Reduce Risk with IT Governance

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IT Governance & ArcGIS

- A subset of the greater corporate governance framework focused specifically on IT systems, their performance, and risk management
- Ensures that solutions are built and managed properly within the IT landscape
- The concepts of IT Governance extend to the ArcGIS Platform

IT Governance – Key Considerations for the ArcGIS Platform

- Software & Technology Change Management Strategy
- Data Governance
- Workforce Development

Imperative of Change

- **Common motivations for change include**
  - Leaders' assertions to achieve new outcomes
    - New value-bearing business capabilities
    - Improved efficiencies
  - **Demands expressed by organizational personnel, external partners, the public**
    - Cross-unit, integrated workflows
    - Digital collaboration with partners
    - Public information and feedback
  - **Retirement of systems at end-of-life**

Software and Technology Change Management Strategy

- Making changes to enterprise systems will always introduce risk to business operations
- Include the ArcGIS Platform in planning for enterprise system upgrades
- Ensure computing environments are available for development, staging, and production
- As organizational dependence on ArcGIS grows, ensure appropriate backup and disaster recovery capabilities are in place

Data Governance

- Exercise positive control over data quality, availability, usability, and security across your enterprise (including spatial content)
- Identify data stewards within business units
- Centralize critical content, establish durable data pipelines
- Balance control and enablement

Workforce Development

- **The essential skills of organizational personnel must be considered for any enterprise platform deployment**
  - Knowledge workers: Limited, focused training
  - Experts, Analysts, System/Data Administrators, Developers: In depth skill
- **Invest in workforce development and training in order to benefit both individual employees and the organization as a whole**
  - Focus on establishing sustainable practices
- **Establish flexible programs for staff to acquire focused GIS training on a routine basis to…**
  - Increase productivity and efficiency in GIS operations, allow knowledge workers to focus on priority tasks
  - Prevent costly mistakes
  - Enable staff to recognize opportunities to evolve GIS in a manner that benefits the enterprise

Example – Introducing a new solution

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Applying IT Governance | Executive Operational Awareness Solution

Mapping & Visualization

Understand locations and relationships with maps and visual representations

Data Management

Collect, organize, and maintain accurate locations and details about assets and resources

Field Mobility

Manage and enable a mobile workforce to collect and access information in the field

Monitoring

Track, manage, and monitor assets and resources in real-time

Analytics

Discover, quantify, and predict trends and patterns to improve outcomes

Design & Planning

Evaluate alternative solutions and create optimal designs

Decision Support

Gain situational awareness, and enable information-driven decision making

Constituent Engagement

Communicate and collaborate with citizens and external communities of interest

Sharing & Collaboration

Empower everyone to easily discover, use, make, and share geographic information

Applying IT Governance to a Portfolio of Solutions

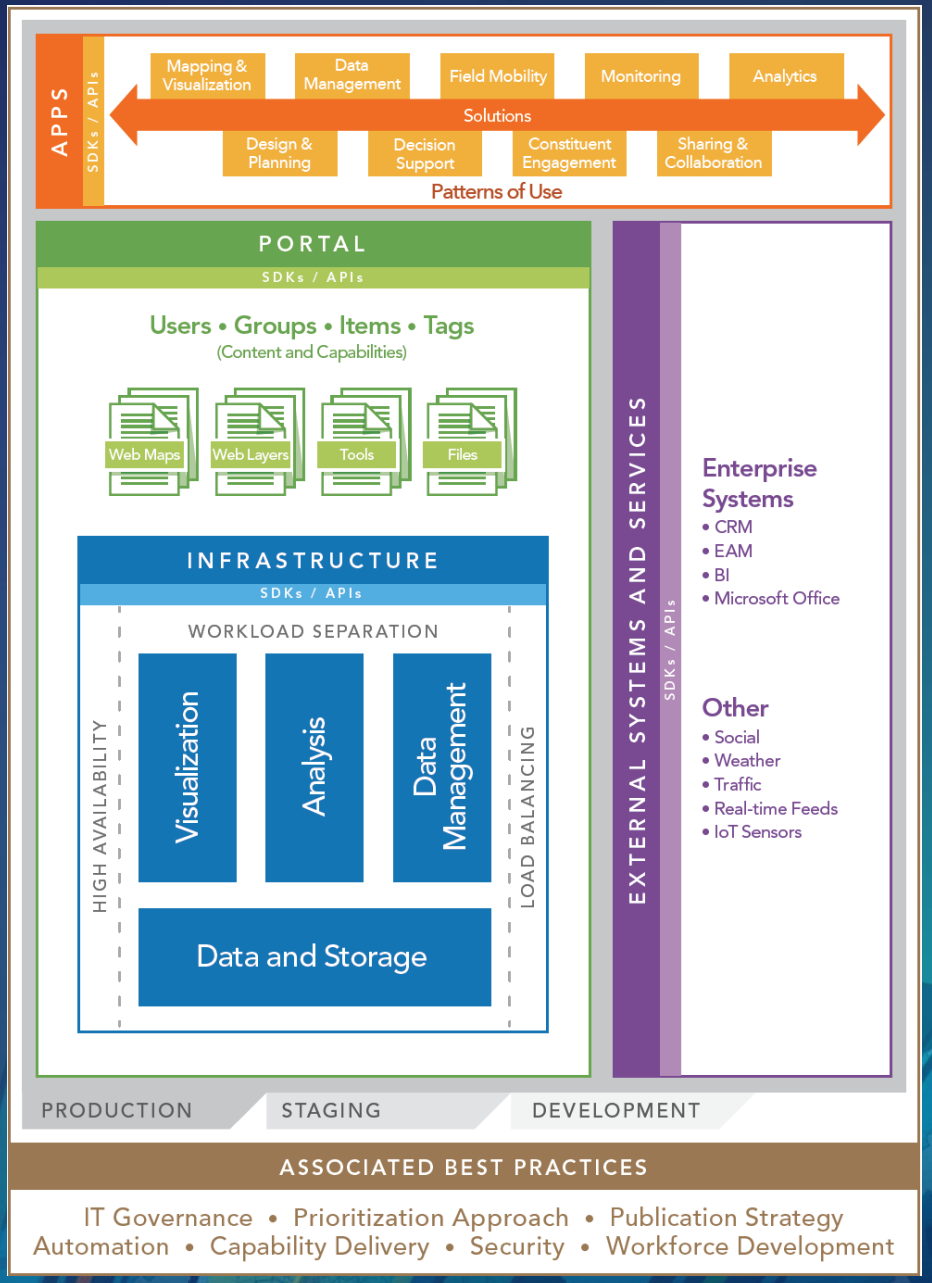
Solutons	Mapping & Visualization	Data Management	Field Mobility	Monitoring	Analytics	Design and Planning	Decision Support	Constituent Engagement	Sharing & Collaboration
Executive Operational Awareness	X	X	X	X	X		X		X
Business Intelligence	X	X		X	X		X		X
Facility Planning	X	X			X	X	X		X
Work Management	X	X	X	X	X		X		X
Safety and Security	X	X	X	X	X		X	X	X

ArcGIS Platform
Conceptual Reference Architecture

- ArcGIS is a Platform Solution
- Supports a range of workflows
- Portfolios of applications
- Integrated identity management
- A variety of workloads and content
- Integration with external systems

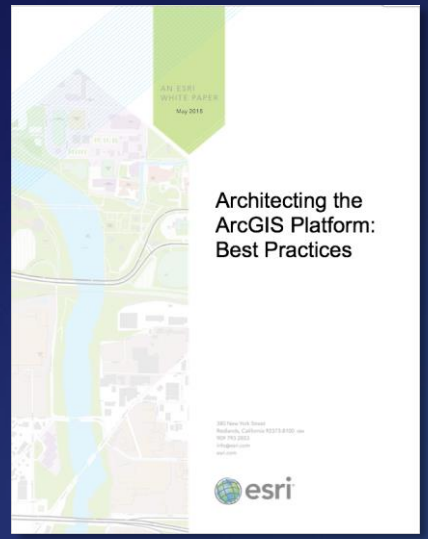
- Built to enable the collaborative work of an enterprise

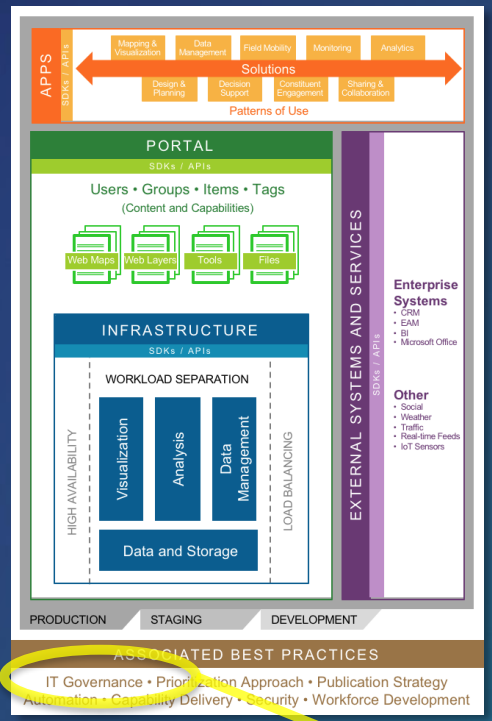
- IT Governance of the ArcGIS Platform is essential to success



Best Practice: Apply IT Governance

- Critical for long-term organizational success with geospatial capabilities
- Enables the ArcGIS platform to truly grow within the enterprise with limited risk
- Software change management, data governance, and workforce development are some key elements of an IT governance strategy
- The scope of IT govenance can extend to other elements such as roles, responsibilities, etc.





Architecting ArcGIS: Best Practices

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Architecting the ArcGIS Platform: Best Practices

Apply IT Governance

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Information technology (IT) governance is a subset of the greater corporate governance framework focused specifically on IT systems, their performance, and risk management. IT governance ensures that solutions are built and managed properly within the IT landscape. This brief provides an overview of IT governance as it relates to ArcGIS platform implementations as well as guidelines that will help ArcGIS solutions deliver clear benefits and achieve long-term success.

Introduction

Conceptually, governance is a framework, a cultural orientation, and a set of owned responsibilities that ensure the integrity and effectiveness of the organization's use of IT. Implementing governance involves monitoring, managing, and steering a business, information system, or IT landscape to deliver required business outcomes. Since the GIS domain is part of the IT landscape, IT governance should be applied to GIS, including the ArcGIS platform and the solutions built on it. One way to help the ArcGIS platform remain effective to an organization is to employ an IT governance strategy that includes software change management, data governance, and workforce development.

Recommendations

Making changes to enterprise systems always introduces risk to business operations. Minimize risk by employing a software change management strategy. This strategy should include planning for upgrades to any enterprise system, including any part of the ArcGIS platform. Planning should include the testing of new software versions in one (or more) staging environments (ideally, ones that mirror the production environment) to ensure the business continuity of client applications and workflows. Testing should include, but not be limited to, functional testing, performance testing, and user acceptance testing. When testing is complete and the new software works as expected, the software upgrade to the production environment should be scheduled in advance. During the upgrade process itself, be sure necessary staff are available and that they have the permissions necessary to complete their assigned tasks. Document the upgrade process in case there is an unforeseen issue and the upgrade needs to be paused. It's also recommended to have a rollback strategy in the event of an unrecoverable error in the change or upgrade process.

Data governance involves exercising positive control over data quality, availability, usability, and security across an enterprise. It is recommended that spatial data be included within an organization's broader data governance framework and not treated separately. Furthermore, it is recommended that spatial data be maintained by data stewards within the business units and served to the rest of the organization's enterprise from centrally managed databases. Responsibilities for data quality and usability must be upheld by the departmental data stewards, and accessibility and security responsibilities must be upheld by IT, the recommended "implementation managers" of the GIS platform.

Workforce development and training is essential to the long-term success of any enterprise system implementation. A modern GIS enables ubiquitous access to maps and spatial data throughout an organization, with knowledge workers continuously contributing to and leveraging GIS capabilities. It is recommended that the organization invest in workforce development and training in order to benefit both individual employees and the organization as a whole. Flexible programs should be available for staff to acquire focused GIS training on a routine basis. GIS training programs are needed to:

1. Increase productivity and efficiency in GIS operations so knowledge workers can accomplish more with fewer resources.
2. Prevent costly mistakes in new GIS implementations, system updates, and workflow procedures.
3. Enable staff to recognize opportunities for GIS to help increase operating efficiencies, save money, and provide better government services.

Exercising IT governance across the GIS domain is critical for long-term organizational success and enables the ArcGIS platform to truly grow within the enterprise with limited risk. It is important to note that software change management, data governance, and workforce development are some key elements of an IT governance strategy; however, other elements, roles, and responsibilities (not covered in this brief) may also be necessary.

Back to Reference Architecture

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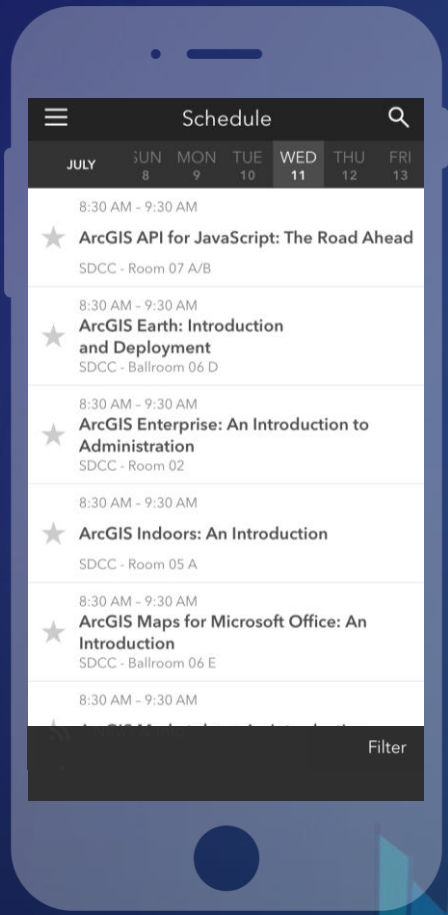

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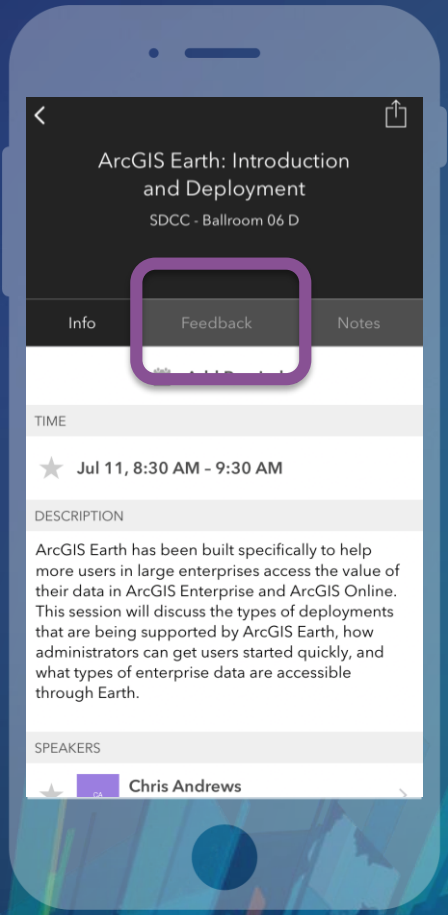

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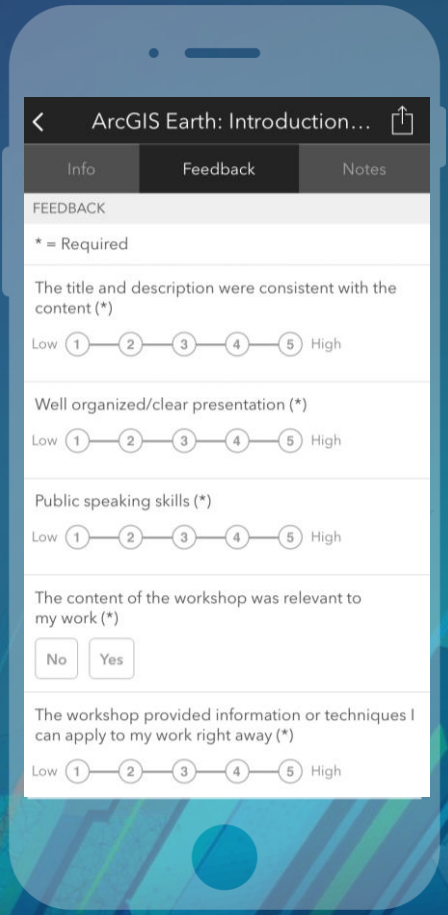

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