



The Role of Information Technology in Enhancing Education

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Presented
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Discussion Topic

- Background
 - Brunei Ministry of Education (MOE)
 - Brunei Department of Information and Communication Technology (ICT)
- The Need for Education Modernization
- Our Understanding of Education Modernization Goals
- ICT Supports Education Modernization
- ICT in Education Services
- Policy and Planning – Challenges and Representative Solution
- ICT Solution Bridges the Gap Between Data and Information Requirement
- Successful IT Project Implementation – Lessons Learned
- Benefits of IT in Education – Students, Educators/Administrators, Parents
- Reference Study – Purdue University
- Concerns
- Institutionalizing IT in Life Long Learning – Key Success Factors
- Conclusion



Brunei Ministry of Education



Vision –

Quality Education Towards a Developed, Peaceful and Prosperous Nation

Mission –

Provide a Holistic Education to Achieve Fullest Potential for All

Aim of Education –

To maximise the intellectual, spiritual, emotional, social and physical potential of every individual, for the formation of a developed society that is strongly founded on the Malay Islamic Monarchy philosophy.



Brunei Department of Information and Communication Technology



The Brunei Department of Information and Communication Technology (ICT) was established in 2001 and acts as a catalyst to spearhead ICT in education initiatives.

As part of its mandate, the department offers support in term of policy, technology (info-structure and infrastructure), professional development and overall guidance for stakeholders undertaking ICT in education initiatives and projects. The department is also responsible to carry out the national e-Government Program i.e. the implementation of the e-Education initiative.



The Need for Education Modernization



- Need for better skilled workforce
- Need to better educate students
- Need for instant access to current (up to date) information
- Need to reduce the digital divide
- Accessibility and availability of other sources of education
- Global and regional competitiveness
- Marketplace is demanding it
- Students are seeking it



Our Understanding of Education Modernization Goals



Education Modernization

Several countries are currently undergoing education modernization which aims to build best in class schooling systems commensurate with leading school systems in the world.

Major goals of the modernization are –

- Improve school quality
- Improve student educational outcomes
- Improve the quality of instruction

Implication

The capability to obtain accurate, timely and complete information from schools, teachers, students and parents is required, both to support performance measurement and evidence-based policy and planning, and to allow the sharing of information across education institutions, thereby enabling improvements in the delivery of education services.

Simply applying technology to existing ways of teaching and learning will achieve marginal results



ICT Supports Education Modernization



To support modernization goals, ICT initiatives may achieve the following objectives:

- Improve the process of collecting data **from disparate sources, reconciling them to a common contextual format. A common data language allows comparability of information across schools (for example) and enables fact-based decision making as opposed to gut based.**
- **Provide** easy access to the information that is actionable, insightful and is easy to understand. **Collecting vast amounts of data into a repository is an important step, but extracting meaningful and actionable information that can be usefully consumed by the users is critical.**
- Improve the process of requesting reports and other analytical information, **and improve efficiencies in gathering and processing data extracts. Timely access to critical information is key to the success of this initiative. As data becomes older, the usefulness of the information is decreased. By providing the right information when needed, the value of the data is higher.**
- **Provide increasingly** sophisticated views of the data **rather than just reports – display trend analysis, provide management with dashboards, allow slicing and dicing of data.**
- **Provide** external users, **particularly schools and other monitoring agencies, with access to better, more timely information in order to effectively meet their accountability responsibilities and help them make informed decisions.**



ICT in Education Services

National Education Coordination

- Disseminate policies, standards
- Collate and analyze data
- Coordinate plans
- Budget and allocate resources
- Performance Evaluation
- Design and publish curriculum
- Procure services and supplies

School Management

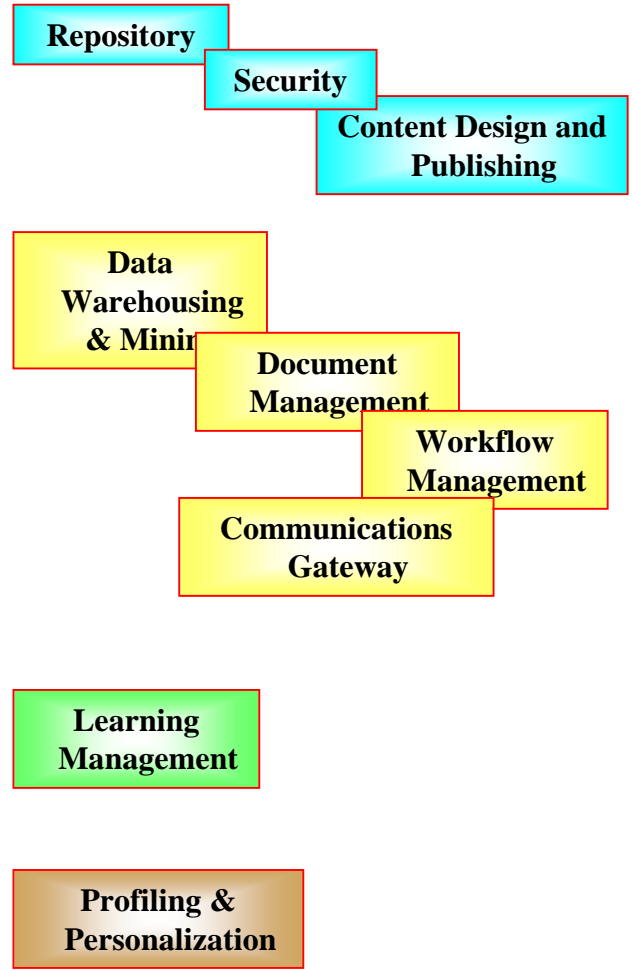
- Collate and analyze data
- Prepare and submit budget
- Manage welfare of students
- Collect payment
- Adapt curriculum
- Plan activities
- Schedule time table
- Procure supplies

Class Management

- Report attendance
- Monitor discipline
- Adapt teaching materials
- Prepare and deliver lessons
- Assess and grade students
- Feedback to students

Individual Learning

- Download materials
- Prepare, submit work
- e-Learn
- Provide feedback



Policy and Planning

The Challenge - The Need for Information

What is a Quality Education and what does it cost?



***School Administrators
need for information***

***What factors most impact
student achievement?***

***Need for Consistent
School-Level Data***

***How are resources
best allocated?***

***How can we link funding
to performance?***

How can we effectively deliver?

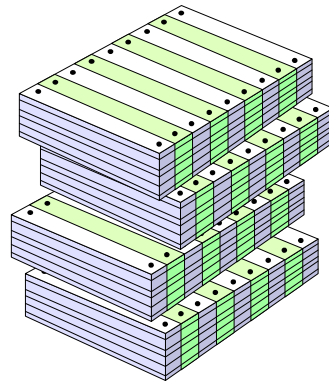
***Education
Accountability***

Policy and Planning

The Challenge - Manual Reporting



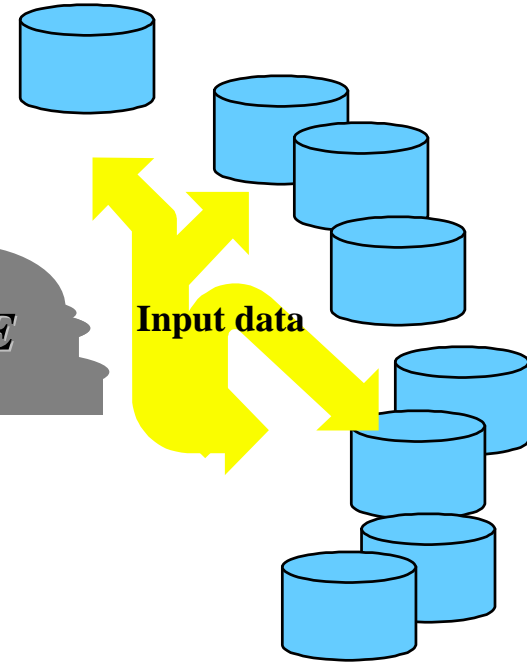
Manually
prepare
forms



Mail forms
to MOE



Input data



4 Districts

Brunei/Muara

Tutong

Belait

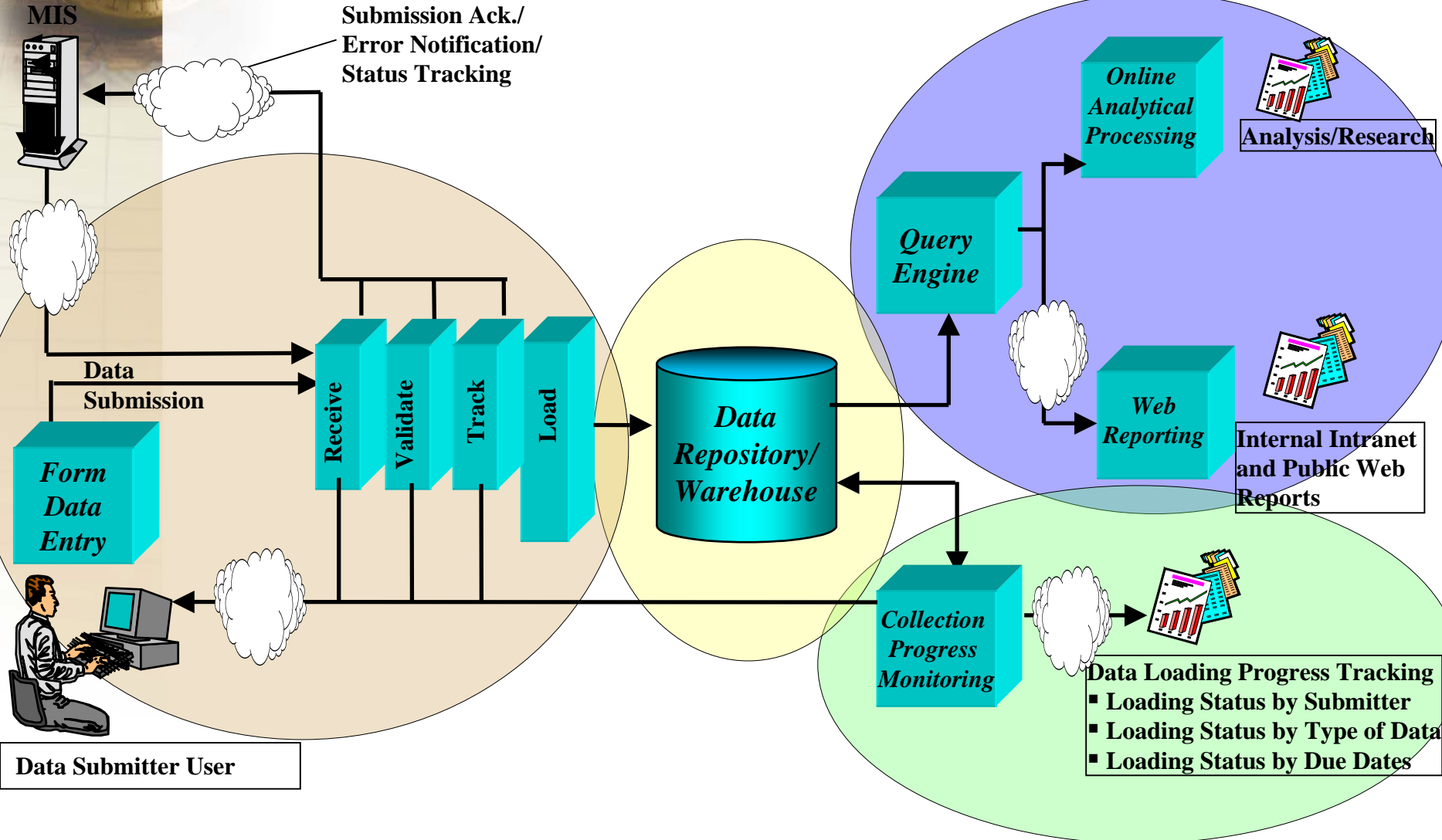
Temburong

169 Government Schools/Institutions

91 Non-Government Schools

X Number of forms

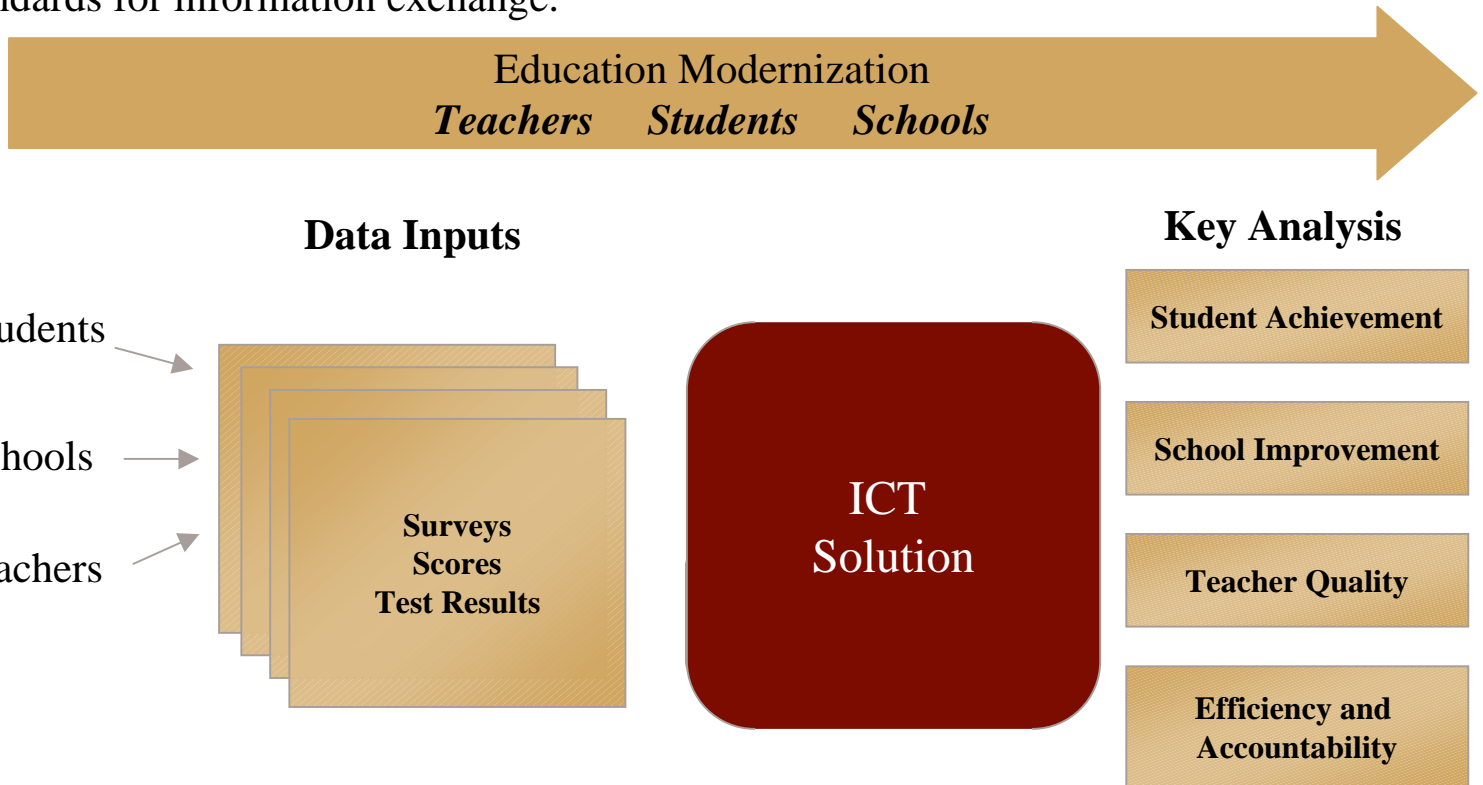
Policy and Planning: Representative Solution



ICT Solution Bridges the Current Gap Between Data and Information Requirement



The flow of information from schools, teachers, students, parents, and Ministry of Education in support of resource planning, and upwards, in support of policy-making, is limited because of the absence of appropriate infrastructure, processes and standards for information exchange.





Successful IT Project Implementation – Lessons Learned



- Governance structure
- Define policies
- Effective communications
- Form a dedicated project team
- Select appropriate technologies
- Conduct awareness training for end users and administrators
- Change management
- Information security
- Monitor the quality of compliance
- Conduct independent audits
- External expertise – use of consultants

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Benefits of IT in Education – Students

- Student-centered learning environment
- Empowered – self paced, convenience and flexibility
- Vast educational opportunities
- Instant access to current (up to date) information
- Virtual field trips
- Research projects
- Expert advice
- Collaborative problem solving and chat rooms
- Simulations and opportunities for practice
- School assignments and activities
- Personal portal with current events, calendars, etc.
- Provides parity for students in rural and urban areas

Essential Skills for the 21st Century



Benefits of IT in Education – Educators and Administrators



- Instant access to student information – monitor and track student progress
- Decision making based on facts – trends, etc.
- Tailor instruction for students
- Communication with students and/or parents
- Share ideas and experiences
- Discussion forum and chat rooms
- New curriculum and instructional materials
- Update on current events
- Resource Optimization
 - Resources – people, technology, facilities, etc.
 - Costs
 - **Time**
 - Travel

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Benefits of IT in Education – Parents

- Instant access to student information – monitor and track student progress
- Access to school information – homework, projects, etc.
- Communication with teachers
- Share ideas and experiences
- Discussion forum and chat rooms
- Update on current events
- Virtual parent teacher conferences

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Reference Study: Purdue University

Integration of:

- Financials
- Human Resources and Payroll
- Procurement and Materials Management
- Campus Management
- Training
- Distribution of Information to:
 - Faculty
 - Administrators
 - Students

Benefits to Students:

- Online Registration for Classes
- Obtain coursework and assignments online
- Monitor progress towards degrees

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Reference Study: Purdue University, cont'd

Benefits to Faculty –

- Download class rosters
- Enter grades
- Access Student Advisory information

Benefits to Faculty and Staff –

- Employee Self Service applications
- Access to Up-to-Date personal compensation and benefits information
- Changing personal profile/preferences, etc.
- Checking leave balances



Concerns

- Inadequate technology infrastructure
- Accessibility/connectivity
- Technology literacy
- Lack of supervision
- Requires self discipline
- Encroachment of personal time
- Lost of personal touch/human connection





Institutionalizing IT in Life Long Learning – Key Success Factors



- Strong leadership support
- Alignment with overall organization strategy
- Life long learning concept for educators and students
- Institutionalize a learning culture that encourages e-learning
- Proactive and continuous outreach program
- Availability of support – people, process, and technology
- Enhance, advance and adapt
- Blend with other forms of learning to encourage participants who are uncomfortable with technology

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Conclusion

Information Technology is *changing* the landscape of education

- Brick and mortar (physical structure) to *schools without walls*
- Structured and scheduled to *dynamic, flex time and flex place*
- Static content to *technology-rich interactive content*
- Standardized and time-phased to *localized and self-paced*
- General instruction to *personalized learning*
- Instructor led to *blended modality*
- Physical textbooks to *digital content*
- Curriculum driven to *learner empowered*



Thank You

Questions and Answers

