access to a portfolio of relevant resources.
- Windows 10 helps students and staff organize schoolwork with easy ways to snap apps in place, optimize their screen space, group items and create virtual desktops.
- Minecraft is a powerful and engaging way to teach creative problem-solving.

Education Analytics and Research

- To improve institution effectiveness, schools can extract data and track and evaluate different criteria for informed planning and decision-making.
- A 360-degree view of performance and operations with easy-to-use reporting tools simplifies access to data and report-sharing with stakeholders.

Learning Systems

- Schools can simplify registration and administration and improve course management with online services.
- BYOD devices are connected to mobile device management services giving your school a better view and understanding of which devices are using which services, as well as smart reporting and proactive security.

School and Campus Administration

- Through Microsoft Enterprise Mobility Suite (EMS), students and staff can access IT services with self-service password reset, application and device installations, and group management.
- Microsoft CityNext education solutions enable schools to operate more sustainably using Internet of Things sensors to control lighting, heating and cooling. They can also use smartcards and biometrics for secure access to school areas.
- Technology provides inclusive and accessible learning spaces with mobile access for students learning outside school, speech recognition in Windows 10 for physically challenged students, Skype real-time transcripts for the hearing impaired and Kinect for those who find it easier to use gestures whilst preparing for a new world with HoloLens.

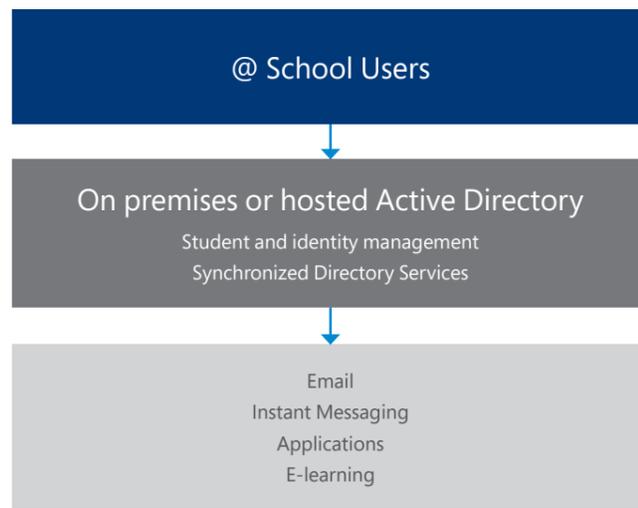


Building an IT Platform for Learning Transformation

Starting at the departure point, which identifies where many schools now stand, you can move to option 2, which provides a gradual introduction to cloud services or to 3, which is more integrated. The final stage 4 is completely cloud-based.

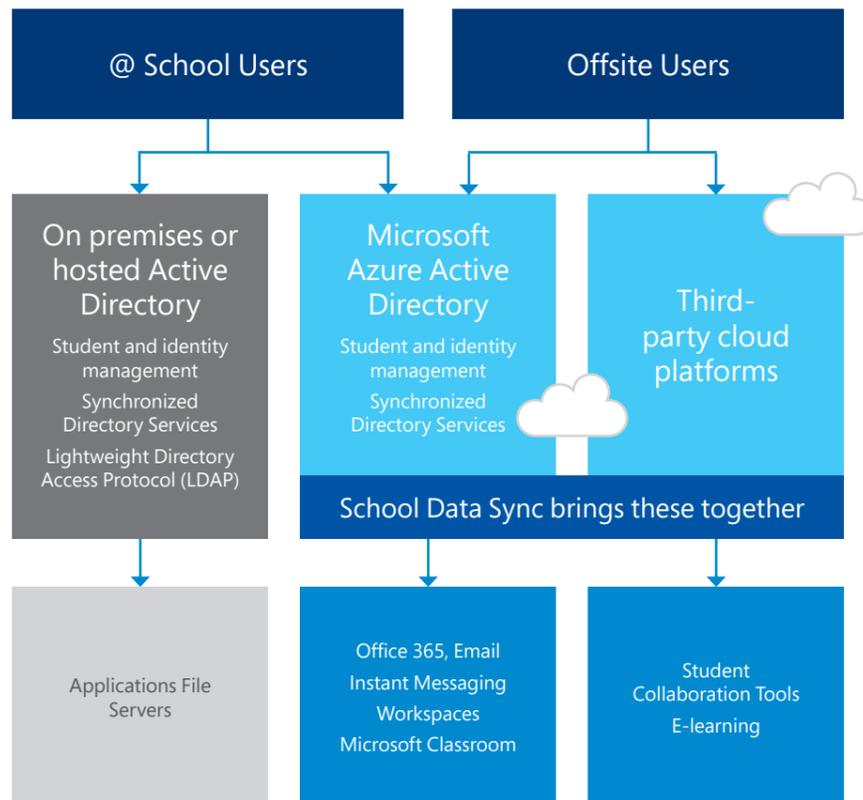
1. Departure Point

At many schools, the ICT infrastructure still contains the same components and elements as ten years ago, such as local directory services, local infrastructure, application and database servers. Usually staff and students can only access services inside the school network, putting constraints on an 'anywhere, anytime' learning model.



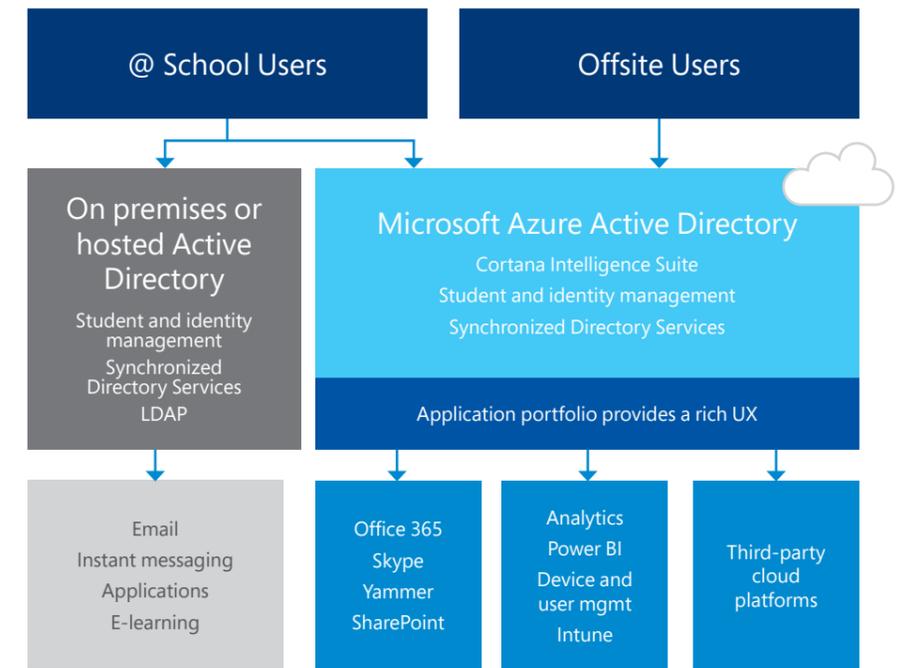
2. Transition – First Steps

The transition phase involves taking your first steps towards a more cost-efficient user-centric IT model. This entails moving some services to the cloud while continuing to leverage your investment in legacy systems as you evaluate and rationalize applications and services.



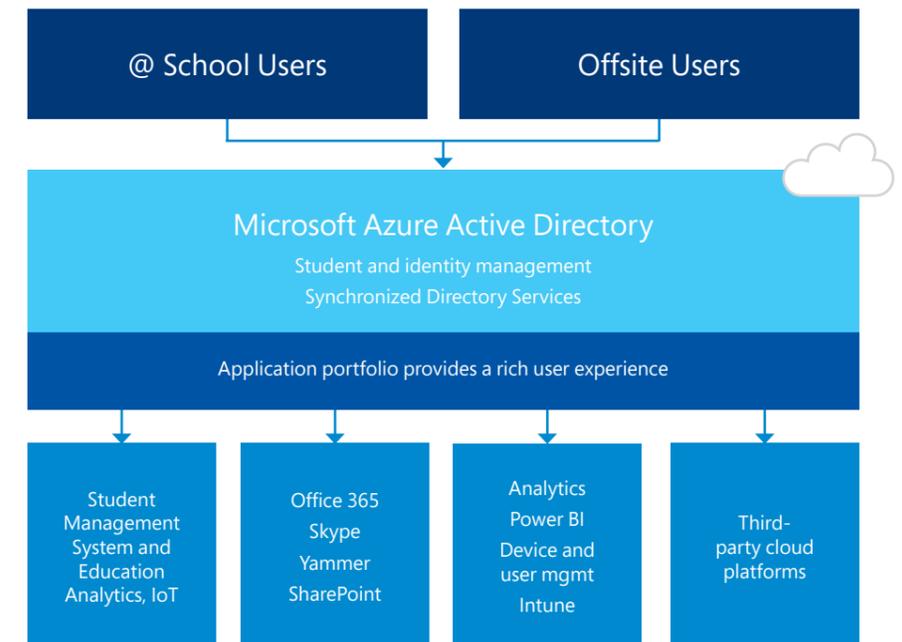
3. Learning Innovation – Towards Cloud

The Learning Innovation state can be achieved in as little as 12 months, mostly using existing investments in your school's own infrastructure, as well as Office 365 Education, Azure AD and Cortana Intelligence Suite. It allows you to retain school databases on premises but still use the cloud.



4. Learning Transformation

The learning transformation state is focused on eliminating IT infrastructure purchasing, management and maintenance costs by moving to an entirely cloud-based IT model.





Simple Steps to Transformation

Microsoft CityNext solutions provide a broad technology platform of cloud, advanced analytics, mobile and social technologies to underpin new ways of learning, managing, reporting and collaborating in schools.

Transformation is based on introducing cloud-based services, automating manual processes and providing powerful learning, social and collaboration software with self-service capabilities for students and staff.

Introduce Cloud-based Services

The aim is to provide students and staff with rich learning capabilities while minimizing technology management costs through Office 365, Azure, and Microsoft Intune.

Rationalize your SaaS portfolio

Use Azure AD cloud App Discovery to discover all the SaaS in use in your environment. Then replace overlapping applications with all-encompassing solutions and find alternatives to on-premises applications with SaaS applications to reduce the TCO of your IT.

Once you have your ideal portfolio, register your 3rd party SaaS-applications in Azure AD to provide single sign-on capabilities. Then sync your on-premises AD to Azure AD to provide synchronized data and write-back capabilities between active directories.

Deploy Office 365 Education

Office 365 Education has everything you need to kick start next level learning in your school. Students and staff simply sign in with their educational email address to download the latest Office apps including Word, Excel, PowerPoint, OneNote and Publisher on up to five personal devices including, Windows PCs, Macs, tablets, iPads, phones and Androids.

- Students and staff get 1TB of storage on OneDrive for Business in the cloud, managed by the school giving them plenty of space for school work with easy online sharing.
- Students and teachers can collaborate online and see their changes in real time with Office Online and OneDrive
- You can use Yammer to set up social media sites for the whole school, subject areas, sporting or interest groups
- Students and staff can be far more productive using OneNote to type or handwrite notes, capture web pages, record audio/video and embed spreadsheets.

Improve the User Experience

Provide a consistent experience across PCs, laptops, tablets and smartphones for students and staff.

Students and staff have single sign-on access to services and applications on any device from anywhere. They can also reset their own passwords, establish and manage groups, install applications and their own devices. They can use Office 365 Education on their home computers and devices giving them the same capabilities and experience wherever they work.

Windows 10

Windows 10 has powerful management features that make it easier to control BYOD and 1-to-1 learning environments. You won't have to worry about keeping student devices up to date. Windows 10 Education has in-place upgrades and dynamic provisioning. Plus it's easy to safeguard identity. Students have the convenience of a password and the added security of the best multi-factor solutions, as well as anti-theft and phishing to protect them online.

- Windows 10 is designed for learning productivity. Students can be better organized with easy ways to snap apps in place and optimize their screen space to show open tasks in a single view. Plus they can create virtual desktops and group things by project.
- Microsoft Edge, a new browser, lets students annotate by writing or typing directly onto web pages.
- You can protect essential student files with disk encryption, data loss prevention and data separation.
- Use the Device Guard feature to lock devices down so they only run the applications you nominate.
- Enroll or unenroll student devices to remotely control accounts, security settings and VPN configurations.

Provide Secure Access to Resources

Enable students and teachers to use their school credentials to launch applications from a personalized web catalog or mobile app.

Instead of your firewall and network appliances controlling access to services, your security now needs to be tied into identity, which should contain all relevant authorization information. Some services or applications may need to match identity with the assigned device to gain access.

Microsoft Azure Active Directory (AAD)

- Set up single sign-on to simplify user access to Office 365 and other SaaS-applications, as well as on-premises applications from Windows, Mac, Android and iOS devices. Multi-Factor Authentication prevents unauthorized access to both on-premises and cloud applications.
- Set up Self-service Password Change and Reset for students and staff.
- Set up Self-service Group Management for teachers or year groups.
- Use the Application Proxy module to publish on-premises web applications with secure remote access and single sign-on.
- Security monitoring and alerts and machine learning-based reports identify inconsistent access patterns to mitigate potential threats.



Strengthen Device Management

The aim is to confidently allow students and teachers to bring personal devices to school.

Manage BYOD and institution-owned tablets and smartphones with Windows Intune. These 'trusted devices' have single sign-on capabilities and (if required) enforced security policies.

This also gives you an organizational view of device with smart reporting and proactive security management.

Microsoft Azure AD

- This comprehensive identity and access management cloud solution lets you manage users and groups and provide secure access to your on-premises and cloud applications.
- Makes it easy to manage devices and provide Multi-Factor Authentication (MFA) capabilities if required.

Microsoft Intune

- Has an option for managing "difficult to reach" devices that are consistently outside firewalls. This helps ensure they are secure and have access to the applications needed.
- Has a cost-effective way to extend management coverage to small or remote schools and campuses by creating an integrated environment.
- Can be deployed without on-premises infrastructure.

Introduce Education Analytics and Research

To improve institution effectiveness, you now want to be able to extract real-time data (performance, attendance, cost, etc) from your systems to track and evaluate trends and improve planning and decision making.

Microsoft SQL Server can give you a 360-degree view of performance and operations with easy-to-use PowerBI data visualization tools that simplify access to data and make it easier to share key metrics with stakeholders. You can run it on Windows Azure to get the benefits of cloud computing. To bring additional power including predictive analytics to your organization, use Cortana Intelligence Suite, a fully managed big data and advanced analytics suite that enables you to transform your data into intelligent action.

Microsoft SQL Server

- Take advantage of the power of advanced analytics in your school to monitor, analyze, and report on student and teacher information, create analytical models to predict performance and improve budget management through clear insights.
- Bring together valuable data from multiple sources, and get the big picture. For example, correlate student test scores against graduation rates, or create an early warning system for dropout prevention by using data about student absences.
- Give teachers and administrators a clear picture of student performance at an individual or group level so they can adjust instruction accordingly. You can speed up analysis and time to insight with the familiarity of Excel and Power BI in Office 365, as well as access via mobile devices.
- Quickly and easily generate the reports you need for your school board and for local, state, and federal requirements. Plus, improve responses to legislative and grant requests to help maximize funding opportunities.

Benefits of Transformation

Technology Rationalization	Benefits
Moving to a rationalized suite of cloud services	<ul style="list-style-type: none"> • Eliminates infrastructure ownership costs and capital investment in IT • Simplifies budgeting and planning through a predictable pay-for-use model • Automates upgrades keeping students and staff up to date with the same capabilities so that teachers can maximize learning opportunities with the latest technologies • Enables schools to introduce new services (e.g. data analytics) more quickly with scalable cloud servers and storage • Provides a right-sized IT infrastructure with reduced IT management overhead • Strengthens security
Deploying cloud-based Active Directory	<ul style="list-style-type: none"> • Simplifies your multivendor environment by integrating and providing single sign-on capabilities
Establishing centralized device lifecycle management	<ul style="list-style-type: none"> • Automates provisioning, creating a secure and efficient process for new and leaving staff and students • Reduces the time and cost associated with device installation, configuration management and password resets through self-service • Reduces hardware, application, support and total cost of ownership costs • Provides intelligent reporting and proactive security capabilities
Establishing comprehensive identity management	<ul style="list-style-type: none"> • Improves security through authentication • Streamlines the user experience by eliminating the need to manage multiple accounts and passwords • Reduces IT management overhead
Standardizing on Windows 10	<ul style="list-style-type: none"> • Windows 10 provisioning models can reduce the device related TCO significantly • Improves security with disk encryption, data loss prevention and data separation • Reduce the number of OS images. This in turn reduces complexity and the costs of change management
Introducing analytics	<ul style="list-style-type: none"> • Improves institution effectiveness by accurately informing planning and decision making across student and staff performance, budgets, graduation rates etc. • Provides real-time insights and predictions that can be provided to staff and students, allowing for faster intervention and remediation before issues escalate

New Microsoft Technologies for Education

Microsoft is at the forefront of learning innovation with imaginative ways to help teachers and students enjoy contemporary, engaging learning experiences. Have you tried these new technologies?

Create Flipped Classrooms with OfficeMix

Designed with educators in mind, OfficeMix is a free add-in for PowerPoint with everything you need to easily create and share interactive online lessons.

mix.office.com

[Office Mix LTI support](#) (integrate experience into LMS)

Quickly Build Classes with School Data Sync (SDS)

Formerly known as School Information Sync, this smart technology allows you to build classes based on the rosters in your school's Student or Management Information System. It also allows Partner solutions to easily access roster data in order to provide richer experiences for teachers and students.

sds.microsoft.com

Automate Everything with New Office 365 Education

Starting with a smart new Microsoft Classroom (formerly Class Dashboard) you can set up to automate everything. Simply use School Data Sync to bring in class details from your student information system. Then click to set up student access to class materials, learning tools and apps – all with automated updates.

classroom.microsoft.com

Manage Lessons More Easily with OneNote Class Notebook

Our popular education software OneNote just got even better. Already renowned as the smart way to share and organize learning, we've updated the Class Notebook feature to make teachers more productive. You can now distribute assignments that show up in Office 365 Education (Microsoft Classroom) and leading Learning Management Systems, quickly review student work, and access the Class Notebook app far more easily. Check it out at:

onenote.com/classnotebook

onenote.com/Lti (integrate experience into LMS)

onenote.com/learningtools

(accessibility support with Learning Tools)

Enjoy Game-based Learning with Minecraft

Join the many teachers who are using Minecraft to engage and inspire students to think logically and creatively.

education.minecraft.net/#!

Interested in taking the next step on your transformation journey?

Visit microsoft.com/education/leaders