

# **Information Technology in Kentucky State Government**

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**Program Review and  
Investigations Committee**

**November 13, 2014**

# Study Major Conclusions



- Technology is not as visible an asset as personnel or physical infrastructure but is important to government functioning and is changing and growing rapidly.
- Sometimes technologies are perceived as inappropriate or outdated when they are not. Misunderstandings could be reduced by improved communication and training.

# Study Major Conclusions



- Some old systems work well but lack support, inflexible programming, dated user interfaces, and inefficient operation. Replacement would make staff more productive and free up resources.
- Agencies have submitted multiple large IT system replacement requests that have gone unfunded.

# Study Major Conclusions



- When smaller IT needs have gone unmet, it has usually been due to budget limitations.
- COT is consolidating infrastructure equipment and support and interceding with agencies' business application plans. These efforts should save money and make state government more efficient.

# Study Major Conclusions



- The state might be able to save money by making changes to attract, hire, and retain more IT employees rather than contracting for IT staff. Improved capital project procurement and management procedures might reduce cost overruns and delays.

# Study Major Conclusions



- Accounting for IT expenditures is improving but still imprecise; IT staff expenditures cannot be determined using available information.
- There is little information to assess the state's progress in improving technology, but study data can serve as a baseline for future comparison.

# IT Assets



- Infrastructure
- Business applications
- Web presence
- Personnel

# Infrastructure



- Desktop and personal computers
- Local networks, servers, and data storage
- Communications technology
- Internet access



# Business Applications



Complex software and equipment systems agencies use for daily business activities.

- Enterprise
  - Examples: eMARS and KHRIS
- Agency
  - Examples: KAMES and AVIS

# Oversight of IT Assets



- Under KRS 42.726, COT has ultimate oversight of most executive branch agencies' IT assets.
- Capital Planning Advisory Board (\$600,000 or more)
- Capital Projects and Bond Oversight Committee

# Surveys Used in Report



- A survey asking primarily policy questions was sent to cabinet and department leaders.
- A second survey asked detailed technical questions of agencies at the department level.



# Chapter 2

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## Appropriateness of Technology

# Usability, Enterprise Standards, And Consolidation



- Usability implies how effectively technology fulfills its intended purpose.
- Standardized and shared applications and infrastructure generally have greater usability.
- Applications and systems that are interoperable have the ability to communicate and share data across the enterprise.
- Consolidating aspects of IT management and standardizing IT assets results in greater economies of scale.

# Information Technology Silos



- In the past agencies developed systems that were isolated from one another, or in “silos.”
- Software and data existing in silos are difficult to share and generally reduce economies of scale.
- COT has developed enterprise standards to increase economies of scale for infrastructure and to improve compatibility of business applications.
- Most agencies reported having at least partially compatible IT environments.

# Consolidation And Oversight



- COT is carrying out an executive branch consolidation of IT infrastructure.
- COT is examining ways to better utilize business applications.
- The Technology Advisory Council keeps COT aware of agency needs and acts as a forum for concerns and ideas.

# Infrastructure Cost And Billing



- Some agencies are concerned that infrastructure costs will be more after consolidation.
- Some agencies reported that COT infrastructure billing statements were difficult to verify.
- COT has proposed using agency developed systems, that interpret the billing process, across the enterprise.



# Infrastructure Services And Specialized Needs



- Some consolidated agencies reported that support response times are slower following consolidation.
- Several agency comments stated that procurements take too long and affect operations.
- Some agencies asserted that support for specialized infrastructure is handled better in house.

# Recommendation 2.1



The Commonwealth Office of Technology should take steps to ensure that the needs of other agencies are being met and concerns are being addressed related to infrastructure costs, support services, specialized business needs, business applications, and billing the agencies.

# Funding For Technology

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- According to both surveys conducted by Program Review staff, funding was rated as the greatest challenge to IT infrastructure and applications.

# Cost Of Capital IT Projects In 2014 Budget



- The 2014 budget included a \$99 million appropriation for capital IT projects, less than half the amount recommended by COT.
- The Next Generation Kentucky Information Highway project received \$70 million.
- Other capital IT projects received \$29 million.

# State Technology Workforce



- Kentucky agencies reported that private industry IT salaries are greater than state IT salaries, creating hiring and retention concerns.
- Agencies reported engaging contractors because they could not hire permanent staff at state salary scale.
- Contractors are flexible and do not receive benefits, so policy has to account for cost, flexibility, and expertise.

# Recommendation 2.2



The Personnel Cabinet, in consultation with the Finance and Administration Cabinet and other agencies, should conduct a classification and compensation study assessing the overall cost of equalizing IT compensation with private industry compared to the cost of continuing to use IT contractors, taking into account such factors as contractor flexibility.

# Business Process Review



- More than 37 percent of agencies reported reviewing their business processes on a regular basis.
- Nearly 63 percent reviewed business processes when needed or when technology changed.
- COT's involvement is critical.

# Procuring IT Resources



- The Office of Procurement Services can provide advice on IT procurements.
- COT assists agencies with IT procurement RFPs, or offers alternatives to contract services.
- Agency IT procurements should involve the Office of Procurement Services and COT from the initial design phase.
- Kentucky has experienced significant cost overruns and delays with IT procurements.



# Active Project Management



- Project management should be carried out by the agency that will use the application.
- COT recommends experienced or certified project managers, but there are no requirements for project management.
- Cost overruns and delays may have occurred due to passive project management, overextended vendors, or unrealistically low bids.

# Recommendation 2.3



The Finance and Administration Cabinet and the Commonwealth Office of Technology (COT) should ensure that all agencies consult with COT at the earliest stages of considering new or updated business applications and that all agencies develop their procurement and project designs with input from COT and the cabinet's Office of Procurement Services.

# Recommendation 2.4



The Finance and Administration Cabinet and the Commonwealth Office of Technology (COT), at their discretion, should ensure that all agencies employ certified or experienced project managers for capital IT projects. COT should actively review and measure the progress of such projects and maintain records to develop evidence based best management practices.

# Security And Access



- Attacks on IT systems are increasing in frequency and sophistication, including those in state government.
- Kentucky has not reported massive security breaches, but the Auditor of Public Accounts has revealed security vulnerabilities.
- Agency leaders and staff need to become more aware of potential security threats and vulnerabilities.
- Ten survey responses listed breaches that would have required reporting under HB5.

# Recommendation 2.5



The Commonwealth Office of Technology should ensure that all agencies prioritize technology security initiatives and maintain continuing communication and training for their staff on evolving threats and best practices to safeguard sensitive information in their keeping.

# Chapter 3



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## Information Technology Assets

# Technology Assets

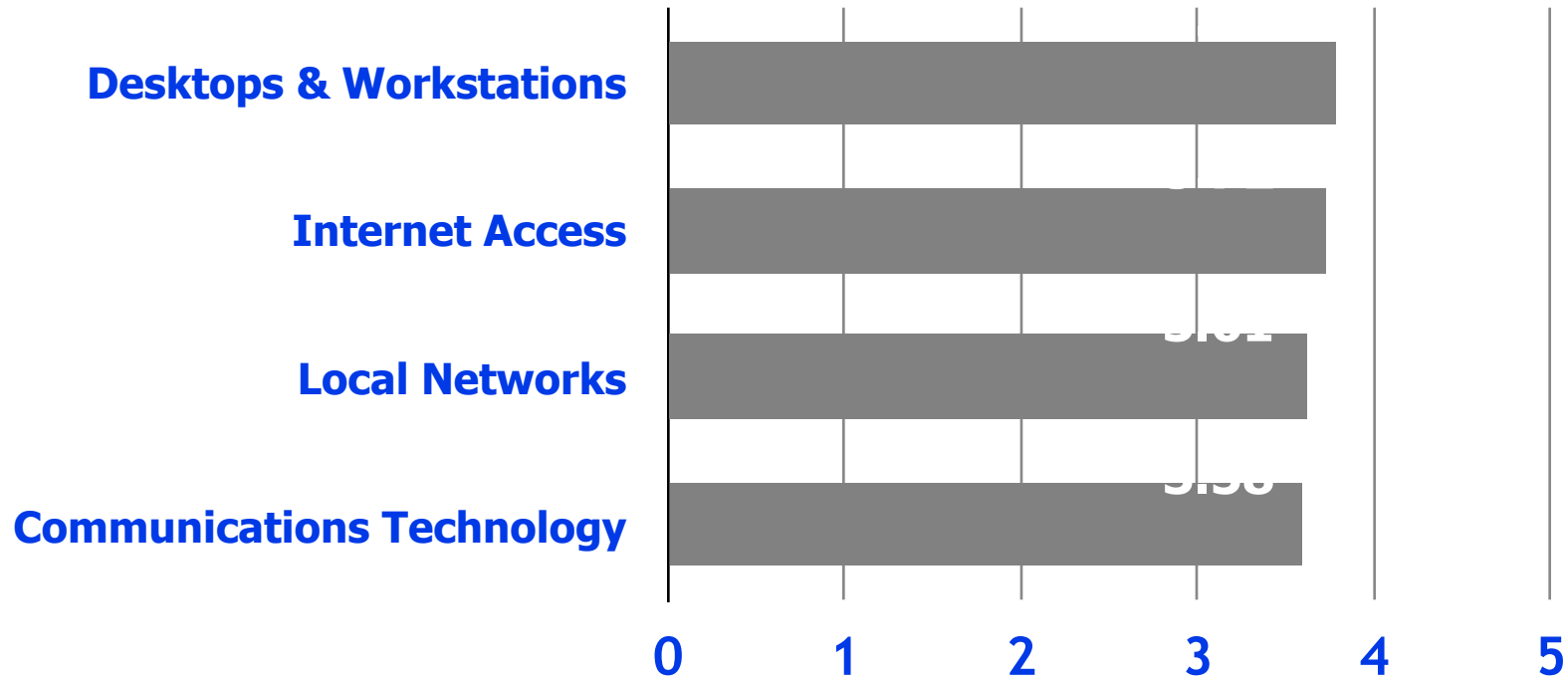


- Infrastructure assets
  - Desktops, networks, internet, communications
- Enterprise business applications
  - eMARS and KHRIS
- Agency business applications
  - KAMES and AVIS
- Web presence
  - Importance and performance

# Infrastructure Assets



## Overall Ratings Of Infrastructure Assets





# Enterprise Business Applications



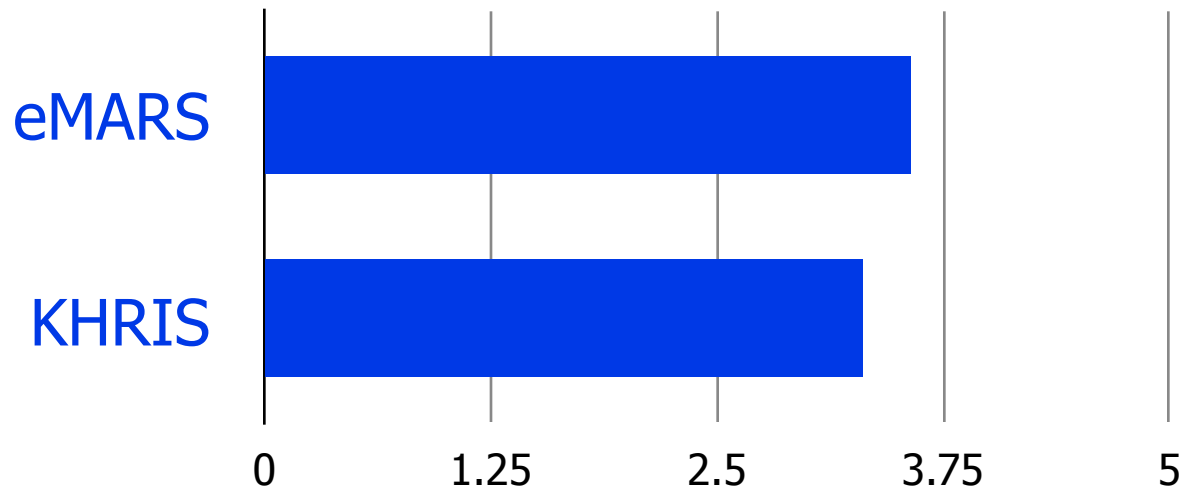
- eMARS - Statewide accounting system
- KHRIS – Statewide human resources system

		eMARS	KHRIS
<b>Meeting Agency Needs?</b>	<b>Yes</b>	<b>57%</b>	<b>48%</b>
	<b>No</b>	<b>19%</b>	<b>32%</b>

# Enterprise Business Applications



## Overall Ratings Of KHRIS & eMARS



# eMARS Description



- eMARS is an enhanced version of the original Management Administrative and Reporting System (MARS) and is the statewide accounting system of the Commonwealth.
- The system supports a wide array of accounting functions.

# eMARS Development



- Development
  - eMARS began operations in July 2006 at a cost of approximately \$10 million. Operating cost is approximately \$7.7 million per year.
- Accomplishments
  - eMARS set to continue indefinitely
  - Fast response time and limited downtime
  - Clean audit of financial statements since implementation

# eMARS Deficiencies



- Inadequate functionality
- Incorrect or missing information
- Security deficiency
- Need for supplemental procedures and applications

# Recommendation 3.1



The Commonwealth Office of Technology should work with the Office of the Controller and the agencies that use the statewide accounting system to elicit all the supplemental procedures and business applications that agencies use to meet their accounting needs. The offices should identify the reasons agencies supplement the accounting system and develop solutions so that agencies may use the accounting system more efficiently.

# KHRIS Description



- State's human resources system – maintains personnel and organizational data, timekeeping, payroll, and benefits information.
- Development
  - KHRIS cost approximately \$50.5 million to implement, twice the original estimate.
  - KHRIS costs nearly \$8 million a year to operate, which is paid by agencies that use it.

# KHRIS Findings



- Accomplishments
  - KHRIS replaced approximately 25 distinct personnel, payroll, and timekeeping systems and improved several processes that have helped save costs and streamline personnel management.
- Deficiencies
  - Currently the system lacks an automated self-service timekeeping system.



# Agency Business Applications



- Most agencies have at least one agency specific business applications that facilitate their provision of services or manage their operations.
- Focused reviews: KAMES & AVIS
- KAMES and AVIS replacements currently underway

# KAMES Description



- KAMES is a 21 year old mainframe system supporting eligibility determination for KY's state public assistance programs.
- KAMES has performed well into the present.
- As it has aged KAMES has developed some deficiencies.

# KAMES Deficiencies



- Aging system and user interface
- More difficult to train new users
- Less automation / More manual input
- Less flexible technology
- Increased costs associated with maintenance and support

# AVIS Description



- Automated Vehicle Information System
  - Developed in 1981 and still in operation.
  - Collects title and registration information on vehicles and boats.
- Accomplishments
  - Strong performance over lifespan
  - Fast response times
  - Accommodates data needs of 8 state cabinets
  - Reliable and secure

# AVIS Deficiencies



- Aging system and user interface
- More difficult to train new users
- Less automation / More manual input
- Less flexible technology
- Increased costs associated with maintenance and support



# Web Presence



- Agencies rated their web presence highly in terms of both its importance to their agency and its performance.
- Providing information about the agency was rated as the most important and top performing function of agency web presence.
- Only 2 responding agencies reported not having a public Web Presence.

# Chapter 4



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## Technology Inventory And Cost



# Technology Asset Inventory



- Exact numbers are unknown
  - Infrastructure equipment and software
  - Infrastructure support personnel
  - Business applications
  - Other IT personnel

# IT Expenditures: Goods And Services



- IT expenditures are not known

## Sample IT Expenditures By Object Code

Group	FY2014	
	Million Dollars	Percent
IT Object Codes	\$38.8	62%
Non-IT Object Codes	24.1	38
Total	\$62.9	100%

# Recommendation 4.1



The Finance and Administration Cabinet should produce and maintain a document explaining the intended use of each object code in the statewide accounting system. The cabinet should implement an ongoing process to periodically examine and validate samples of payments from all agencies and take corrective action when patterns of miscoding are found.

# IT Expenditures: Personnel



- Difficulty determining personnel IT costs
- Information gap for state employees
- New object codes for contractors

# Recommendation 4.2



The Commonwealth Office of Technology should work with the Finance and Administration Cabinet and the Personnel Cabinet to develop a means to calculate the number of full-time equivalent personnel and the costs associated with information technology work by state employees.