



**Kentucky Department
of Education**

**Kentucky Department of Education
IT Assessment and Optimization Study
Final Report**

May 4, 2004

Engagement: 220604280

Gartner



Executive Summary

consulting

Kentucky Department of Education
IT Assessment and Optimization Project Final Report
Engagement: 220604280 May 2004

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Executive Summary

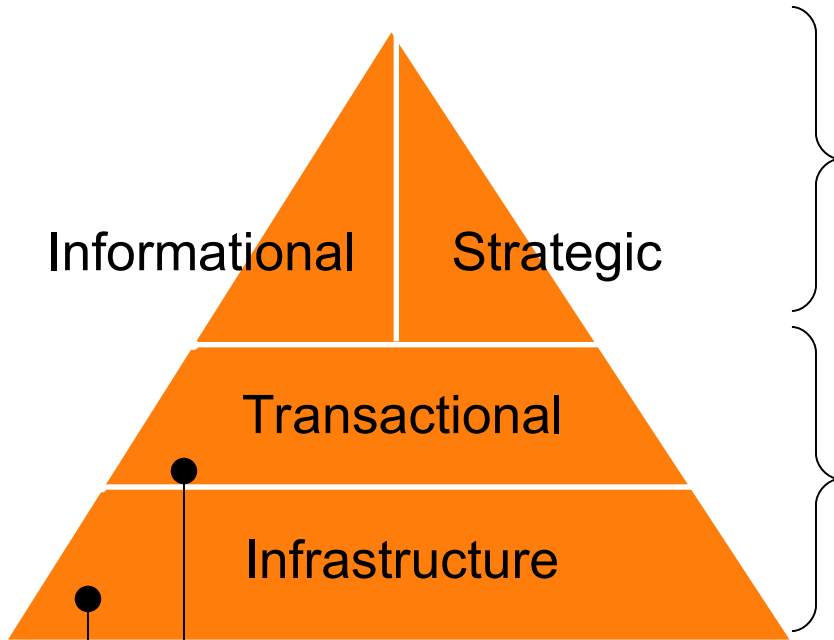
Summary of Findings

- **As a result of a comprehensive plan of IT investment over the last 10 years through the KETS Program, the State of Kentucky has significantly improved deployment of technology to its schools. *(Details: Slide 7)***
- **Despite its state population being one of the lowest adopters of technology, Kentucky K-12 schools perform above average and sometimes in the top tier in terms of teacher and student access and use of technology. *(Details: Slide 20)***
- **KDE through OET has also made significant strides in adopting forward looking IT management strategies that have potentially saved the State millions of dollars in terms of business process efficiencies and technology maintenance and support.**
 - Kentucky is uniquely positioned in its technology deployment strategy in that OET provides service not only to the KDE agency but to school districts through a shared services model that provides Statewide support for electronic mail, network infrastructure, help desk and statewide student information and financial management systems.
(Details: Slide 36)
- **OET continues to operate at a higher efficiency than peer organizations in most IT areas. *(Details: Slide 40)***

Executive Summary

Summary of Findings

How IT Supports the Business



- OET has been facing challenges in meeting KDE business unit expectations as it begins to move from being a supporter of the business (i.e., providing infrastructure and transactional support) to becoming an enabler of the business (i.e., informational and strategic support)

- KDE has been successful and is unique among all the states in its development of robust foundational elements for IT infrastructure services in support of KDE and the school districts

- E.g., State-wide e-mail system that is unique among peer organizations
- No complaints about the enterprise network that is also unique among peer organizations

Transactional Examples

- Standardized Statewide Student Info. Mgmt. (STI)
- Standardized Financial Mgmt. (MUNIS)

Strategic Examples

- Instructional Technology Integration & Policy
- Virtual High-School and Virtual Library

Infrastructure Examples

- Standardized Statewide E-mail System
- Robust Enterprise Network (LAN and WAN)

Informational Examples

- Common Data Standards
- Integrated Data Access (MAX Program)

Executive Summary

Summary of Findings

- **However, as is typical of maturing IT organizations, OET has varying levels of credibility with its key customers and stakeholders. (Details: Slide 53)**
 - Credibility is higher where more resources and management attention has been provided.
 - For the most part, responsibility for IT governance has shifted to OET, with limited KDE business unit participation. IT governance mechanisms do not ensure KDE business owner accountability for IT projects. *** Note that most IT projects are actually KDE business transformation projects with IT components**
- **Therefore in order to become even more effective and to increase its credibility, OET must accelerate its maturity as an IT organization (Details: Slide 83)**
 - OET must transition from being a utility-oriented (providing basic IT infrastructure) to a service-oriented (IT enabled business solutions) organization.
- **Due to budget shortfalls, KDE is faced with the possibility of budget cuts and therefore has to develop strategies to deal with limited IT resources. The possibilities include:**
 - **Eliminating IT Services:** Cut shared IT services provided to schools, and leave individual school districts to provide these services if they can afford them.
 - **Become More Effective with Limited Resources:** OET is already a very lean organization. Gartner analysis shows that OET could be more effective by further developing some of its IT management processes. (Details: Slide 34)

Executive Summary

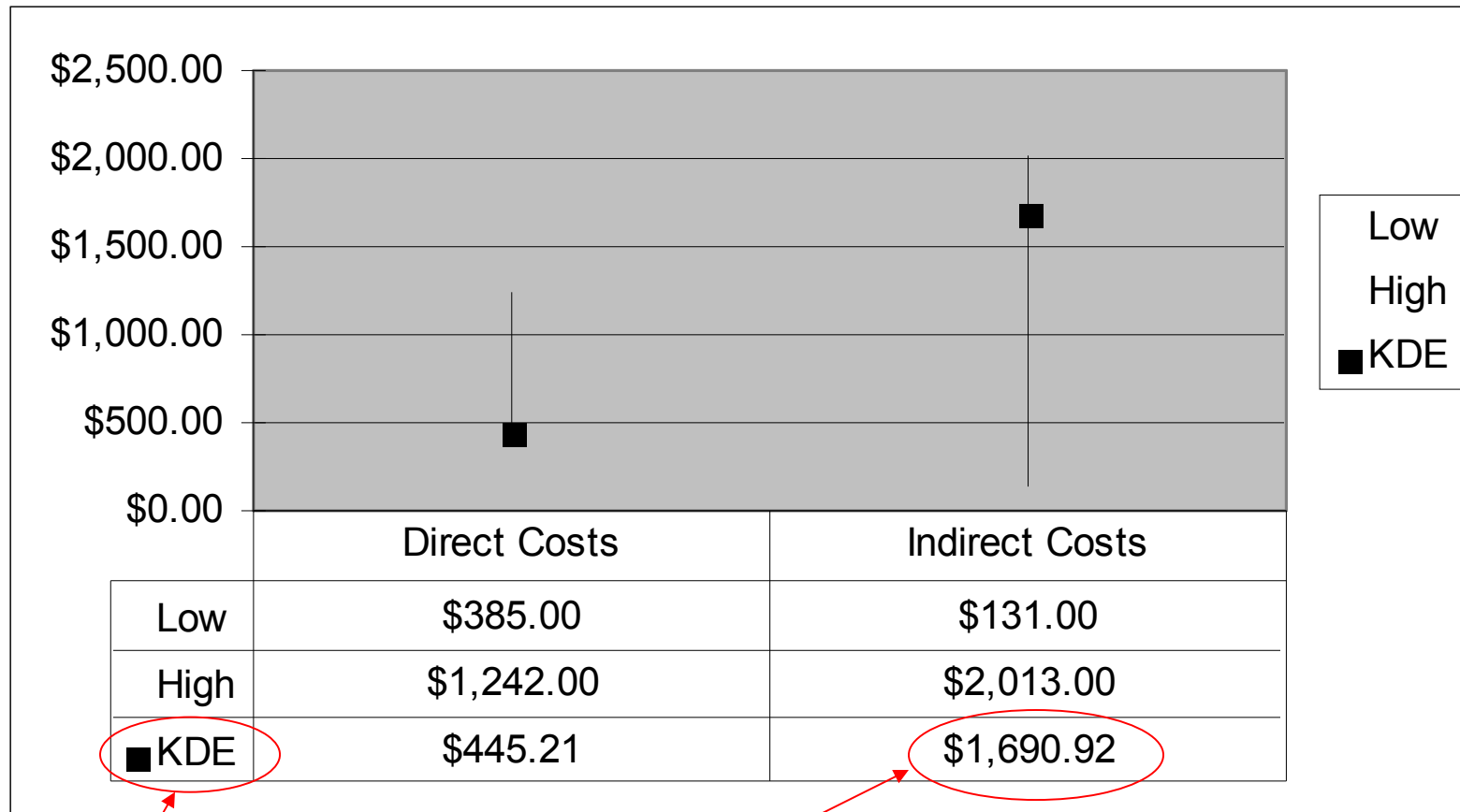
Summary of Findings

- **Continued funding is required to ensure that OET makes this transition successfully with the ultimate benefit of an efficient and effective IT organization that helps to further the mission of KDE and contribute to its strategic business directions. (Details: Slide 30)**
- **Desktop computing infrastructure for School Districts is aging when compared to peer states. In fact, these states are rapidly overtaking Ky in the quality of desktop deployed in schools. (Details: Slide 39)**
- **While OET has already recognized and began to make this transition by offering shared IT services to school districts, there are challenges that it faces in order to successfully make the transition:**
 - Bridging the gap between IT and business planning and management through an appropriate governance structure *(Details: Slide 51)*
 - Maturing the current IT service delivery model *(Details: Slide 82)*
 - Improving IT program management *(Details: Slide 72)*
 - Instituting effective IT investment management practices *(Details: Slide 97)*
 - Improving IT vendor management effectiveness *(Details: Slide 116)*
- **Expectations and Alignment of OET's Role to Support KDE on a Strategic Level Need Further Clarification (Details: Slide 18)**
 - Unclear Role of OET in the Definition and Execution of IT Education Policy
 - Unclear Role of OET in Provision and Integration of Technology Tools For Learning

Executive Summary

Summary of Findings

- KDE's (and OET's) spend is lower in direct costs which will increase (correspondingly) the indirect costs (soft costs) effects on all users



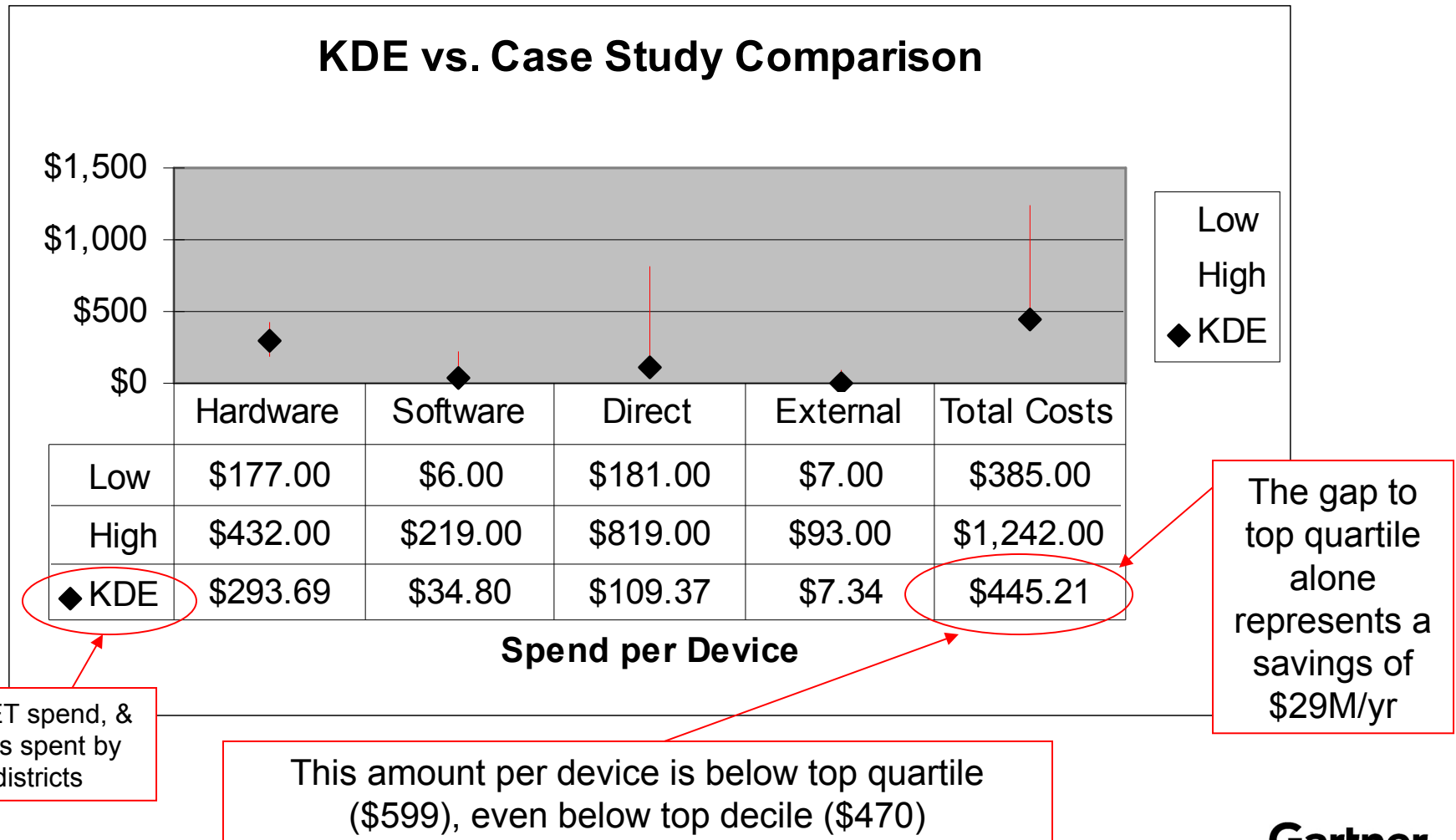
Includes OET spend, & KETS funds spent by school districts

This amount per device translates to \$338M for KDE (total)

Executive Summary

Summary of Findings

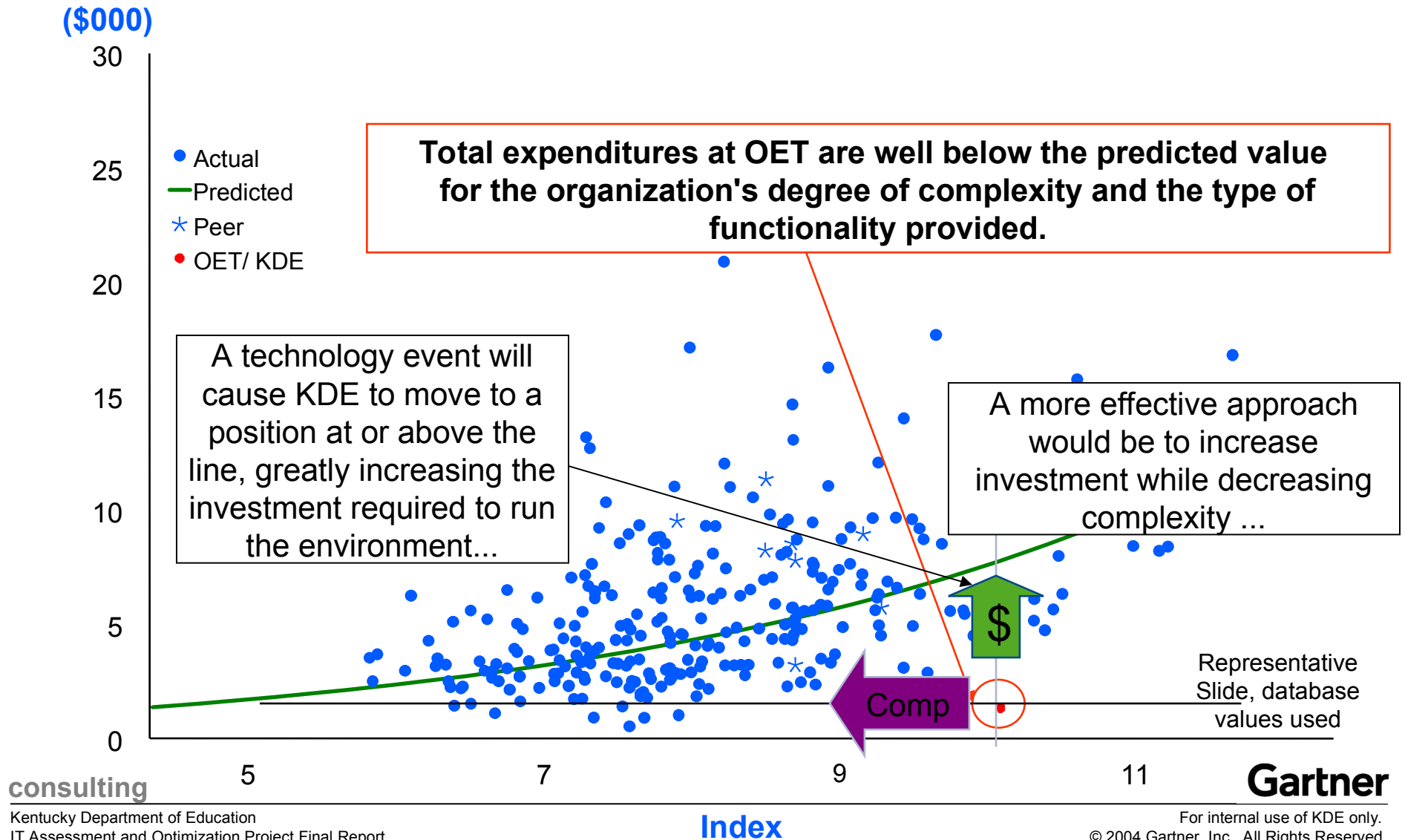
- KDE's (and OET's) IT spend is lower in all areas of direct spend. This is especially evidenced in IT staffing, which is partially due to shared services efficiencies (unusual for K-12) and understaffing (not unusual for K-12)



Executive Summary

Summary of Findings

Total IT Expenditure per User by Complexity Index



Executive Summary

Summary of Key Recommendations

Following are Tactical Recommendations (Accomplished in Less Than One Year):

■ Increase IT Efficiency

□ Conduct a Formal Review of all IT Projects Over \$250,000 (or Other Determined Size)

- What projects are considered high priority?
- Are the projects really generating business value?
- Considering tangible deliverables and resources consumed is the project worth continuing?
- What are the short and long term impacts of aggressively canceling or putting projects in hold?

□ Continue Infrastructure Consolidation

- Continue efforts to consolidate and centralize base level utility elements of the IT infrastructure that can be provided more efficiently through centralization and shared services
- Formalize an enterprise IT architecture in order or reduce and develop an IT Infrastructure Refresh Strategy

■ Increase IT Effectiveness

□ Fully Develop the Role of IT Business Relationship Manager for KDE Agency

□ Develop a Formal and Regular Communications Process with School Districts

□ Create and Test an IT Disaster Recovery and Business Continuity Plan

- For the OET, and Supervise Development at the School District Level

Executive Summary

Summary of Key Recommendations

Following are Strategic Recommendations (Accomplished in Two to Three Years):

■ Institute a Well Defined IT Governance Structure

- Bridge Gap Between KDE Business Units and IT Management and Operations
- Formalize Strategic, Operational and Technical Governance
- Fully Develop Necessary Governance of Shared Service Organization

■ Officially Define OET's IT Service Delivery Model

- Portfolio of Services: Develop Opportunities for Additional Shared Services
- Define Service Cost Implications and Setup Process for Funding
- Develop Service Level Delivery Expectations
- Develop Service-Focused Internal Operational Processes

■ Develop a Portfolio Management Investment Management Process

- Project Business Case Process
- Project and Application Portfolio Management Process

■ Set up a Program Management Office

- Formalize Project Management Practices
 - PM Training, Methodology and Tools
 - Facilitate Better Tracking and Monitoring of IT Projects

Executive Summary

Summary of Key Recommendations

Strategic Recommendations (Continued):

- **Further Develop an IT Sourcing Strategy for Application Development and Future Shared Services**
 - Reduce augmented IT staff by acquiring commercial software and fully outsourcing application development
 - Develop a sourcing strategy for current and future shared services OET can't deliver on par with the marketplace to maximize IT efficiency
- **Establish a Vendor Management Competency**
 - Develop Contract Structures
 - Use of Flexible Master Contracts
 - Establishment of SLA and other Vendor Performance Management Capabilities
- **Deploy an Asset Management System**
 - Software Licensing Management
 - Enforcement of Standard Configurations
 - Use a Tool for Technology Planning, e.g., Technology Refresh
- **Leverage Possible IT Shared Services With other Government IT Entities**



Alignment of KDE Business and IT Direction

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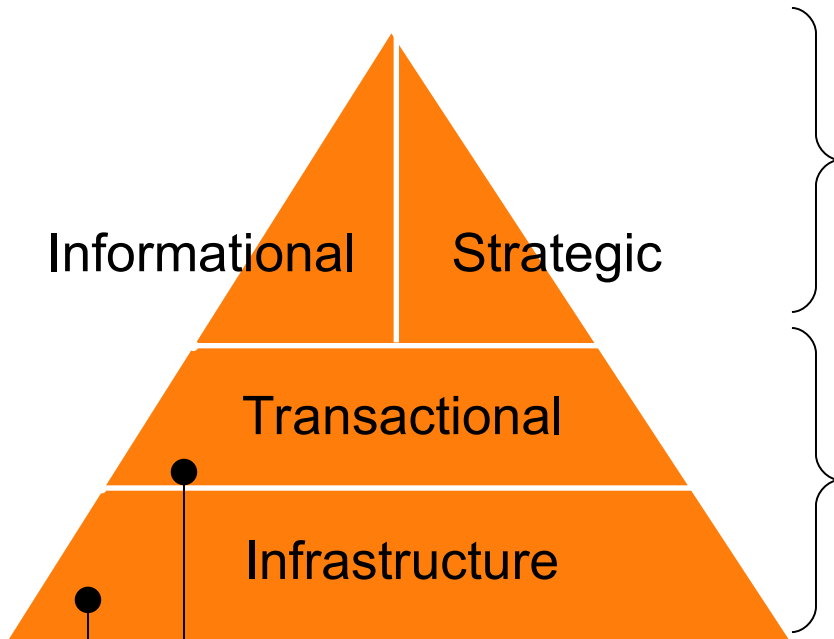
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Alignment of KDE Business and IT Direction

Findings and Observations

How IT Supports the Business



- OET has been facing challenges in meeting KDE business unit expectations as it begins to move from being a supporter of the business (i.e., providing infrastructure and transactional support) to becoming an enabler of the business (i.e., informational and strategic support)
- KDE has been successful and is unique among all the states in its development of robust foundational elements for IT infrastructure services in support of KDE and the school districts
 - E.g., State-wide e-mail system that is unique among peer organizations
 - No complaints about the enterprise network that is also unique among peer organizations

Transactional Examples

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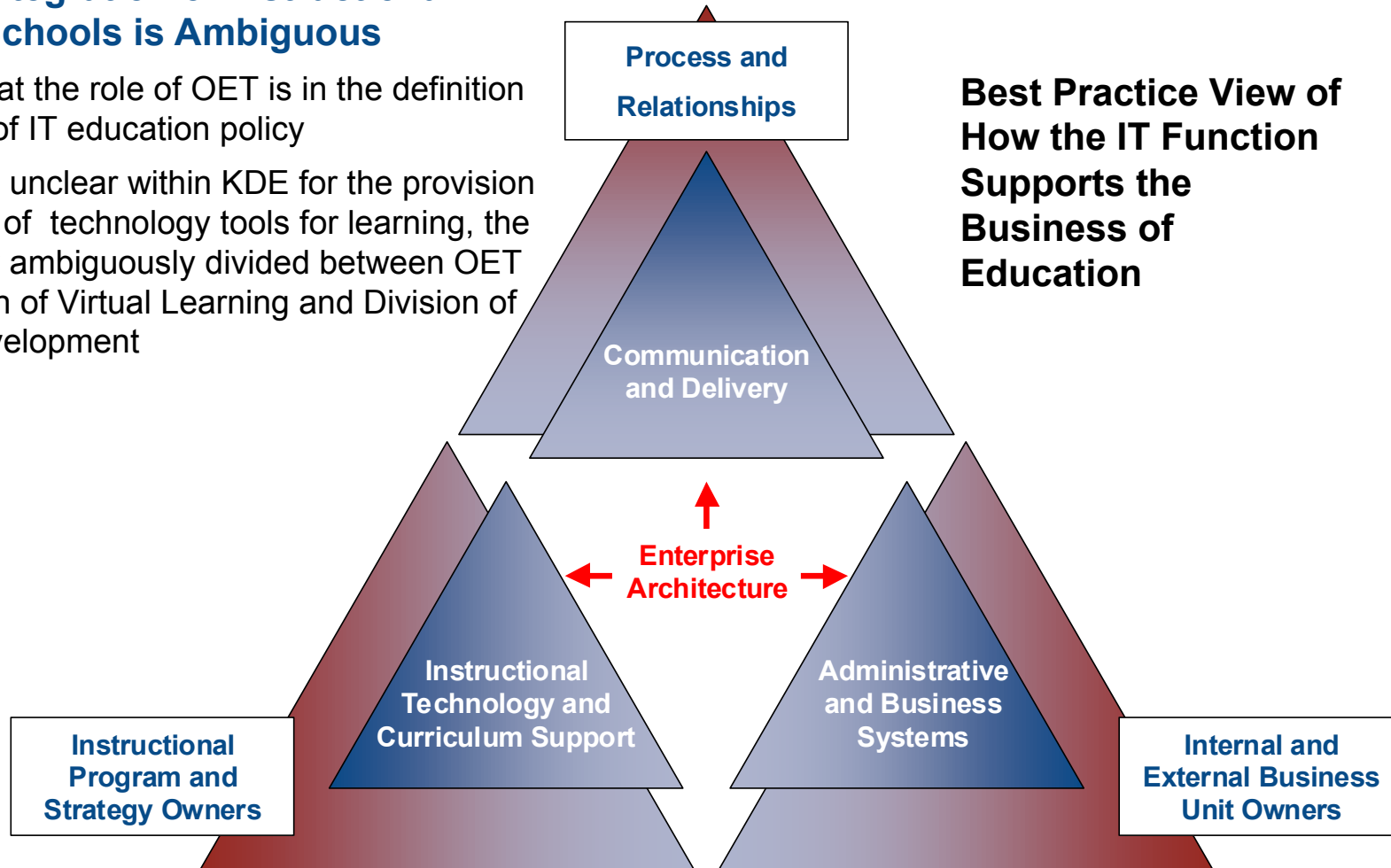
- Common Data Standards
- Integrated Data Access (MAX Program)

Alignment of KDE Business and IT Direction

Findings and Observations

■ Current Role of OET in the Definition of IT Policy and the Integration of Instructional Technology in Schools is Ambiguous

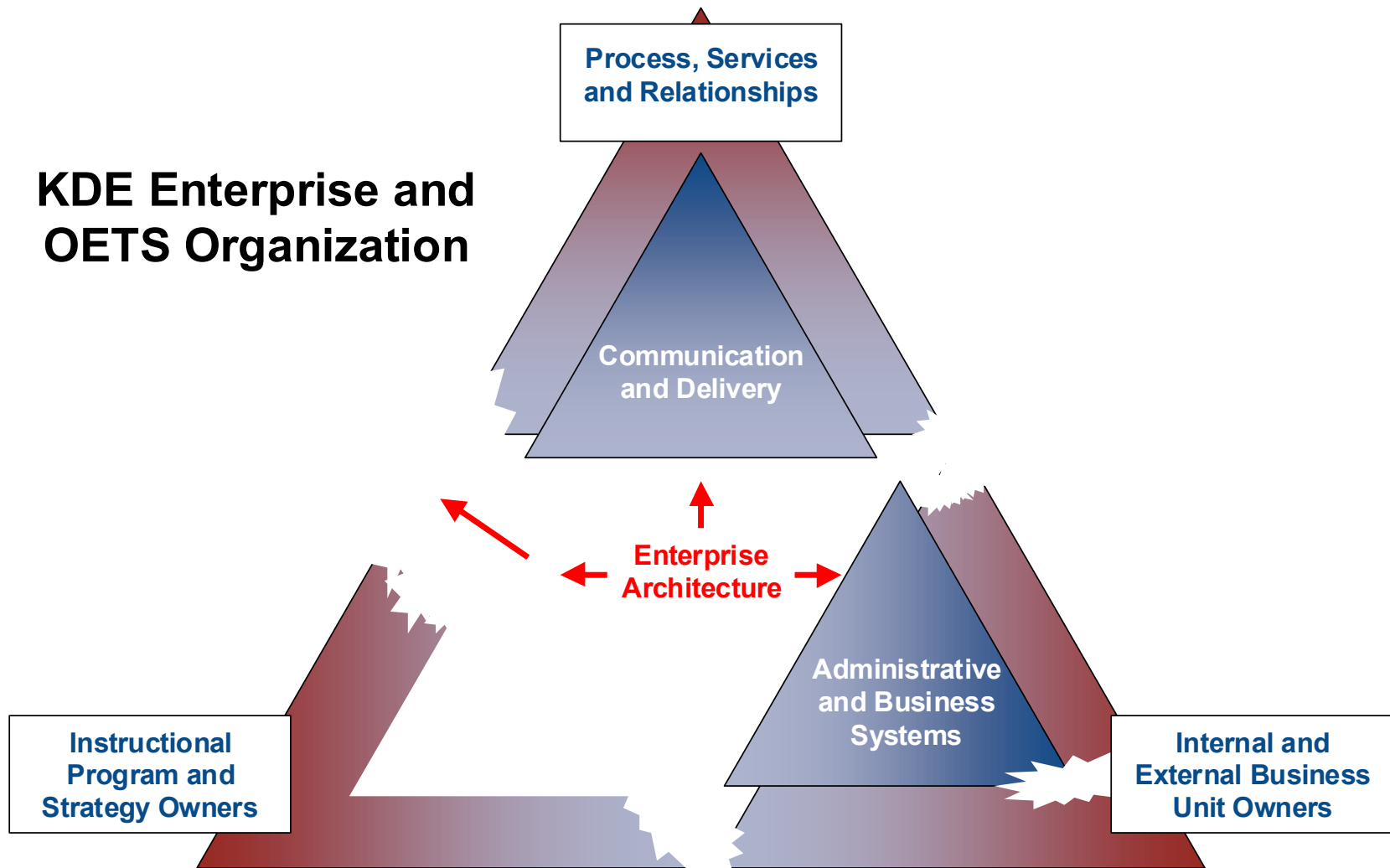
- It is unclear what the role of OET is in the definition and execution of IT education policy
- The role is also unclear within KDE for the provision and integration of technology tools for learning, the role is currently ambiguously divided between OET and the Division of Virtual Learning and Division of Curriculum Development



Alignment of KDE Business and IT Direction

Clarity of OET Support for KDE's Strategic Directions

KDE Enterprise and OETS Organization



Alignment of KDE Business and IT Direction

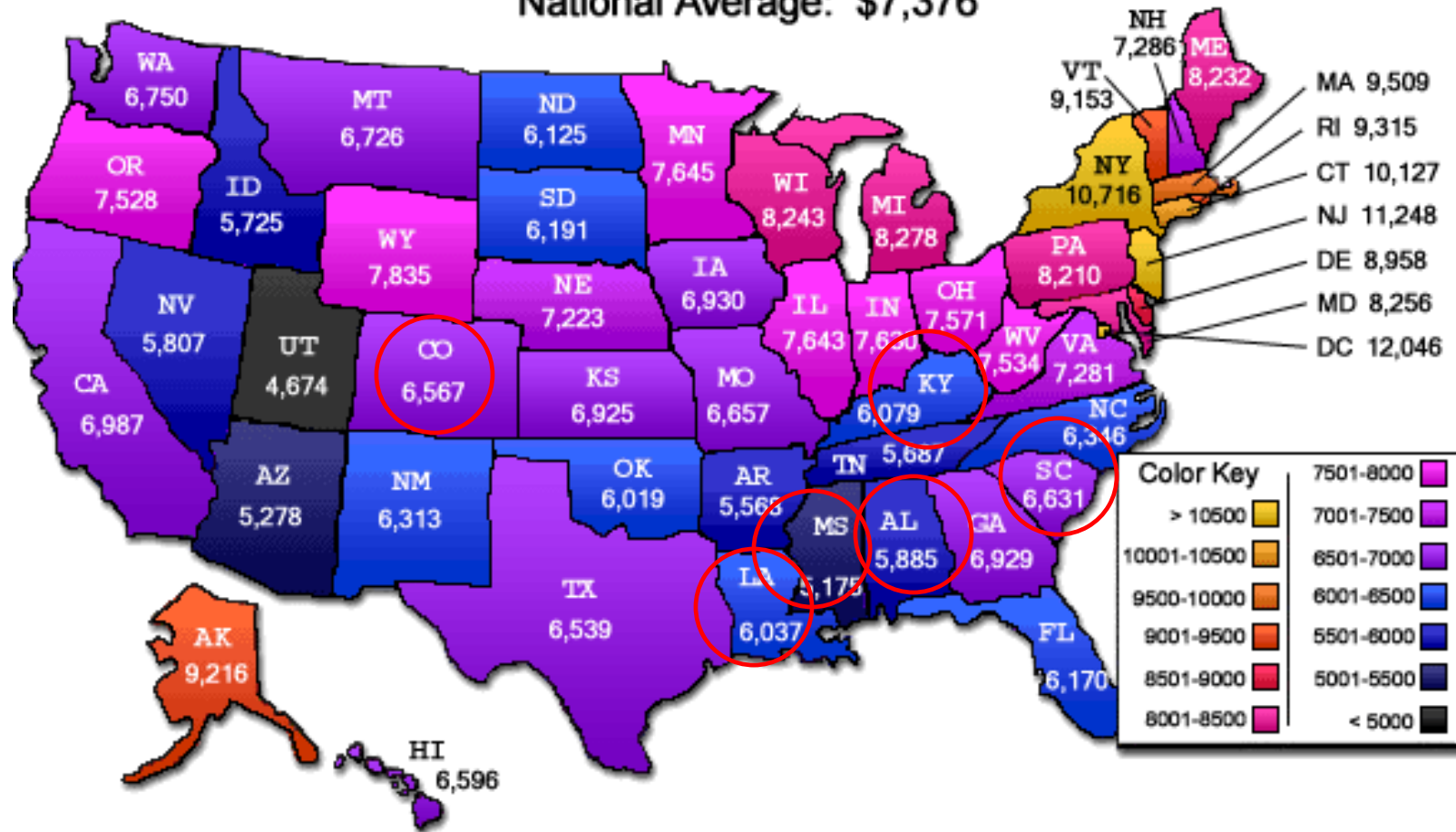
Findings and Observations

- **Despite its state population being one of the lowest adopters of technology, Kentucky K-12 schools perform above average and sometimes in the top tier in terms of teacher and student access and use of technology. (*2002 Data - Situation May Have Changed Significantly)**
- **To assess the quality of technical deployment, Gartner compared Kentucky to four other states with similar education profiles, i.e., comparable population, number of schools and number of students. The chart on the next slide shows the comparison states chosen**
 - Louisiana, Mississippi, Alabama, Colorado, South Carolina
- **Use of Technology (*2002 Data Situation May Have Changed)**
 - Top-Tier use of Computers by Teachers
 - Top-Tier use of E-mail by Teachers
 - Top-Tier use of Computers in Classroom
- **Access to Technology (*2002 Data Situation May Have Changed)**
 - Better than Peers in Student to Computer Ratio
 - Better than Peers for % of Classes Connected to the Internet
 - Good Student to Internet Connected Computer Ratio
 - Better than Peers School Access to Internet
 - Low-Tier % of Computers on End-of-Life Hardware & Software

Alignment of KDE Business and IT Direction Findings and Observations

Current Per-pupil Expenditures for Elementary and Secondary Schools: School Year 2000-2001

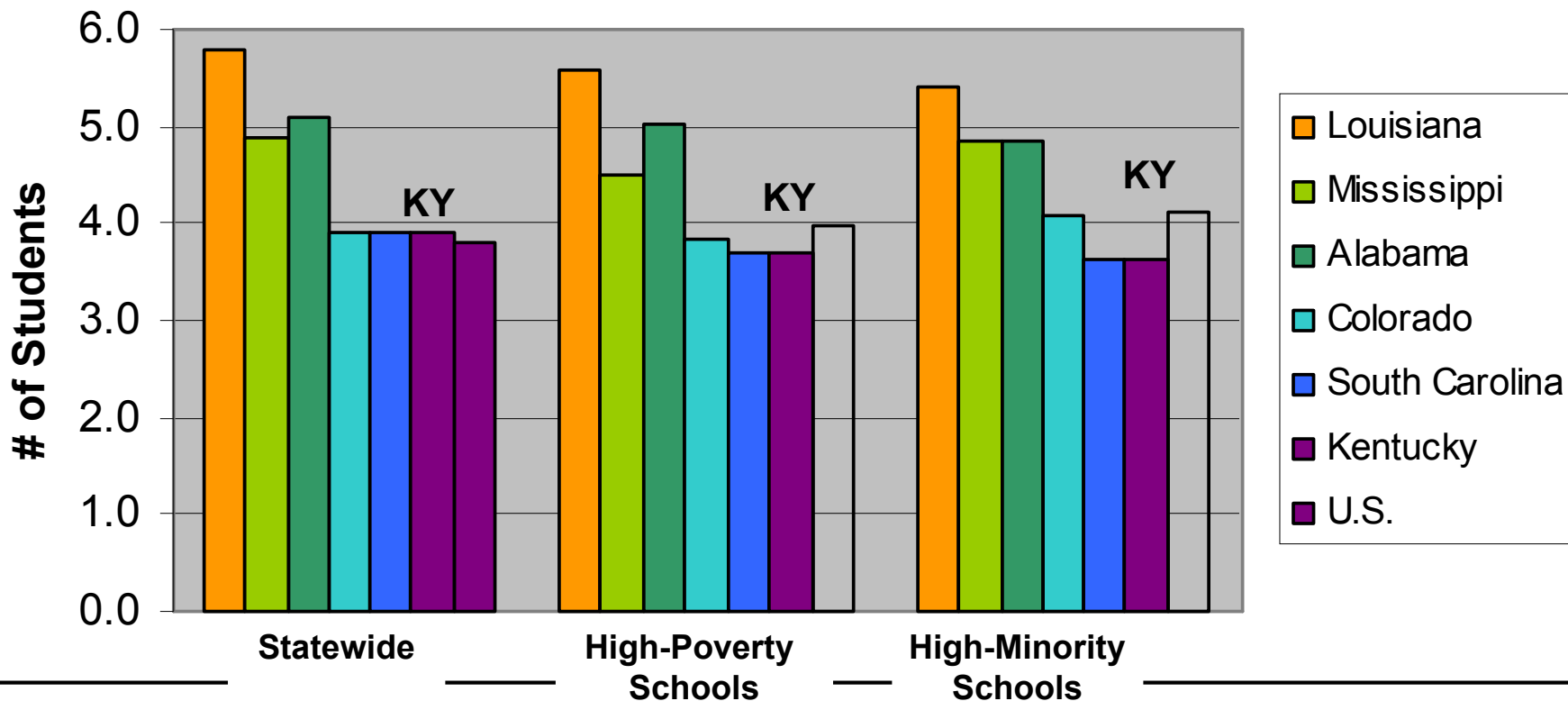
National Average: \$7,376



Alignment of KDE Business and IT Direction Findings and Observations

Number of Students Per Computer (2002)

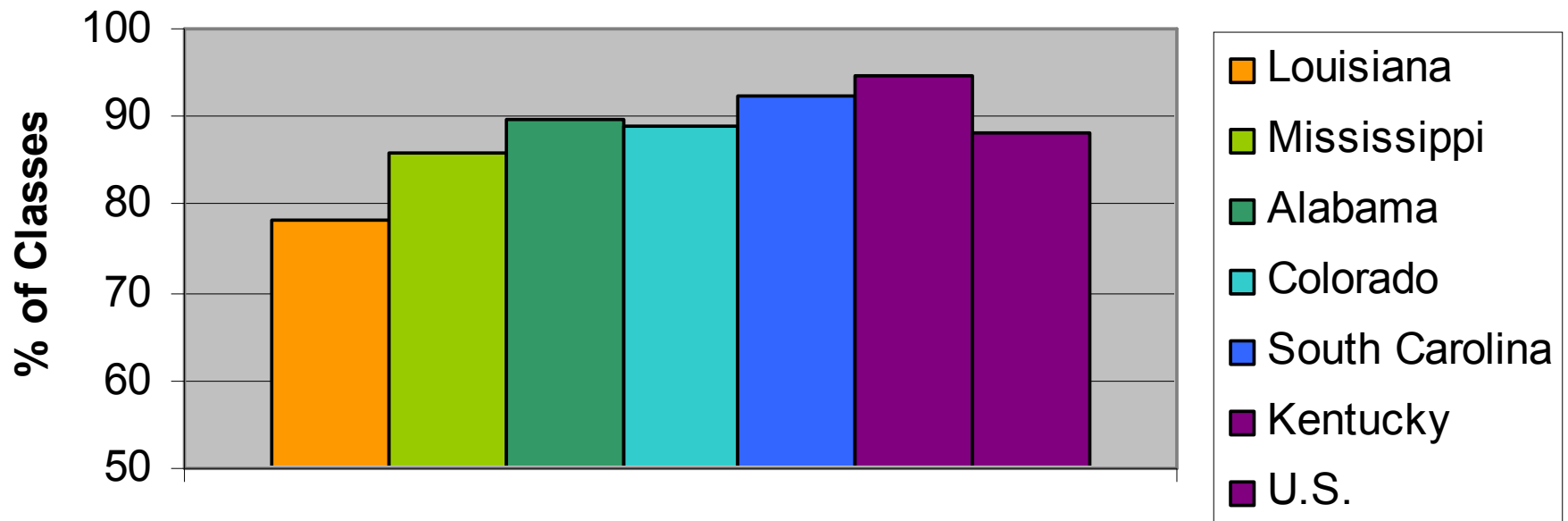
Note: Lower is Better



Source: Education Week Magazine, "Technical Survey 2003"

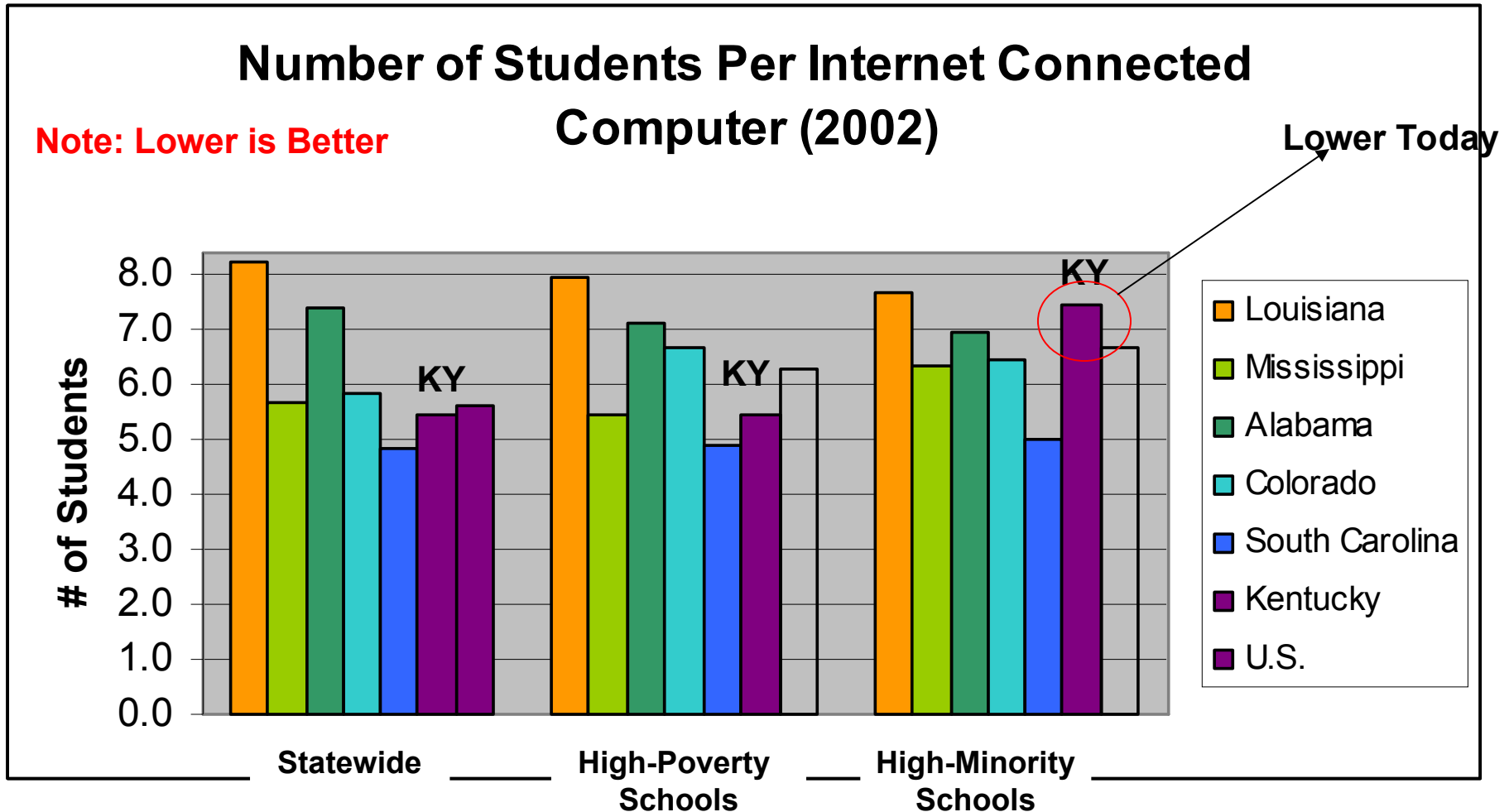
Alignment of KDE Business and IT Direction Findings and Observations

% of Classes with Internet Access (Schools with Internet Access Only)



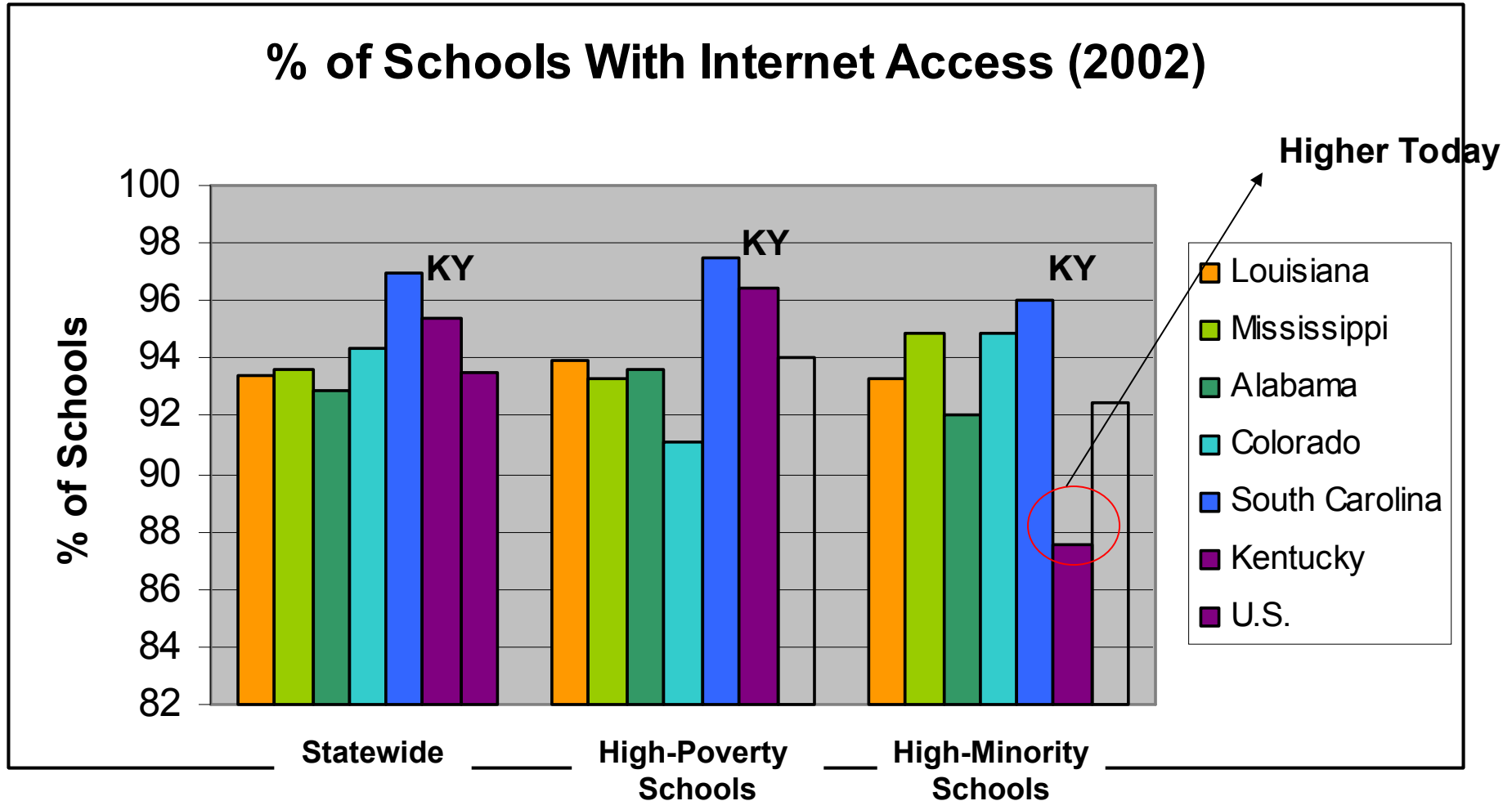
Source: Education Week Magazine, "Technical Survey 2003"

Alignment of KDE Business and IT Direction Findings and Observations



Source: Education Week Magazine, "Technical Survey 2003"

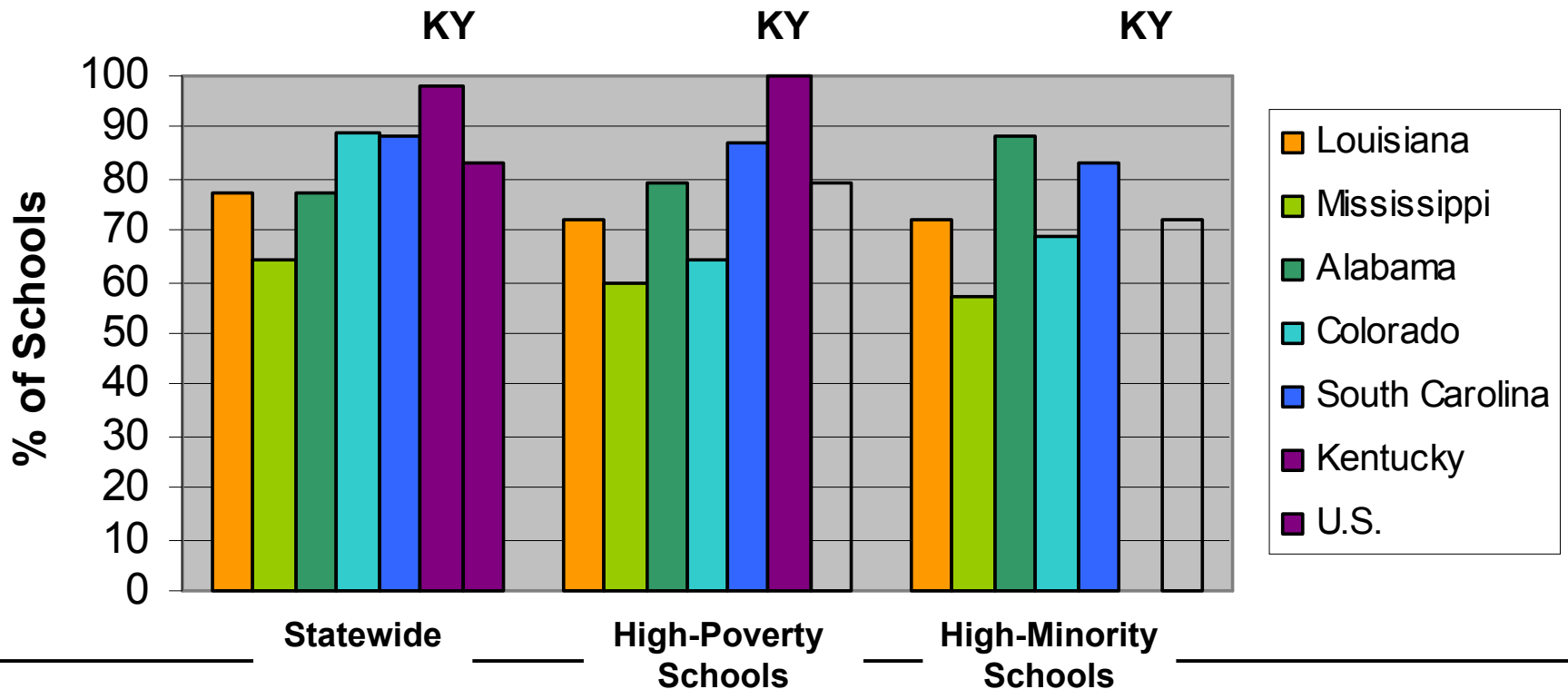
Alignment of KDE Business and IT Direction Findings and Observations



Source: Education Week Magazine, "Technical Survey 2003"

Alignment of KDE Business and IT Direction Findings and Observations

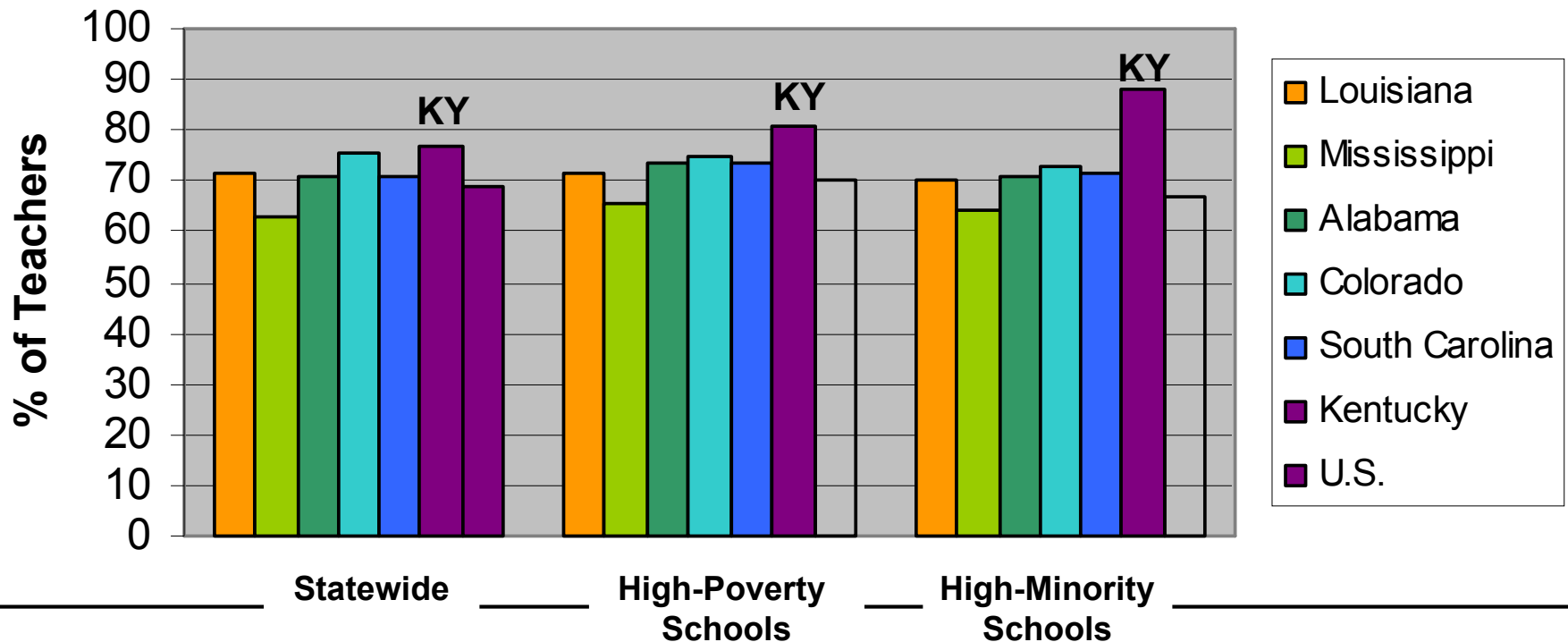
Percent of Schools Where at Least Half the Teachers Have School-Based E-Mail Addresses (2001)



Source: Education Week Magazine, "Technical Survey 2003"

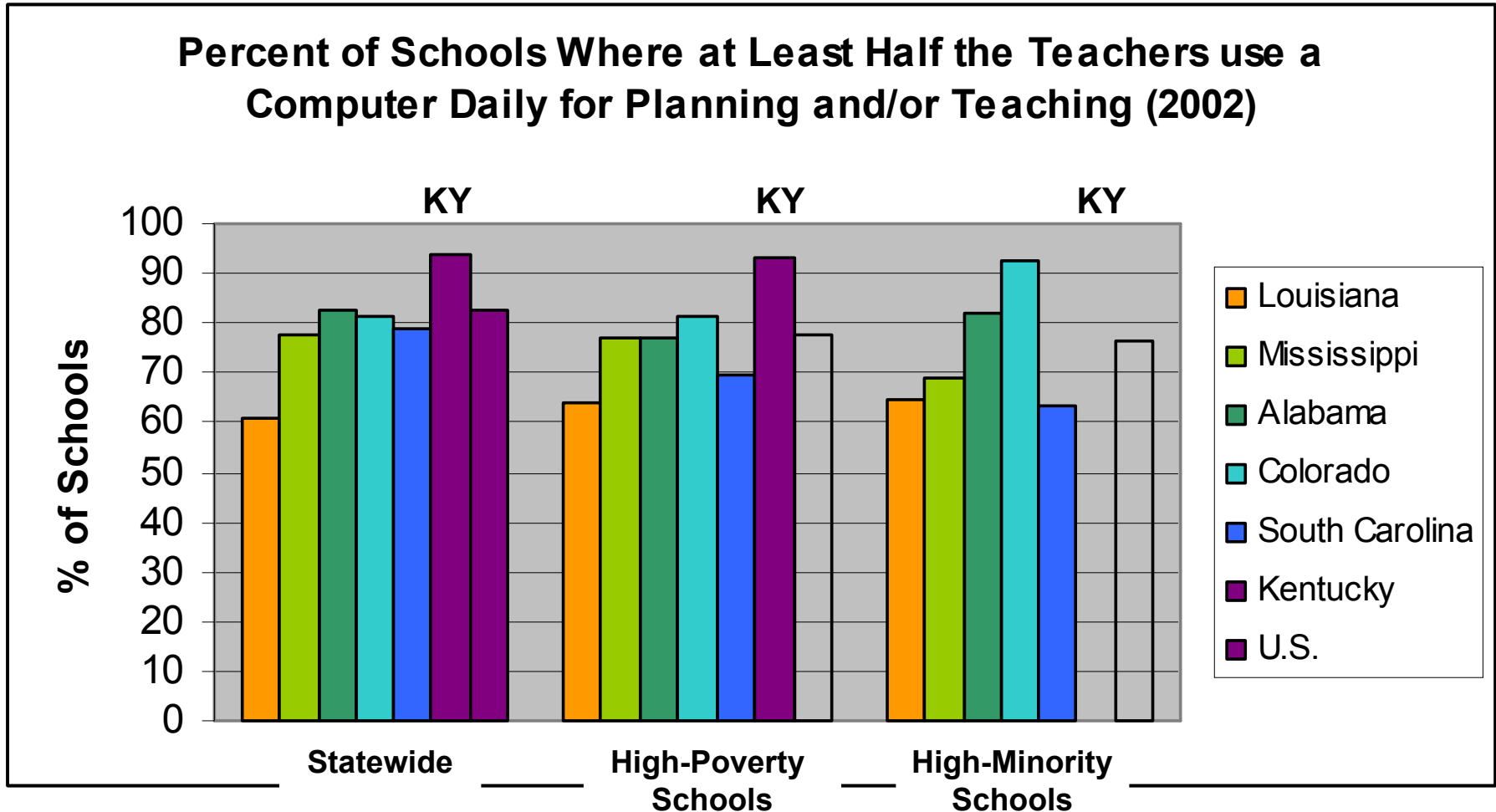
Alignment of KDE Business and IT Direction Findings and Observations

Percent of teachers whose students use computers during class time (2000)



Source: Education Week Magazine, "Technical Survey 2003"

Alignment of KDE Business and IT Direction Findings and Observations



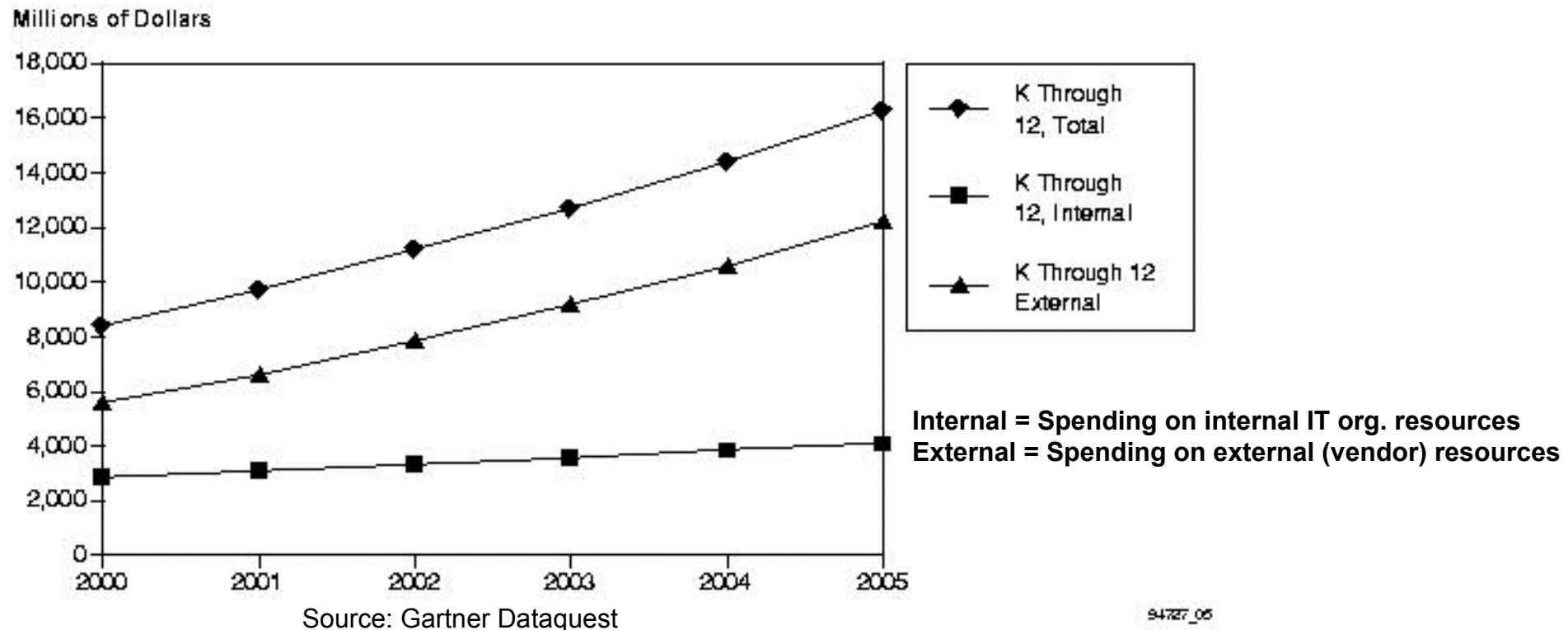
Source: Education Week Magazine, "Technical Survey 2003"

Alignment of KDE Business and IT Direction Recommendations

- **Conduct a Realignment of IT and Business Strategy For the Following**
 - Role of OET in the Definition and Execution of IT Education Policy
 - Role of OET in Provision and Integration of Technology Tools For Learning

Alignment of KDE Business and IT Direction Recommendations

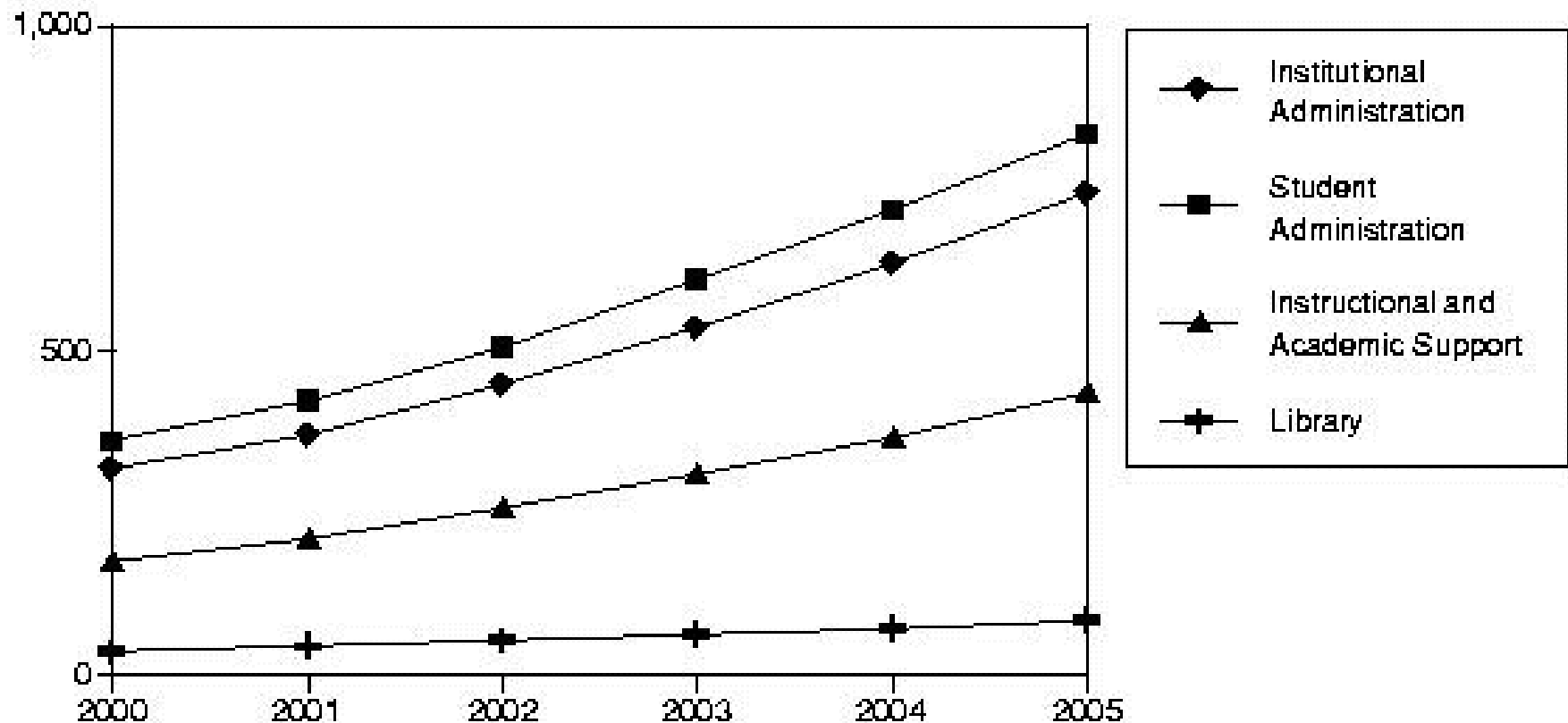
- Continued funding is required to ensure that OET makes its transition from contributing to infrastructure and transactional objectives to providing and strategic business support of KDE and School Districts. This will result in a more efficient and effective IT organization that helps to further the mission of KDE .
- Gartner estimates that IT spending in K-12 in the United States will continue to increase as follows:



Alignment of KDE Business and IT Direction Recommendations

K-12 Education IT Spending by Solutions Area, 2000 Through 2005

Millions of Dollars



94727_17

Source: Gartner Dataquest

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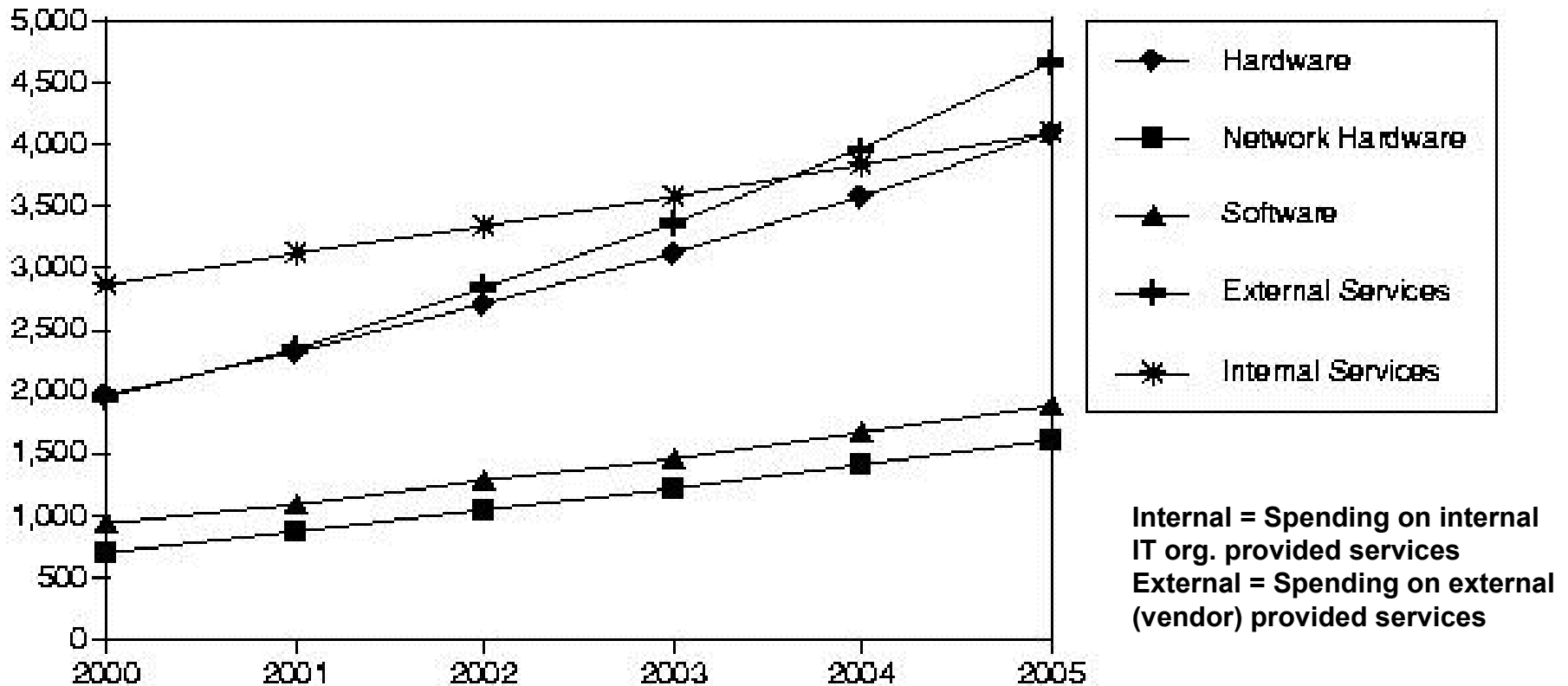
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Alignment of KDE Business and IT Direction Recommendations

K-12 IT Spending by IT Components, 2000 Through 2005

Millions of Dollars



Source: Gartner Dataquest

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Assessment of IT Cost Efficiency

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Assessment of IT Cost Efficiency

There Are Four Alternatives for Achieving IT Cost Savings

Alternative

Actions Needed

Results

1. Deferring Purchases of Hardware and Software

- Not replacing hardware or software as planned by deferring the purchase to future fiscal years.

- Saves expenses in the short term, but may result in higher expenses in the long term

2. Reducing Operational Requirements By Eliminating IT Services

- By reducing the amount of service offered to districts IT support requirements may be marginally lower.

- Will only result in significant short-term IT savings through elimination of significant IT capacity (for example, data center closure).

3. Reducing Cost per Unit of IT Services and Products



- This could occur by re-negotiation of rates or prices for services and products.

- Reduced Cost per Unit of IT services and products only if vendors are willing and able to negotiate

4. Efficiency Improvement of IT Operations



- Through the consolidation or outsourcing of existing resources

- The same level of service can be provided with a more-efficient use of infrastructure and a reduction in the personnel required to support it.






= Opportunities for KDE

Assessment of IT Cost Efficiency

OET Has Been Implementing Cost Saving Best Practices

IT Efficiency Best Practices

- **Developing a Centralized Model for Computing Infrastructure** 
 - Agency units no longer own or operate major portions of their infrastructure.
 - Large-scale computing (mainframes and enterprise servers) are consolidated at the enterprise level (or outsourced) under the CIO or central data center.
- **Consolidate Network Infrastructure and Management** 
 - Done through consolidation of physical networks or contracts with bandwidth suppliers
 - Capacity is used more efficiently and fewer resources are required to support the network
- **Create a Standard Enterprise Architecture** 
 - Develop and enforce IT standards
 - Reduces the complexity and expense running the infrastructure and ensure the enterprise interoperability of applications

What OET Has Accomplished

Consolidated Servers Through Windows 2003 Migration

- Standardizes the state on single server operating system and consolidated server computing infrastructure platform
 - Consolidated 4400 servers to under 400 servers used for Active directory, E-mail and Web Servers.
- No State has accomplished this and savings run in the millions in the long run

Implemented Centralized Active Directory Services

- Active Directory allows enterprises to organize their networks into a single, centrally managed structure, and automates many network management tasks.
- Goal is to improve security, reduce recurring costs and complexity, stabilize backbone services and lay foundation for better collaboration over the network

Developed IT Standards and Enforced By Statute

- Have IT Standards for Desktops, Servers, Printers Network Equipment, Wiring, Etc.
- RS 156.160(1) stipulates that the Kentucky Board of Education has a statutory mandate to prescribe IT standards, which school districts shall meet.

Assessment of IT Cost Efficiency

OET Has Been Implementing Cost Saving Best Practices

IT Efficiency Best Practices

■ Standardize & Centralize Enterprise Applications

- ❑ Common systems for e-mail, financial management, and information management save a great deal of money v.s. fragmented approaches
 - The lack of an enterprise strategy for these types of applications often results in costs that spiral upward

- ❑ Centralizing applications can save significant resources in the long term but not short term

■ Implement the Use of Master IT Contracts

- ❑ Organizations reap considerable savings by consolidating contracts for hardware, software and services.
- ❑ Fewer, larger contracts may generate better pricing and economies of scale.
- ❑ There are many advantages to creating a master contract with pre-qualified vendors able to provide services on demand.
- ❑ These contracts ensure that work gets done in a time-sensitive manner without the need for time-consuming, costly procurement processes

What OET Has Accomplished

Standardized and Centralized Major KDE Agency and District Applications

- ❑ No state has successfully standardized statewide applications for education to the extent of KY
 - Statewide Student Information System (STI)
 - Statewide Financial Management System (MUNIS)
 - Statewide E-mail System (MS Outlook)
- ❑ KDE is potentially saving millions through this strategy

OET has Created Master Vendor Contracts that Districts use for IT Procurement

- ❑ Contracts exist for the following IT components
 - Desktops, Laptops and Printers
 - File Servers
 - Networking Equipment
 - Microsoft Office and Virus Protection Software
- ❑ KDE is potentially saving millions through this strategy

Assessment of IT Cost Efficiency

OET Has Been Implementing Cost Saving Best Practices

IT Efficiency Best Practices

■ Desktop Computing

- Short term savings for desktop computing is largely limited to postponing purchases
- Long term savings from desktop costs can be significant and all enterprises should empower the CIOs to set desktop standards for hardware, software, training and the help desk.
- The enterprise should commit to no more than two or three desktop platforms (one is ideal), one standard for laptops, one office software suite.
- The financial advantages include:
 - **Economies of scale on procurement:** Larger volumes enable great price discounts
 - **Training:** With fewer platforms there are fewer products on which to be trained. More importantly, as people transfer from one part of the organization to another no loss in productivity due to lack of training
 - **Help desk support:** Fewer products to support will reduce the complexity of the help desk environment. It also enables an enterprise help desk consolidation that will provide consistent, universal service to all agencies in the organization

*Source: Education Week Magazine

What OET Has Accomplished



Standard for Procurement of Statewide Education Desktop Computing

- Master contract defined the standards for procuring new computers
- Savings are potentially high



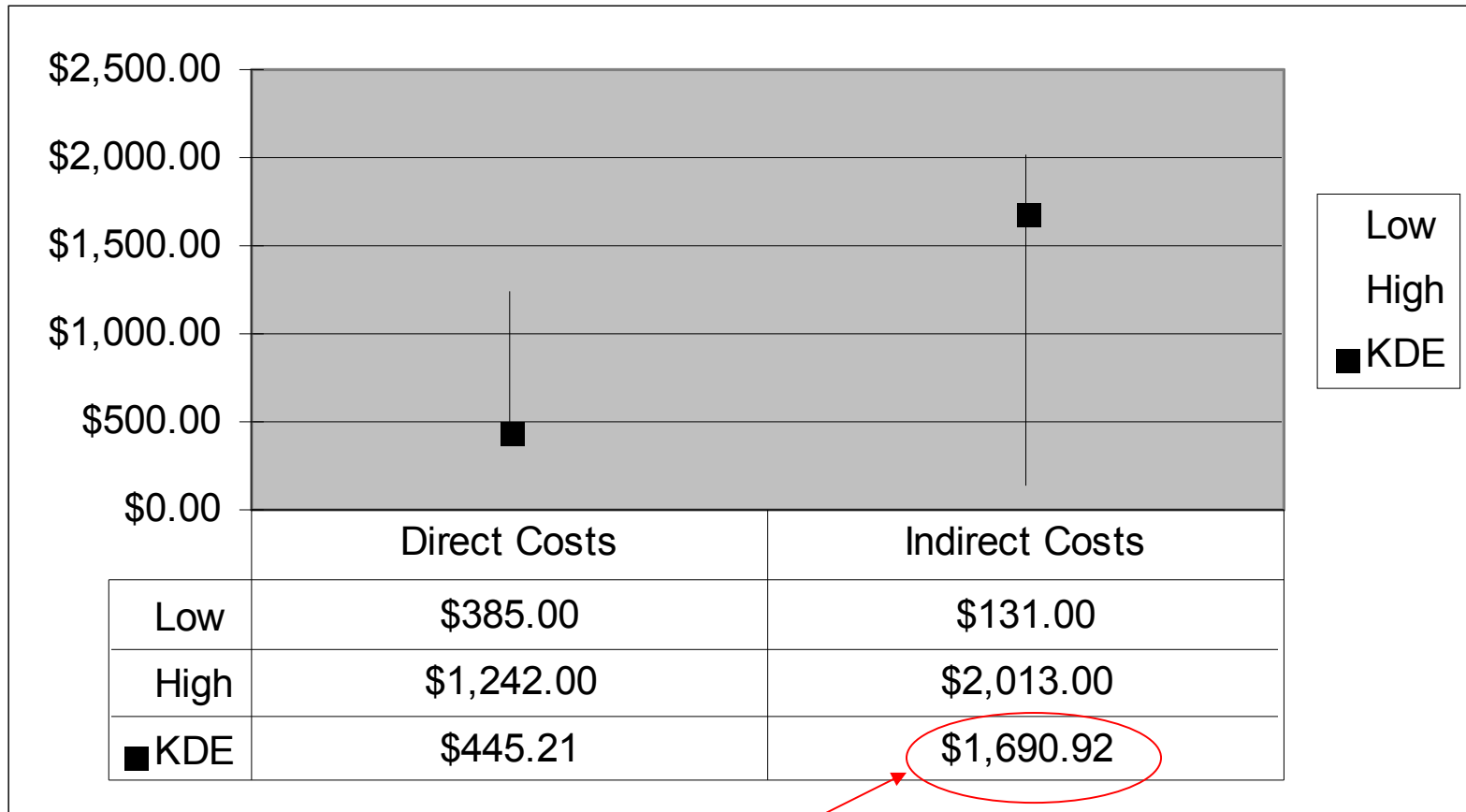
Cost efficiently is currently greatly reduced by having no minimum standards for already deployed desktops and other infrastructure components

- Minimum standards stipulate the minimum configuration of desktops deployed
- With no minimum standard, older outdated desktop hardware and software are allowed to proliferate
- KY has very many versions of computing platforms (Win 3.1, Win 95, 98, Win NT, Win 2000), as a result KY is ranked very low* in the US in terms of the quality of its desktop computing infrastructure
- This has occurred due to a lack of technology refresh and deferred purchases that save on the short term but is inefficient in the long term.

Assessment of IT Cost Efficiency

Total KDE IT Spending Per Device Compared to Peers

- OET's spending is lower on direct IT costs which correspondingly increases indirect costs (soft costs):** Low direct spending on IT means that costs have to be compensated elsewhere resulting in very high indirect IT spending (spending by parties other than OET e.g., schools)

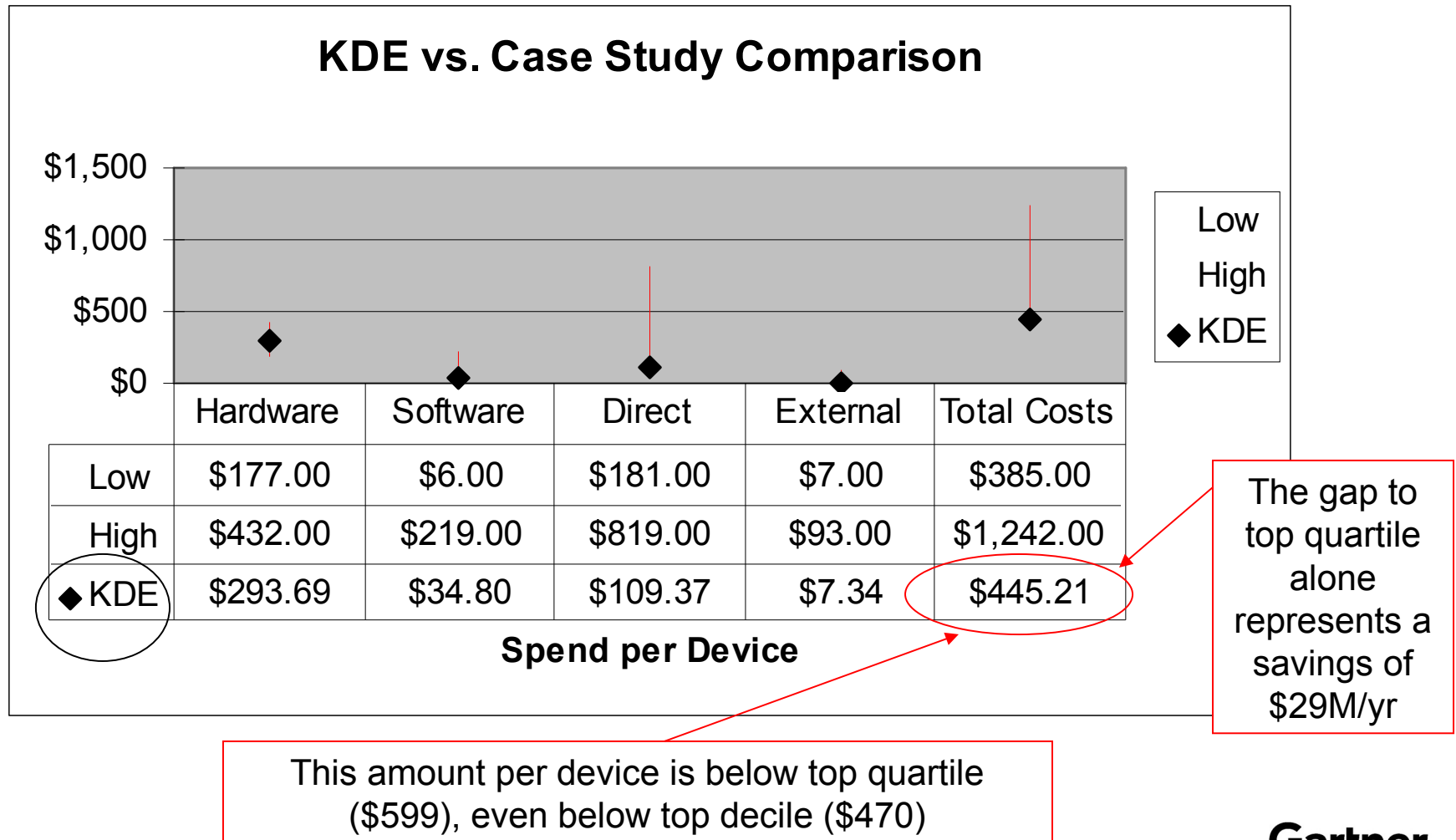


This amount per device translates to \$338M for KDE (total)

Assessment of IT Cost Efficiency

Total KDE IT Spending Compared to Low and High Peers

- KDE's (and OET's) IT spend is lower in all areas of direct spend, especially acute in staffing which is partially due to shared services efficiencies (unusual for K-12) and understaffing (not unusual for K-12)



Assessment of IT Cost Efficiency

Observations: Total Cost by Technical Area

■ OET Continues to Operate at a Higher Efficiency Level than Peer Organizations in Most IT Service Areas

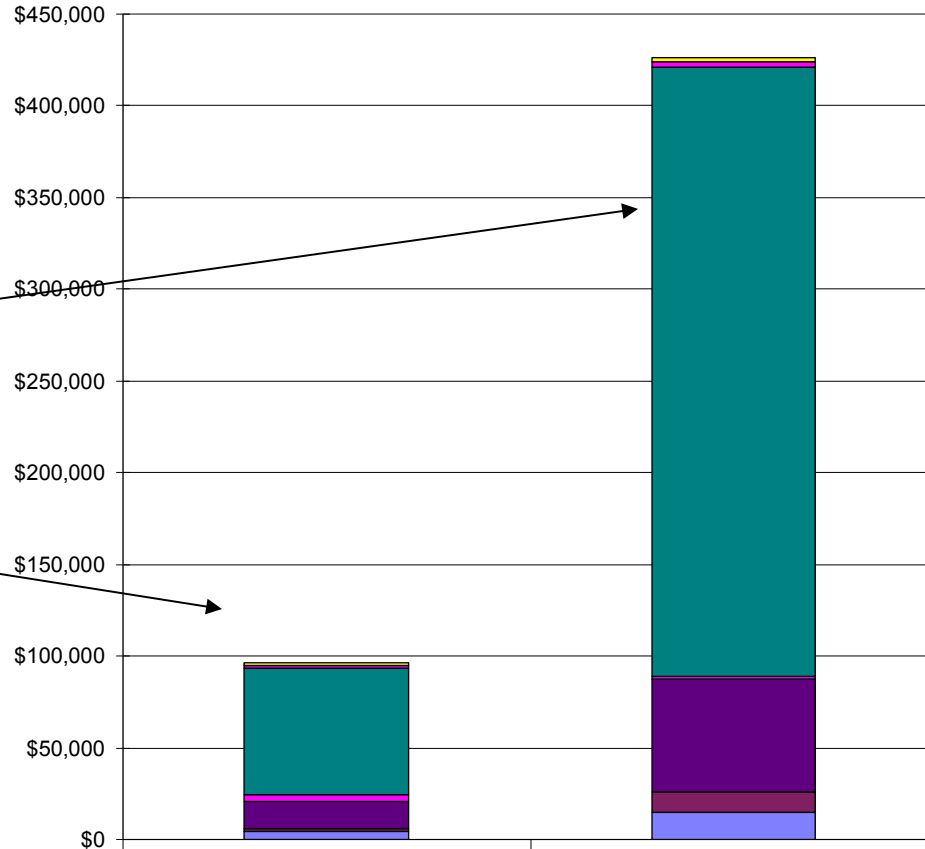
- The aggregate IT Consensus Model cost for KDE for those service areas included in the study (at \$95M versus \$426M) are \$331M (or 78%) lower than what the composite peer group would spend to perform KDE's workload.
- For the services measured, at the summary level, OET outperforms the efficiency of the selected composite peer groups in the following areas:
 - Midrange NT 72%
 - Midrange Unix 85%
 - Distributed 79%*
 - Applications Development 35%
 - Applications Support 40%
 - Wide Area Data 75%
- OET incurs costs that are higher than the selected composite peer groups in the following areas (however beginning July 2004, costs will be similar to peer groups):
 - IT Help Desk 10%

* - normalized to devices not users

Assessment of IT Cost Efficiency

Observations: Total Cost by Technical Area

As mentioned previously, OET's costs are less than one quarter those of the selected peers...



	KDE	PEER
Applications Development	\$1,438	\$2,205
Applications Support	\$1,713	\$2,872
Distributed Computing	\$68,908	\$332,023
IT Help Desk	\$3,311	\$1,939
Wide Area Data	\$14,956	\$61,015
Midrange-UNIX	\$1,712	\$11,096
Midrange-NT	\$4,289	\$15,120

Assessment of IT Cost Efficiency

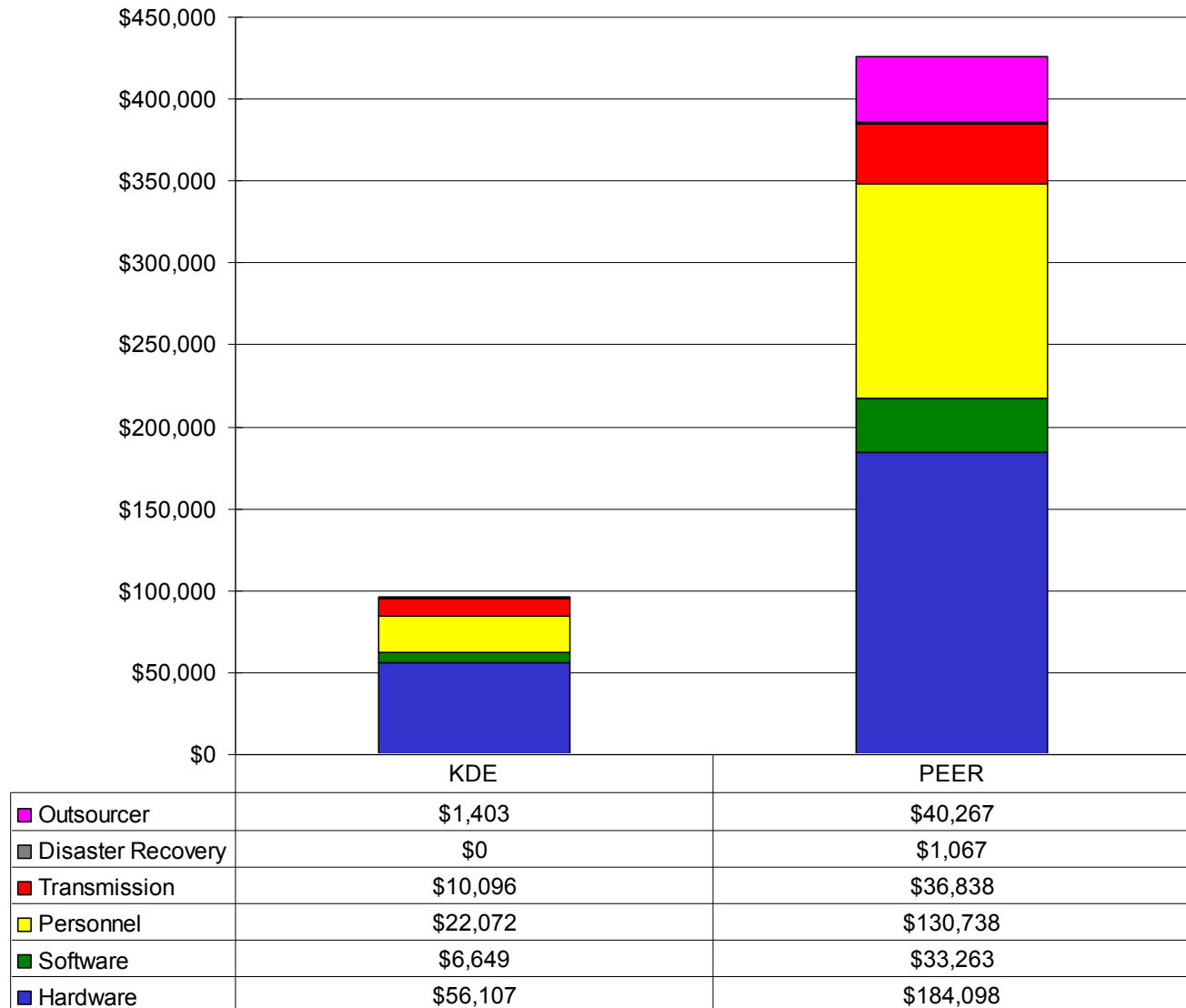
Observations: Total Cost by IS Cost Category

- OET is spending less than the peer groups would need to spend in the following areas:

□ Personnel	70%	
□ Hardware	80%	
□ Software	84%	
□ Outsourcer	97%	
□ Transmission		73%
□ Disaster Recovery	100%	

Assessment of IT Cost Efficiency

Observations: Total Cost by IS Cost Category



Assessment of IT Cost Efficiency

Observations: Total FTEs By Area

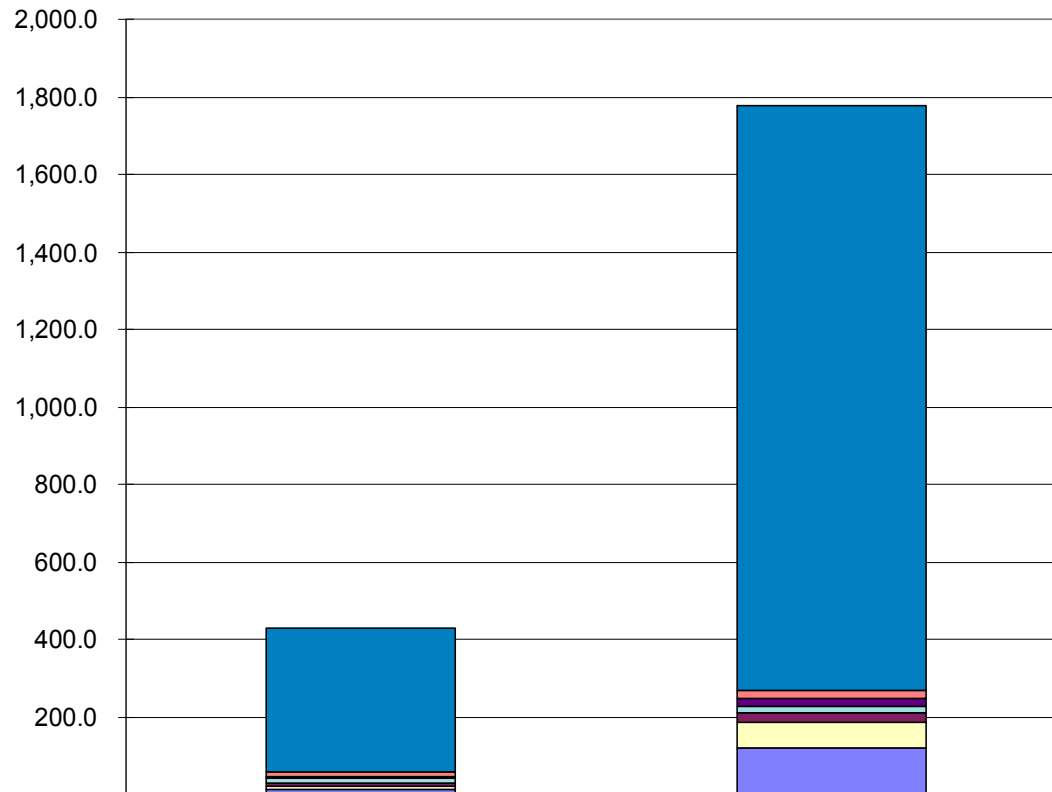
- Total Full Time Equivalent (FTE) personnel within the IT areas measured is 85% lower than Peer Group Full Time Equivalent staff that would be required to support OET's workload.

	OET & School Districts	PEER
□ Total FTEs	429.2	1778.5

- The following functional areas have imputed FTE counts that are higher than what the peer group would need to perform OET's workload:
 - IT Help Desk 10% higher
 - The above analysis is based on Fiscal Year (FY) 03-04 costs of \$595K for the Munis Help Desk. This cost will reduce to \$188K in FY 04-05.
- The cost per staff is similar to that of the peer (+/- 5%)

Assessment of IT Cost Efficiency

Observations: Total FTEs By Area



	KDE	PEER
■ Distributed Computing	371.4	1509.50
■ IT Help Desk	10.8	20.77
■ Applications Support	6.8	20.21
■ Applications Development	12.2	15.91
■ Midrange - UNIX	5.6	27.13
■ Midrange - NT	10.3	66.38
■ Wide Area Data	12.2	118.62

Assessment of IT Cost Efficiency

Recommendations

- **Conduct a Formal Review of all IT Projects Over \$250,000 (or Other Determined Size)**
 - What projects are considered high priority?
 - Are the projects generating business value, or have business requirements changed?
 - Considering tangible deliverables and resources consumed, is the project worth continuing?
 - What are the short and long term impacts of aggressively canceling or putting projects on hold?
- **Continue Infrastructure Consolidation**
 - Continue efforts to consolidate and centralize base level utility elements of the IT infrastructure that can be provided more efficiently through centralization and shared services
 - Formalize an enterprise IT architecture in order to reduce and develop an IT Infrastructure Refresh Strategy
- **Further Develop an IT Sourcing Strategy for Shared Services**



Assessment of IT Operational Effectiveness

- IT Governance
- IT Program Management
- IT Service Delivery Model
- IT Investment Management
- IT Vendor Management



IT Governance

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IT Governance

What is IT Governance?

- **IT governance involves decision-making authority and accountability mechanisms within an organization that encourage the best management of IT**
- **The categories of governance include:**
 - IT Decision Domains: (“What” IT decisions need to made)
 - Decision Authority: (“Who” has decision right and input rights?)
 - Structures and Processes (“How” are decisions made)
- **IT governance provides a framework in which the decisions made about IT issues are aligned with the overall business strategy and culture of the enterprise.**
- **Governance is about decision making not about how the actions resulting from decisions are executed.**
 - Governance is concerned with setting directions, establishing standards and principles, and prioritizing investments

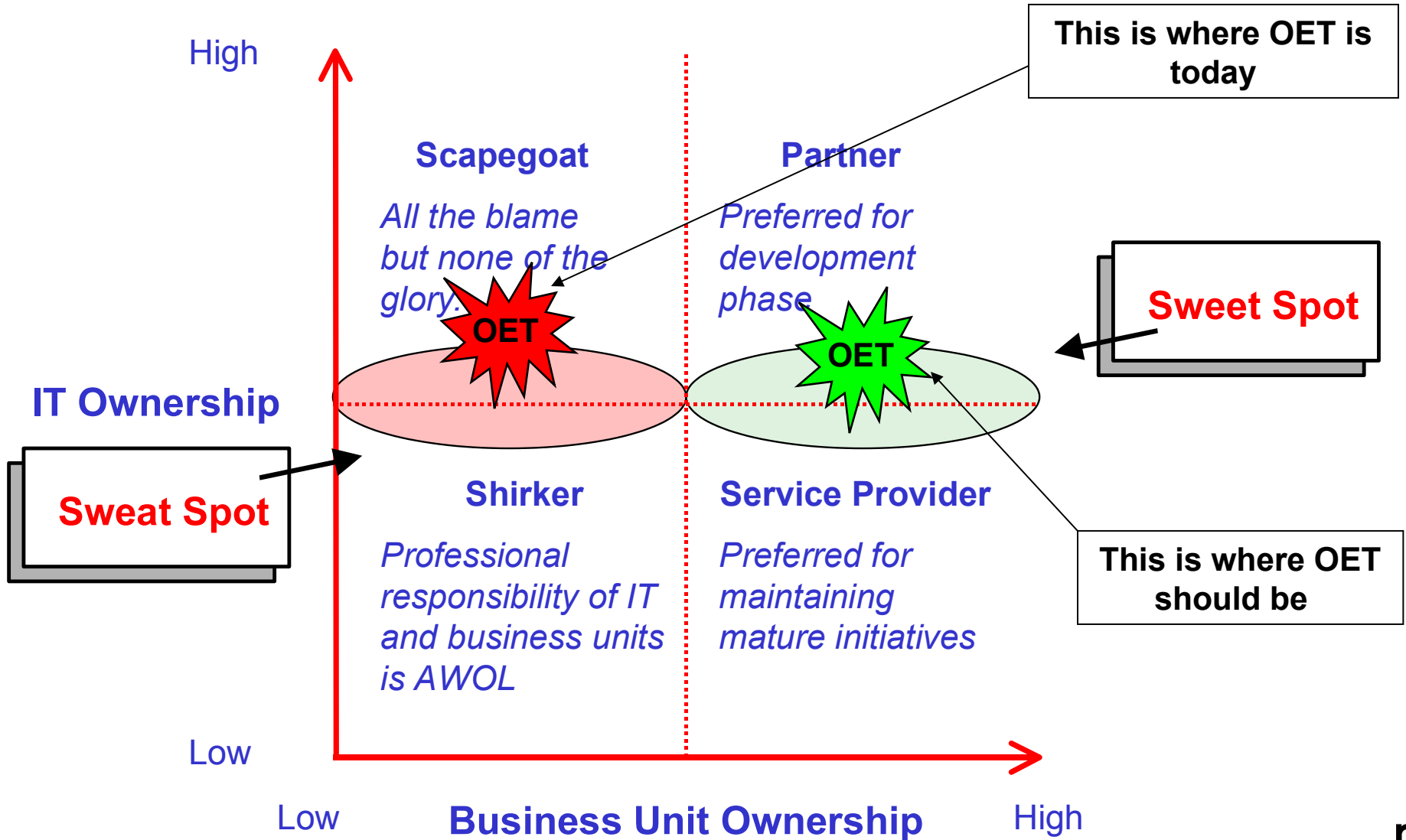
IT Governance

Findings and Observations

- **As is typical of maturing IT organizations, OET has varying levels of credibility with its key customers and stakeholders**
 - OET can be Assessed as a Three-tiered IT Service Organization:
 - **Tier 1:** A shared service organization providing shared IT services to school districts.
 - **Tier 2:** A centralized IT organization providing services to the KDE agency
 - **Tier 3:** A policy organization responsible for setting and monitoring educational technology policy for the State of Kentucky.
 - Credibility (ability to meet stakeholder expectations) is higher where more resources and management attention has been provided.
 - OET credibility is higher with school district stakeholders
 - OET credibility is lower with KDE agency stakeholders
 - OET credibility with IT education policy stakeholders is unclear
 - The roles and responsibilities of OET in managing these three areas do not meet stakeholder expectations, i.e. attention is given to some areas while other areas are potentially overlooked.
 - For the most part, responsibility for IT governance and IT projects has shifted to OET, with limited KDE agency business unit participation.
 - IT governance mechanisms do not ensure KDE agency business owner accountability for IT projects.

IT Governance Findings and Observations

Why Does OET have Lower Credibility With KDE Business Units?



IT Governance Recommendations

1. Institute an Well Defined IT Governance Structure

- Bridge Gap Between KDE Business and IT Management and Operations
 - A formal IT governance structure will provide the process and appropriate forums where KDE business and IT functions can work together and where consistent interaction and communications can occur
- Increase the Ownership of IT by KDE Business Units/Owners
 - An IT governance structure will encourage more business ownership of IT projects by shifting the accountability for IT projects away from OET to the KDE business units
- Develop Clearly Distinguishable IT Governance Structure and Processes that Adequately Address, Strategic, Operational and Technical Levels of IT Governance
- Align Decision Rights and Input Rights of IT Stakeholders to be More Effective
 - Input and decision rights should be established in a more federated manner, i.e., more involvement from stakeholders from KDE business units and school districts in IT decision making process.
 - The near-term strategy for IT governance structure should ensure that agency business leaders have the proper mechanisms to provide input in IT development and strategic directions
 - These input rights communicate the enterprisewide priorities for IT that must be deployed by the central OET organization. Building business involvement is important since it provides insights into required improvements for broader application of centralized and enterprise-wide IT services
 - Research suggests that decision rights should remain focused, rather than distributed, to concentrate on the service quality improvements required to support the organization

IT Governance Recommendations

2. Develop a Formal and Regular Communications Process with School Districts

- The use of KETS engineers as business relationship managers greatly enhances communication
- Other regular communication mechanisms such as e-mail bulletins and newsletters would enhance the communication of general IT matters that affect all stakeholders and keep them informed of the status IT initiatives and directions.
 - These communications also foster a greater sense of working within a shared services community in which the interests of the school districts and the KDE agency are seen to be tied together

3. Develop a Robust IT Project Governance Structure

- KDE should develop an IT project governance structure that assigns appropriate governance rigor to each IT projects based on predefined criteria
- Each major project should have direct accountability to its stakeholders through a steering committee with well-defined decision rights and escalation procedures.
 - E.g., all projects over XX dollars should have a project steering committee that monitors project progress on a monthly basis. Key measurements include earned value, schedule, budget and scope conformance

IT Governance: Recommendations

High Performers Deploy Formal Communications

- **Top Communication Methods in Order of Effectiveness***
 - Senior management announcements
 - Formal committees
 - Office of CIO and/or IT governance
 - Working with managers who don't follow rules
 - Documented processes
 - Portals/Intranets
- **Informal meetings with colleagues were much less effective**
- **The strongest predictor of successful governance was found to be the percentage of senior managers who can accurately describe their enterprise IT governance arrangements**

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*Statistically significant relationship to governance performance

IT Governance: Recommendations

Three Critical Components of KDE IT Governance Structure

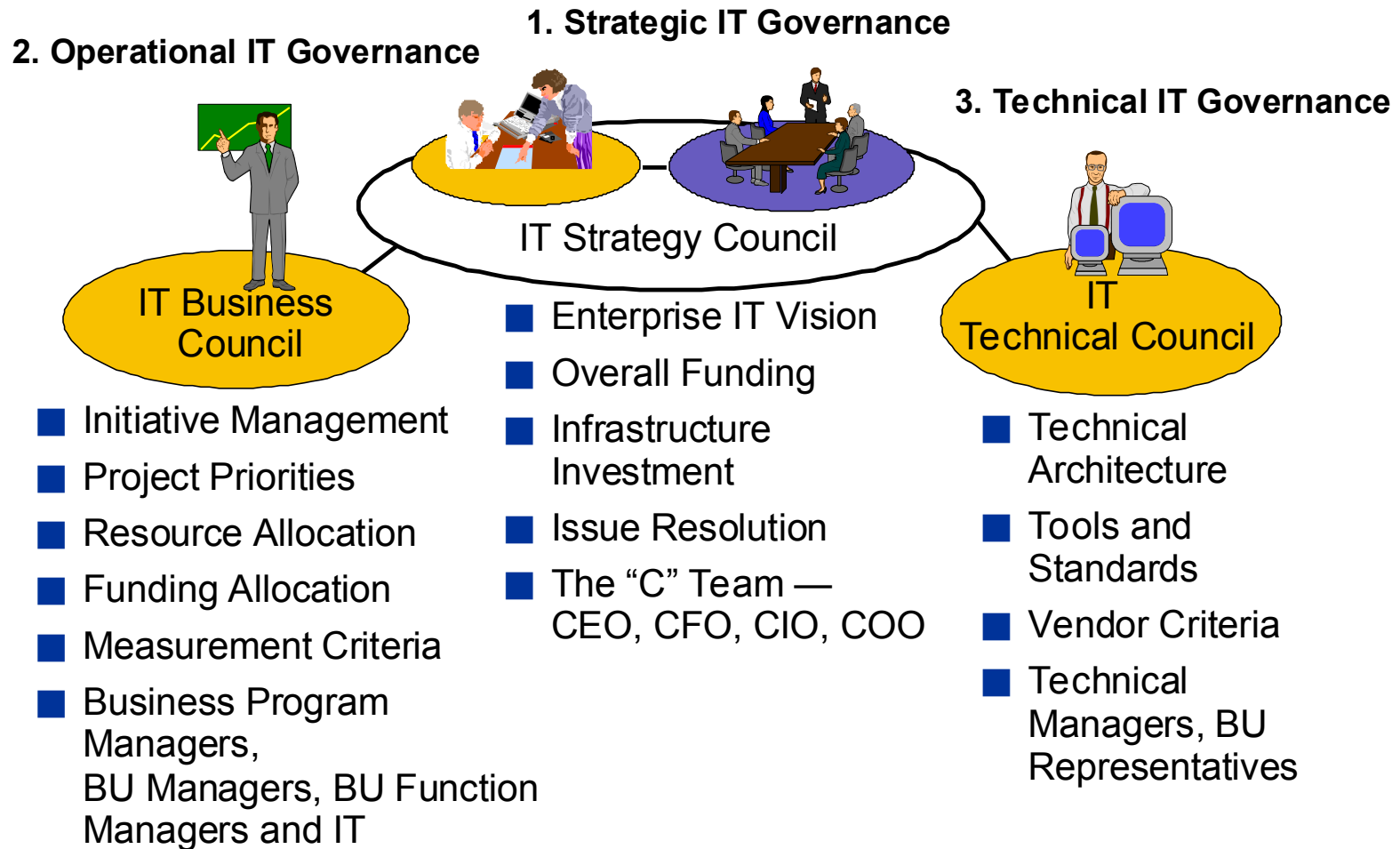
IT Governance Must Cover Three Critical Areas in Order to Be Successful:

- 1. Strategic IT Governance:** Consists of an executive strategy group comprised of the enterprise's chief officers whose role is to articulate business objectives in an actionable way and to enforce the enterprise IT architecture and strategic directions
 - This council looks at strategy and policy, prioritizes initiatives, and aggregates/vets funding issues at the enterprise level
- 2. Operational IT Governance:** Consists of a business focused group comprised of senior business unit leaders and the CIO with portfolio management responsibilities. This group recommends priorities, oversees projects, and measures success across business units
 - Its role is to establish the portfolio of projects that are most likely to support business strategy, to determine how IT resources will be allocated across those projects, to ensure projects comply with their stated business case and to reconcile competing demands for IS resources
- 3. Technical Governance:** Consists of a technically focused group that develops guidelines and principles for technology standards and practices
 - It is comprised of the CIO, the enterprise architecture team and the team's advisors. Its purpose is to design and maintain a robust IT architecture that explicitly enables business strategy.

IT Governance: Recommendations

Three Critical Components of KDE IT Governance Structure

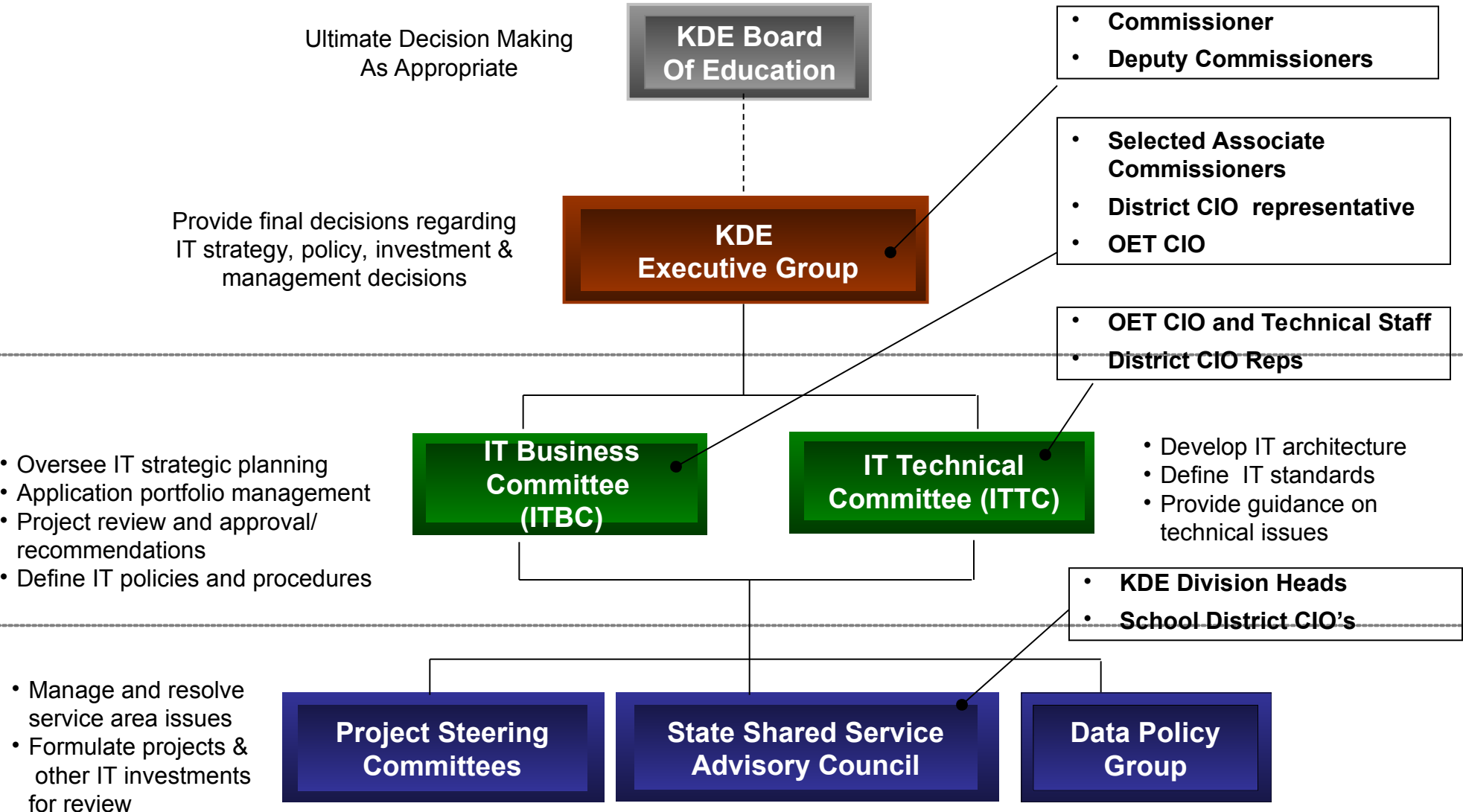
- Illustrated below is a best practice IT governance framework.



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IT Governance: Recommendations

Possible KDE IT Governance Structure



IT Governance: Recommendations

IT Governance Committees Charter, Scope & Membership

KDE Executive Group

- **Goal:** Ensure the alignment and integration of IT strategies with KDE business objectives, and provide adequate funding and commitment to enterprise-wide IT initiatives and infrastructure.
- **Role:** Strategic decision-making and advisory to Board of Education
- **Scope:**
 - Define KDE enterprise IT strategic vision
 - Oversee comprehensive IT program to support KDE business strategies
 - Oversee System-wide IT investments
 - Final approval of IT standards, policies, and procedures
 - Final review and recommendation on major IT projects and investments for Shared Services
 - Resolve escalated IT issues
- **Membership:**
 - Commissioner
 - Two Deputy Commissioners

IT Business Committee (ITBC)

- **Goal:** Ensure IT initiatives are business-driven and that planned IT changes are successfully implemented within the business. Ensure that resource and priority conflicts are resolved with minimum business disruption.
- **Role:** Decision-making and advisory to KDE Executive Group
- **Scope:**
 - Oversee detailed IT strategic planning and implementation
 - Oversee KDE IT asset portfolio
 - Recommend **ALL** IT projects and initiatives for approval through a business case process
 - Oversee the implementation of approved initiatives -- assign to project steering committees the management of individual projects (including implementation of bundled smaller changes and enhancements).
- **Membership:**
 - Selected Associate Commissioners, including OET CIO
 - Selected District CIO

IT Governance: Recommendations

IT Governance Committees Charter, Scope & Membership

IT Technical Committee (ITTC)

- **Goal:** Ensure technical interoperability among all KY education system organization areas including admin, student and third-party vendor environments to support shared IT services such as sharing of data and transactional capabilities and the efficient operation of cross-functional and cross-organizational business processes.
- **Role:** Decision-making and input to KDE Executive Group
- **Scope:**
 - Oversee the implementation of a Technical Architecture
 - Define and ensure compliance with technical standards, policies & procedures
 - Serve as a resource for technology review and provide technical input/support for other governance bodies, IT programs & projects
- **Membership:**
 - OET CIO and selected technical staff
 - School CIOs and selected technical staff

Shared Services Advisory Council (SSAC)

- **Goal:** Provide a forum for information sharing, communications, including discussion/resolution of pertinent **shared service** issues and needs that impact, or are impacted by, IT initiatives and existing systems.
 - Ensure that IT strategic, technical, and operational issues pertinent to shared services are resolved and that KDE agency school districts are able to provide input on strategic and operational IT priorities and decisions.
- **Role:** Input and recommendations to IT Business and Technical Committees
- **Scope:**
 - Resolve enterprise-wide, strategic and operational shared service issues
 - Provide relevant input for the prioritization and allocation of resources for shared service strategic and operational activities
- **Membership:**
 - KDE Agency Representative
 - School District Representatives

IT Governance: Recommendations

IT Governance Committees Charter, Scope & Membership

Project Steering Committees

- **Goal:** Ensure direct accountability and responsibility for the success of specific IT projects by business and IT stakeholders
- **Role:** Provide direct oversight over each IT project that meets certain predefined criteria (e.g., over \$250,000)
- **Scope:**
 - Review project status and issues presented by the project manager to the committee
 - Provide decision-making on critical project issues as they pertain to project scope, schedule, budget, methodology and resources
 - Review and ensure project documentation is complete and communicated, for example, project charter, project schedule, project budget, requirements, testing, and others.
- **Membership:**
 - Chaired by the project's business sponsor
 - Key management level business & technical project stakeholders
 - OET's PMO Representative

Data Policy Group

- **Goal:** Provide a forum for information sharing, communications, including discussion/resolution of pertinent data policy issues and needs that impact, or are impacted by IT initiatives and existing systems.
- **Role:** Input and recommendations to IT Business and Technical Committees
- **Scope:**
 - Set data policy standards
 - Resolve enterprise-wide, strategic and operational data policy issues
- **Membership:**
 - KDE Agency Representatives
 - School District Representatives

IT Governance

Critical Success Factors For Implementation

1. Actively Design IT Governance

- ❑ KDE's IT governance must be thoughtfully and actively designed. Executive management must be involved for it to be effective.

2. Build in Transparency

- ❑ Ensure all IT issues are resolved within the IT governance framework. Without transparency, there is not trust. Transparency must be built into IT governance so that there is confidence in the processes.

3. Know When to Redesign

- ❑ KDE should acknowledge that changing IT governance can take many months. KDE should make changes to its new governance structure only when desirable behaviors change markedly.

4. Educate KDE and School District Managers About why Governance is Important

- ❑ This is a constant challenge and requirement, good behaviors must be reinforced and inappropriate behaviors redirected.

5. Initially Focus on a Small Number of Goals, Behaviors, and Metrics

- ❑ A sharp focus on a limited number of goals, behaviors and metrics is necessary for implementation success.

6. Have Clear Exception Handling Processes

- ❑ There must be clear exception handling processes, with transparent and rapid escalation processes. Exceptions are how enterprises learn.



IT Program Management

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IT Program Management

Findings and Observations

- **OET has been successful in completing complex IT infrastructure projects as evidenced by its implementation of a shared service infrastructure for networks and hardware.**
- **IT is viewed as leading rather than supporting “IT projects” which are in effect business transformation projects.**
 - Projects that involve extensive interactions between business and IT resources are currently viewed as less successful
 - Key project management processes that are in need of further development are those that fully integrate the role of business stakeholders into IT project management and governance.
- **As OET has transitioned from an infrastructure development organization into a shared IT service organization there has been increased competition for resources to support ongoing services as opposed to working on large one time projects.**
- **KDE has not yet fully developed an established set of consistent methods, processes and skills that internalize project management throughout the organization.**
- **Improvement in communication is universally cited as one key area for improvement for OET.**

IT Program Management

Findings and Observations

■ Preliminary Project Management Findings

- **Business Sponsorship Process:** Not every project has a clear KDE business sponsor who is directly accountable for a project and who is fully aware of the status of the project in respect to scope, budget and schedule.
- **Business Case/Project Justification Process:** KDE lacks an enterprise level step by step justification of IT projects that involves business and IT stakeholders that begins at project inception and ends with final scope, schedule and budget approval.
- **Project Oversight Process:** There is no clear definition of the process and people (e.g., steering committees) used to oversee KDE projects, release funds and make the "go and no-go" decisions throughout the life cycle of a project.
- **Project Planning Process:** While there are some project planning documents, KDE projects generally do not have a detailed project plan built around a formal methodology that covers project initiation, planning, execution and close down.
- **Risk Assessment Process:** Some of the major projects, e.g., Max and School Nutrition, have encountered challenges associated with project size involving availability of time and resources, business requirements, capabilities and skills, and technologies.
- **Project Phasing and Checkpoints:** There is no clear evaluation of all projects at predetermined "checkpoints" throughout the life of the project by key business and IT stakeholders to ensure the business case still exists and to review the progress and risks.

IT Program Management: Recommendations

■ Develop a Program Management Office (PMO)

- A Program Management Office (PMO) is a shared competency designed to integrate project management practices within an organization.
- A PMO can be a key resource in establishing an organizational competency in project analysis, design, management and review.
- Given the appropriate governance, a PMO accomplishes the following:
 - Establishes an enterprise standard for project management.
 - Improve communication and the leveraging of resources within the organization.
 - Helps reduce the rate of failed IT development projects
- The PMO is the center of project management best practices within the organization.

■ PMO Supports the IT Governance Structure

- Separating the PMO from the IT governance structure ensures that issues like investment prioritization, ranking of IT projects, and resource allocation can be conducted outside of the structured operational management and delivery of IT projects

■ PMO Should be Organized within OET

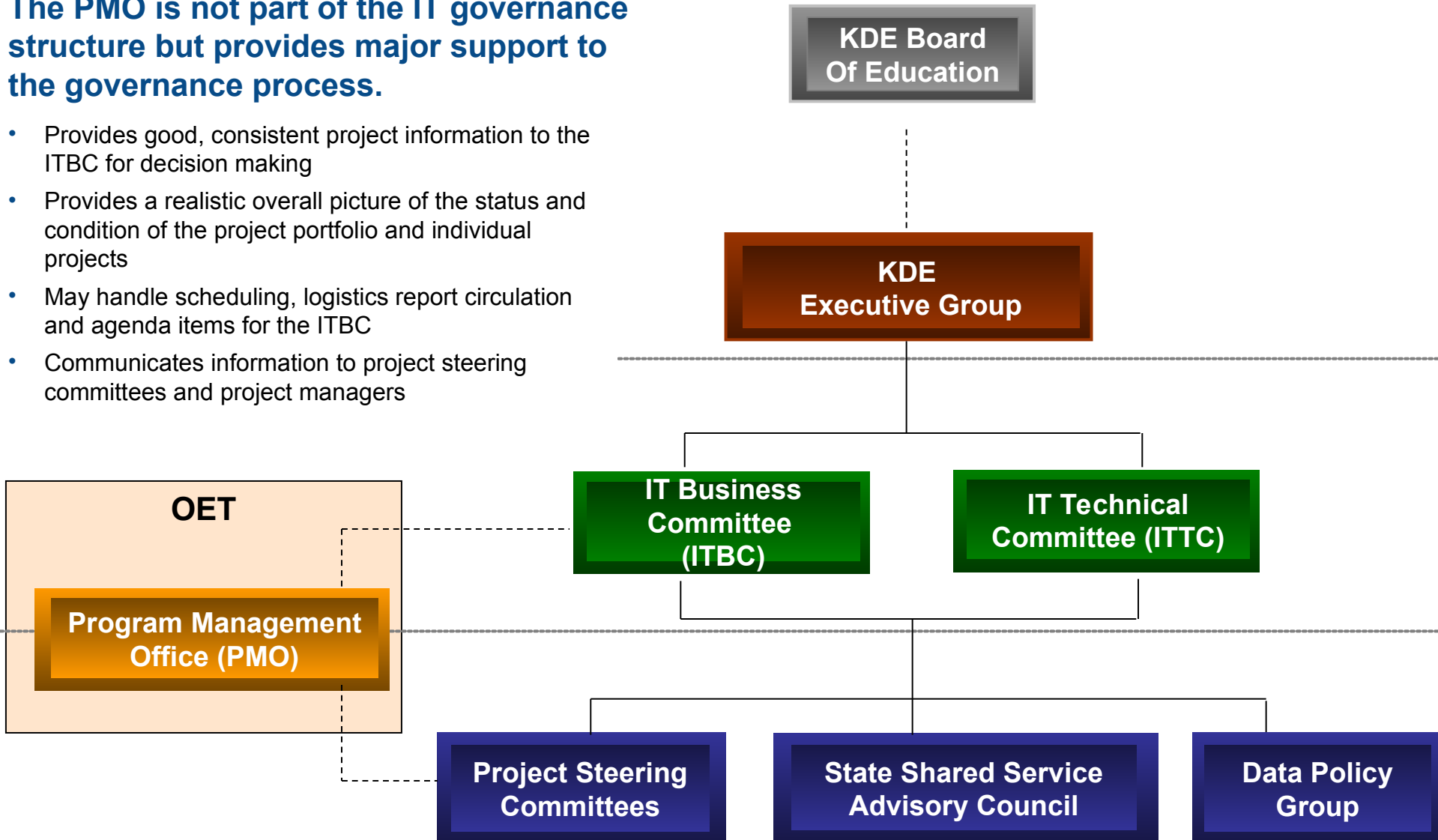
- A project office is usually “housed” within a specific functional/organizational area to ensure sufficient executive authority to manage IT projects. In this case it is recommended that the PMO reside within the OET structure.

IT Program Management: Recommendations

Role of PMO in the IT Governance Structure

The PMO is not part of the IT governance structure but provides major support to the governance process.

- Provides good, consistent project information to the ITBC for decision making
- Provides a realistic overall picture of the status and condition of the project portfolio and individual projects
- May handle scheduling, logistics report circulation and agenda items for the ITBC
- Communicates information to project steering committees and project managers



IT Program Management: Recommendations

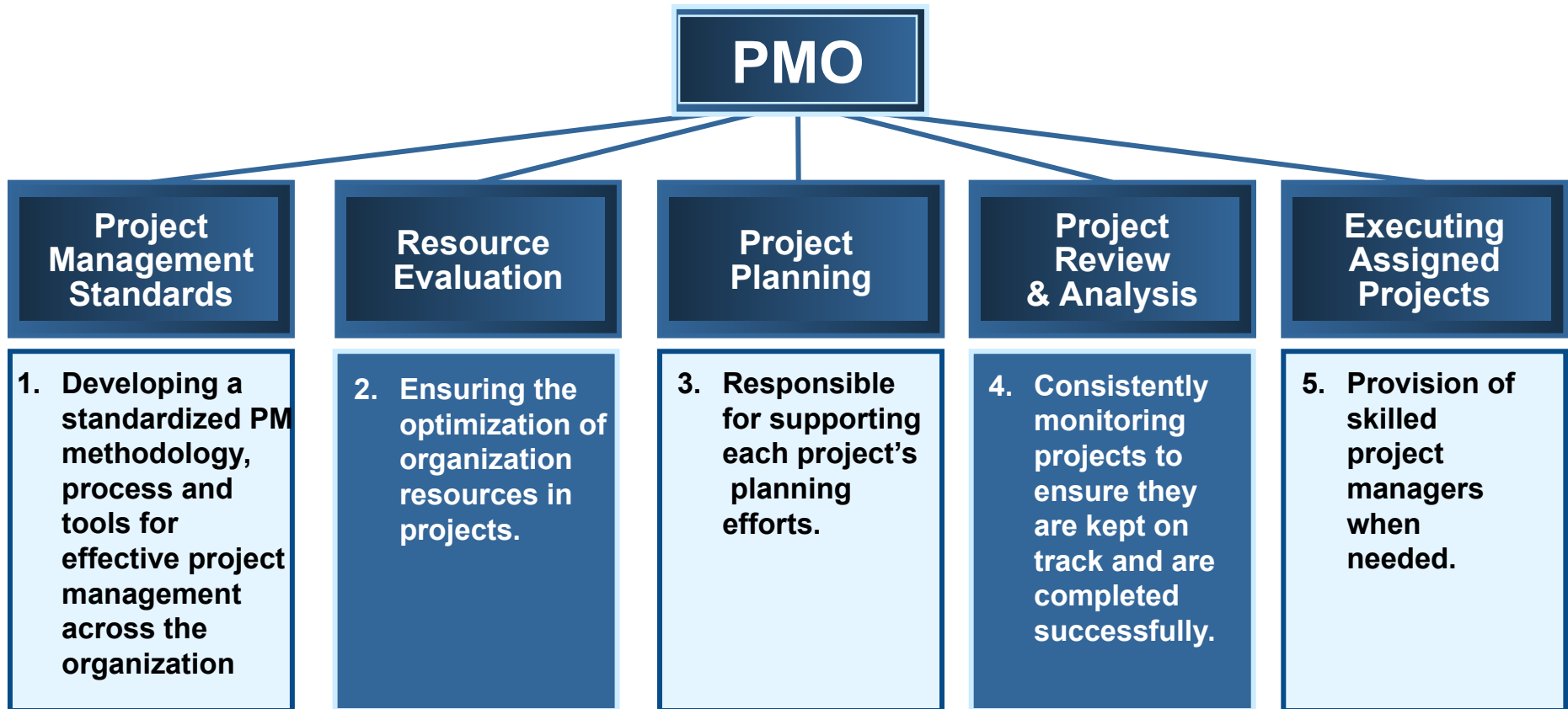
Role of PMO in the IT Governance Structure

- **The PMO Provides Key Support and Coordination for the IT Governance Structure**
 - Coordination and cooperation between a governance board and the project office should be established so that the KDE can more easily make rapid adjustments to the project portfolio based on project information provided by the PMO
- **Key IT Governance Support Roles of the PMO Include:**
 - Handle project portfolio status report circulation and contribute to agenda items, as appropriate
 - An effective project office should prepare support data, analysis and alternative recommendations for the various governing committees
 - Without the coordination by the PMO, a governance board comprising executive management will often find monthly meetings to be too long, ill-prepared and unproductive
 - The PMO may administer (not decide upon) the IT project request process
 - Provides the business case template to the business managers proposing projects, and coordinates the gathering of important prioritization information concerning business goals, customer impact, competitive drivers, initial cost/benefit analysis etc.

IT Program Management: Recommendations

Key Roles of the PMO

- The Five Key Roles of the PMO are:



The PMO is the “Axis” of Project Management in the Organization

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IT Service Delivery: Recommendation

What's a Service? Five Core Types

Infrastructure Architecture

Mission and Value:

Fuel efficiency, collaboration and innovation across organizational, geographical and technical boundaries

Sample Services:

Workspace Design & Installation, Supply Chain/CRM Integration

Strategic Sourcing and Relationship Management

Mission and Value:

Fulfill, measure and continuously improve business processes

Sample Services:

Legislative Lobbying, ESP/Vendor Brokering, Union Dispute Arbitration

Specialty Services

Asset Portfolio Management

Mission and Value:

Acquire, maintain, enhance, leverage, protect and dispose of assets

Sample Services:

Patent Filing & Litigation, PC Procurement & Disposal, Real Estate Leasing & Right of Way Management, Worker Retention

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Mission and Value:

Drive enterprise efficiency, innovation, acceleration

Sample Services:

Project Auditing, Organizational Change, Process Re-engineering

IT Service Delivery

The Shared Services Organization (SSO) Transformation



From Uncertainty
to Respect



Stage 5: Stabilize Structure

- Design Service-/Process-Based Org.
- Implement Value Pricing and Funding

Stage 4: Use Automated Tools

- Automate Processes
- Implement Self-Service

Stage 3: Develop Relationships

- Map Competencies to Processes
- Establish Governance, SLAs and Relationship Mgmt.
- Segment Customers

Stage 2: Develop New Processes

- Map to Services
- Design and Measure
- Continuously improve

Stage 1: Define Services

- Define Value-Based Service Portfolio
- Determine Competitive Position

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From Internal
Technical Focus to
External Customer
Focus

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IT Investment Management: Recommendation Project Portfolio Management (PPM) Steps

- PPM is a 5-step Process for Prioritizing and Managing Initiatives
- Process is not Sequential, but has Feedback Loops



IT Investment Management: Recommendation

Step 1: Define Investments in Comprehensive, Uniform Format



1. PRELIMINARY PROPOSAL or PROJECT CONCEPT

1. Project name/description
2. Business need/objectives
3. Project sponsor
4. Rough cost estimates
5. Rough benefits estimates
6. Fit with business/IT strategies

2. BUSINESS CASE

1. Project name/description
2. Business need/objectives
3. Project sponsor
4. Alternatives
5. Assumptions
6. Cost estimates
7. Benefits estimates
8. Fit with business/IT strategies
9. Implementation strategy
10. Infrastructure requirements
11. Risk factors
12. Project schedule



Implementation Roadmap

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Implementation Roadmap

Key Programs and Associated Projects

- **Gartner's recommendations can be implemented as several prioritized IT programs each with a number of associated projects that seek to improve KDE's IT efficiency and effectiveness**
- **These are prioritized and plotted on a three year time scale and used as roadmap for implementation**
- **The following programs and associated projects are suggested for further refinement**
 - **IT Governance Program**
 - Comprehensive IT Project Review
 - IT Governance Structure Deployment
 - Project Portfolio Management Process
 - Application Portfolio Management Process
 - Business Case Process
 - Instructional Technology Alignment
 - **Program Management Office (PMO) Development Program**
 - PM Training
 - PM Tools and Methodology Development
 - **Infrastructure Consolidation Program**
 - Desktop Outsourcing Feasibility Project
 - Others as Identified

Implementation Roadmap

Key Programs and Associated Projects

- **IT Shared Service Delivery Development Program**
 - KDE Bus.Relationship Manager Position
 - Shared Services Communications Development
 - Service Definition
 - Sourcing Strategy

- **Disaster & Business Continuity Program**
 - OET Plan Development
 - School District Plan Development Project

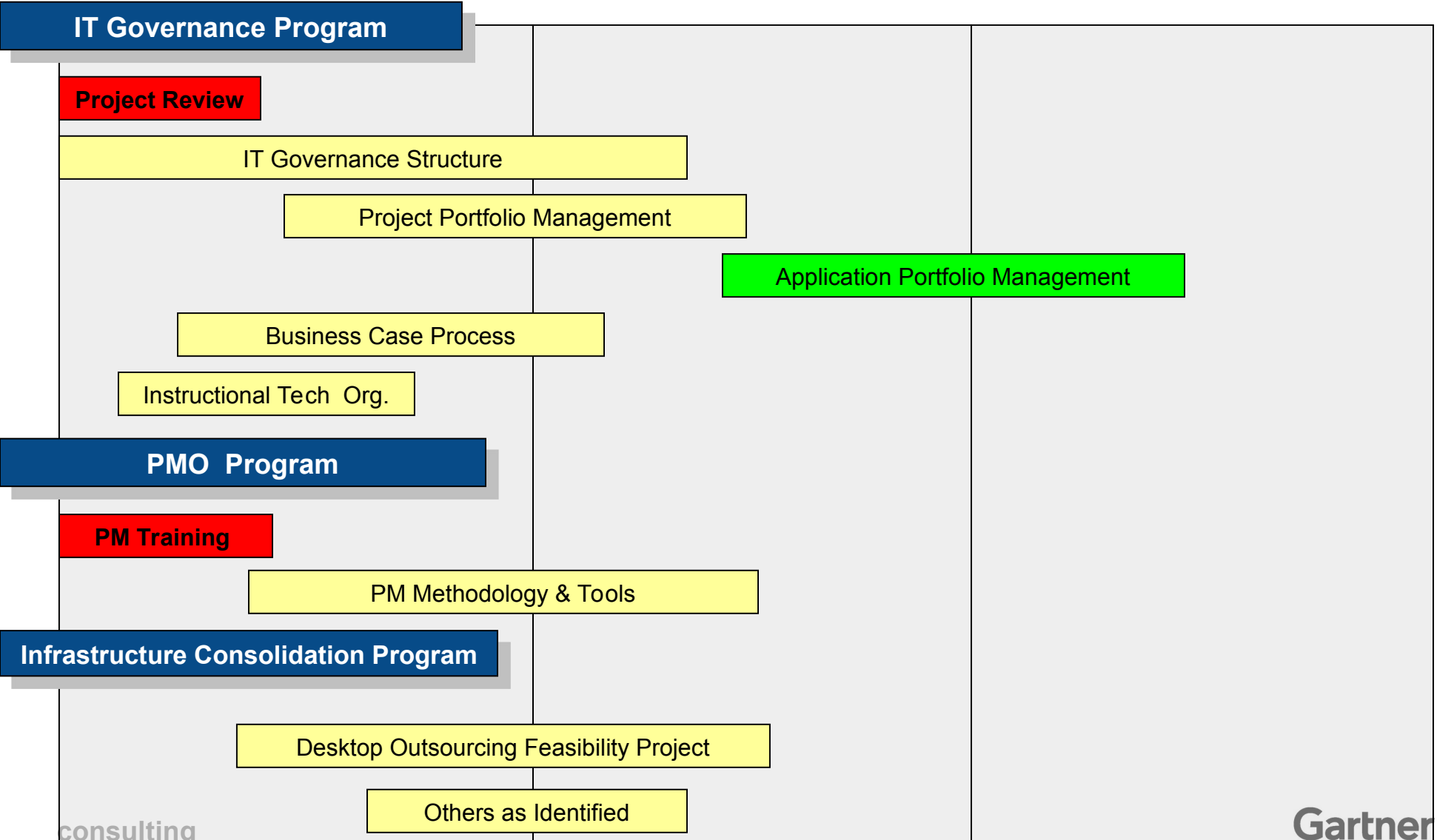
Implementation Roadmap

High Level Program and Project Road Map

Year 1

Year 2

Year 3



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Implementation Roadmap

High Level Program and Project Road Map

Year 1

Year 2

Year 3

Disaster & Business
Continuity Program

OET Plan Development

School District Plan Development Project

IT Shared Services Program

KDE Bus. Relationship Mgr.

Shared Services Communications

Service Definition

Sourcing Strategy