

Office of the County Internal Auditor

Custom Developed Software

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Background

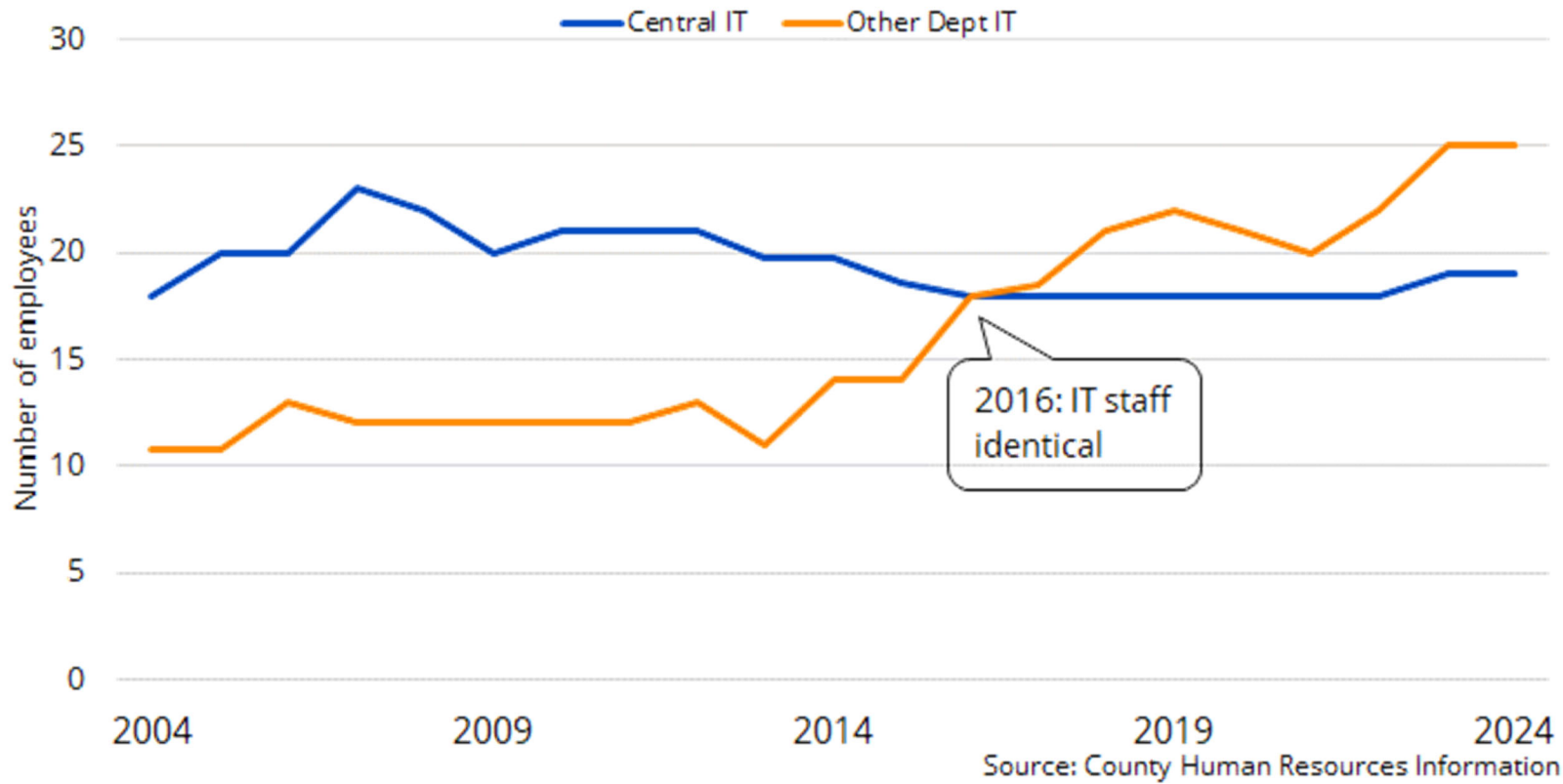
Software Development Process



Source: Amazon Web Services



More IT employees outside of Department



Pros and Cons of Organizational Structure

IT Structure



Centralized

Advantages

Consistency
Economies of Scale
Efficiency

Disadvantages

Rigidity
Slowness
Bureaucracy



Federated

Adaptability
Responsiveness
Proximity

Inequity
Unrealized savings
Duplication



Recommendation Updates

New policy implemented, additional improvements planned



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Resolved

*Management addressed risk.
Auditors will no longer monitor.*



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In Process

*Recommendations are in
progress. Auditors will continue
to monitor.*



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Accept Risk

*Management accepted the risk of
not implementing the
recommendation.*



New custom-developed software policy nearly complete.

Resolved



We Found

20-year-old policies did not address system architecture documentation for custom software raising the risk of incomplete security practices.

We Recommended

Information Technology develop and implement a policy for custom-software development identifying security and privacy requirements for all projects throughout the County.

Update

a policy was substantially complete with expected final approval by the Board of County Commissioners in the Spring.



Uniform coding standards to be adopted.

Resolved



We Found

Without a consistent approach to coding, software implementation faced inefficiencies, inconsistencies, delays, errors, and increased costs.

We Recommended

Information Technology develop and implement a policy for custom-software development, defining unified coding standards for all County developers.

Update

The proposed policy included coding standards.



Software advisory body planned.

In Process



We Found

Staff in various departments made decisions about software without documenting risks or countywide considerations about performance and security.

We Recommended

Information Technology lead the way in developing a central advisory body to drive an investment process to support executive decision making.

Update

Staff anticipated forming the committee would be significant work, with completion expected by June 2027.



Cost framework delayed for input from advisory body.

In Process



We Found

Departmental staff did not have information about full costs and considered custom software to be "free" despite potentially higher costs.

We Recommended

Information Technology develop a standardized methodology for determining costs associated with projects.

Update

The Department noted it would take significant effort, as many as 240 hours of work, and estimated a completion in December 2026.



For the time-being, reliance on other departments to identify software.

In Process



We Found

Information Technology staff inherited custom software when department developers left, sometimes unaware of these projects.

We Recommended

Information Technology develop and implement a policy requiring annual reporting of all software applications.

Update

Anticipated completion June 2027.



County continued to depend on employees for institutional knowledge about software.

In Process



We Found

Developers inconsistently recorded software architecture resulting in gaps in understanding and documentation of security and privacy requirements.

We Recommended

Information Technology develop and implement a policy incorporating formal documentation of system architecture for all projects throughout the County.

Update

Anticipated completion June 2027.



New system for independent software testing still in progress.

In Process



We Found

There was no independent quality review for most custom applications because most involved only one developer in design.

We Recommended

Information Technology develop and implement a policy for custom-software development, defining standardized testing conditions and criteria for all projects throughout the County.

Update

Anticipated completion June 2027.



Secure repository for software development delayed due to budget issues.

In Process



We Found

Staff did not keep some applications in a secure repository that could ensure source code protection and version control.

We Recommended

Information Technology provide access to the secure repository for all County developers.

Update

The Department hoped to implement by September 2025. However, a required \$1,800 investment was not included in the Fiscal Year 2026 budget



Policy for comprehensive system and user documentation still in development.

In Process



We Found

Developers and stakeholders did not document the purpose, scope, roles, responsibilities, management commitment for custom software.

We Recommended

Information Technology develop and implement a policy for custom-software development, requiring comprehensive system and user documentation for software applications.

Update

Anticipated completion June 2027.



Software services agreements planned but not in place.

In Process



We Found

Without clear agreements in place, there was a risk of inconsistencies, misunderstandings, and mismanagement of software deployment processes.

We Recommended

Information Technology establish internal agreements with departments requesting developed software or when inheriting maintenance responsibilities.

Update

Anticipated completion June 2027.



Policy for custom software maintenance planned for completion in 2027.

In Process



We Found

There was not a policy to guide software maintenance including identifying and fixing bugs or implementing updates or patches.

We Recommended

Information Technology develop and implement a policy for custom-software development maintenance protocols throughout the County.

Update

Anticipated completion June 2027.



Staff planning to track maintenance costs but no progress reported.

In Process



We Found

Staff maintained custom software, but did not track maintenance costs or time spent.

We Recommended

Information Technology continue efforts to capture data for maintaining custom-developed software and make those tools available to other personnel.

Update

With a budget of \$30,000 a year, the Department planned completion by June 2025, but did not report progress for the March 2025 update.



Custom software performance measures still in development.

In Process



We Found

Staff could not access data about software maintenance to assess software performance to aid decisions about whether to update or retire software.

We Recommended

Information Technology use collected data to create performance measures for custom-developed software.

Update

Anticipated completion June 2027.



Next Steps

We'll continue to follow-up on in process recommendations during annual global follow-ups.



Questions and Comments?

