

Project Management Symposium

Improving the Enterprise Corporate Security Program for Lean Application and Data Governance

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PROJECT MANAGEMENT
CENTER FOR EXCELLENCE

A.J. CLARK SCHOOL OF ENGINEERING
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Sandra Fonseca-Lind, EdD-ID (ABD), DBA



- **Education:** Doctor of Business Administration – Management Information Systems (DBA-MIS) – 2009
Doctor of Education in Instructional Design (ABD), 2021
Cybersecurity Essentials Graduate Certificate (2014)
IT Auditing Graduate Certificate (2004)
- **Research Interests:** Cybersecurity, Data management and governance, IT Audit and Compliance, Project Management, Cloud solutions development
- **Career Endeavors:** Cybersystems Affiliation student association founder and mentor (UAGM-Cupey-Puerto Rico), Board of Director member for ISACA PR Chapter (200-2009 & 2011), ISSA PR Chapter (2010), PMI Puerto Rico Chapter (2012-2016), PMI-WDC Chapter Volunteer (2017-present), ISACA WDC chapter volunteer (2018-present), SHRM Student Chapter collaborator
- **Diversity & Inclusion Advocacy:** Women/Latinas in technology, Women Cyberjutsu volunteer
- **Awards:** 2019 Outstanding Faculty Engagement Award – Full Time Faculty – School of Technology – Northcentral University, 2019- ISACA-WDC Outreach committee contribution recognition
- **Hobbies:** Family

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2024 Project Management Symposium

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- Fifteen (15) years of academic experience teaching human resources management in higher education with years of student career development, leadership advising dedicated to SHRM Student Chapters (University of Puerto Rico, Río Piedras Campus & University of Puerto Rico, Mayaguez Campus).
- Thirteen (13) years of SHRM Volunteer Leader and HRM Diversity and Inclusion Advocate.
- 2016 Best Paper Award ABWIC Conference
- SHRM Recognition on four (4) Outstanding Student Chapter Merit Awards and four (4) Superior Merit Award (2012-2019).
- Traumatic Brain Injury Advocate and Member of the Board of Directors of LSG Foundation.



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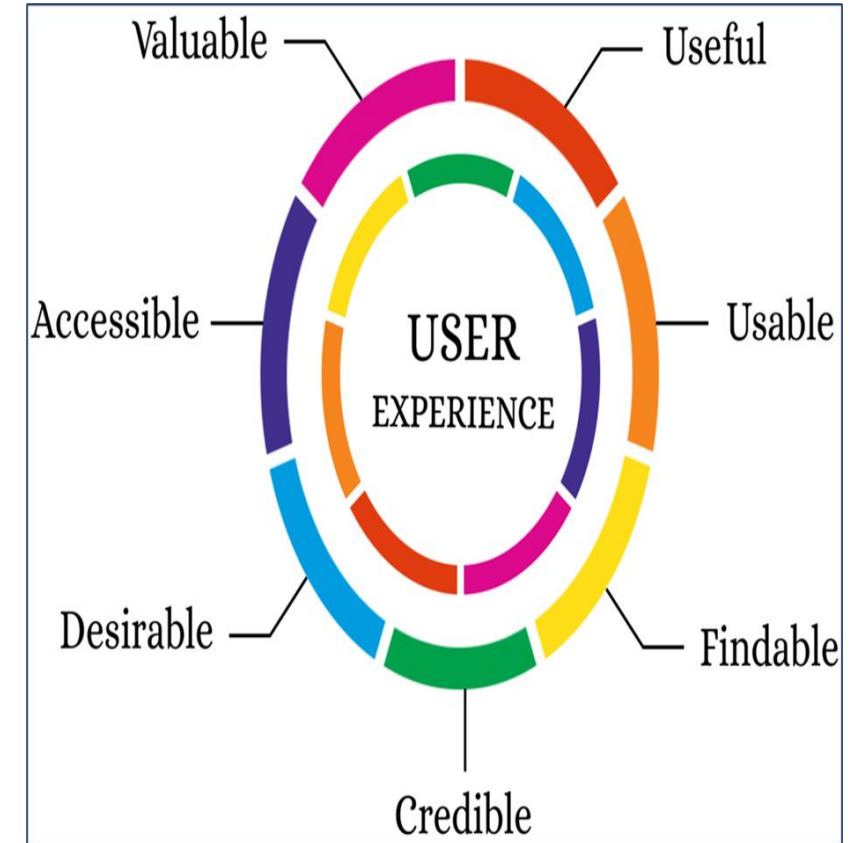
Topics

- Introduction
- The Changing Business Environment
- Statistics Over IT Project Failure
- Business Case – Absentee Vote – Puerto Rico
- Traditional IT Solution Development Frameworks
- Continuous Need to Adapt (Industry 4.0 → Industry 5.0, IoT)
- The Evolving Data Landscape
- DevOps and DevSecOps Model
- Data Governance Frameworks
- The Pillars for Master Data Management
- The Road Ahead
- Conclusions



Introduction

- In this era of constant change, remote collaboration and distributed work environment, there's the ongoing need to adapt and embrace new trends and technologies
- Customer support and user experience as a result of software solutions design is critical, both in industry and academia.
- Learning programs and applications must be appealing, dynamic, but most of all, secure.



Embracing the Change in Business and Academia (1-2)

- **Academia and Corporate On-the-Job training has changed due to:**
 - Accelerated transformation
 - Remote and Hybrid work
 - Emergency Remote Teaching (ERT)
 - Academia and Organizations are adapting
 - Engaging content that support meeting program/course/training objectives at a distance
 - Significant changes in content development standards
 - Compliance

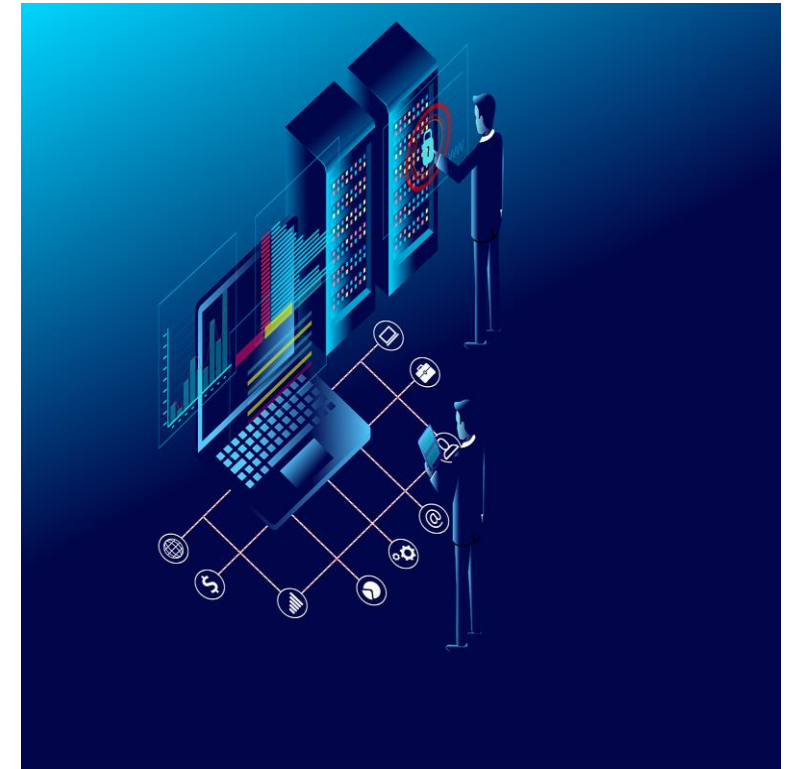




Embracing the Change in Business and Academia (2-2)

Academia and Corporate On-the-Job training has changed due to:

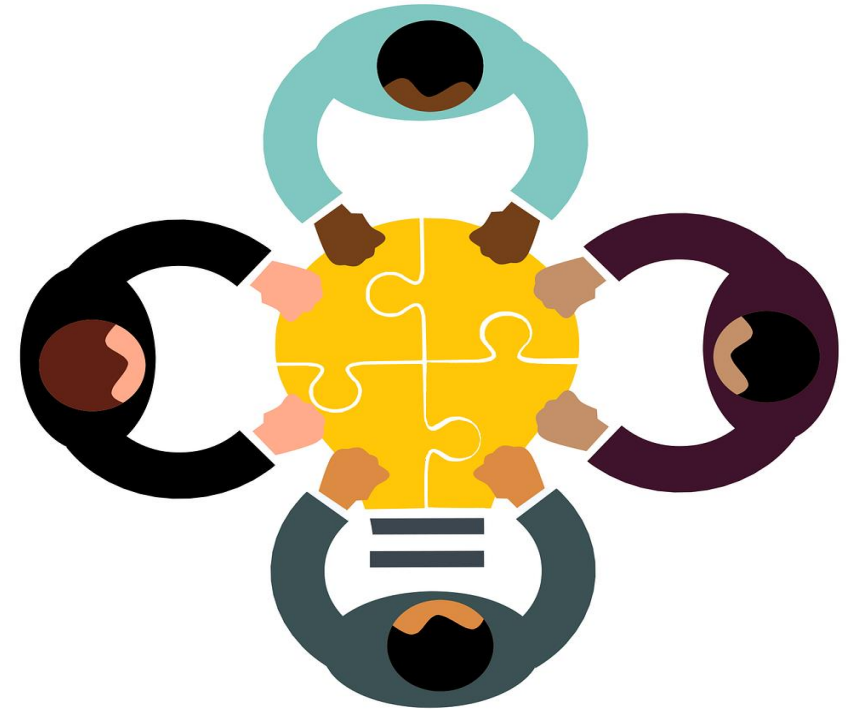
- Cybersecurity Risks for rapid response and containment
- There is the need to adapt and embrace new trends and technologies to secure course content, while making it more appealing and dynamic
- Change our mindset and practices
- Adapt and collaborate for continued operations and business survival
- Improved user experience in support of improved and continued operations
- Data Security and Privacy





Continuous Need to Adapt

- Strong team communications
- Integration and collaboration key for organizations' continued operations and survival
- Due care, due diligence
- Data Governance and data management standards
- Education and awareness





Statistics Over IT Projects Failure Rate

- Dollars at Risk in the Average Organization: \$74 million
- This data represents 20,821 projects closed in the last 12 months by 134 organizations.

Average number of projects closed per firm	155
Average total cost of closed projects per firm	\$200 million
Average cost per project	\$1.3 million
Percentage of projects at risk — recovered or failed	37%
Average dollars at risk per firm	\$74 million
Average dollars saved due to successful project recoveries per firm	\$50 million
Average dollars lost due to project failures per firm	\$24 million

Source: Project Management Solutions, 2021





Business Case: Absentee Vote – Puerto Rico

- Issues with absentee vote applications upgrade
 - Operational logistics – Registration, processing and voters certification
 - Applications and network perimeter are under review and upgrades
 - Critical flaws and gaps have been identified and the projects are delayed ahead of June 2, 2024 primaries



Adapted from: Ruiz-Kuilan, G. (2024). Crucial Electoral Dates ahead of Primaries and General Election. *El Nuevo Día Newspaper*. [Las fechas cruciales del año electoral que anteceden a las primarias y las elecciones generales - El Nuevo Día \(elnuevodia.com\)](https://www.elnuevodia.com)



Designed for: **2024 General Election**

Designed by: **Absentee Vote**

Date: **October, 2023**

Version: **1.1**

Business Canvas Analysis- Current State

Suppliers, Artifact
Quotes

PMI Constraints
Scope
Schedule
Budget
Quality

Key Activities
IT Projects (WBS)
IT Upgrade Projects Delayed
Update of forms and Application process
SOP's haven't been reviewed
Floor Plan and Operation Logistics still in process
Procurements still ongoing
End-User Training haven't started
Mock simulations
Business Continuity Provisions

New applications still @Testing Phase

Insurance

Lessons Learned

Workflow Timeline – Risk General Election Reform

Artifacts and Forms to Review
Policies, Standards & Procedures
Floor Plan Logistics
Training

External Agencies

Dept. of Education – Rooms Visual Inspections
Dept. Corrections – Inmate Vote logistics
Dept. Health- Hospital patients
Nursing Homes – Bedridden Patients

Electoral Commisioners
General Election Day Logistics
Voting methods, machines
Metrics and controls for Vote counting process integrity
Calendars

PR Police Dept - Security

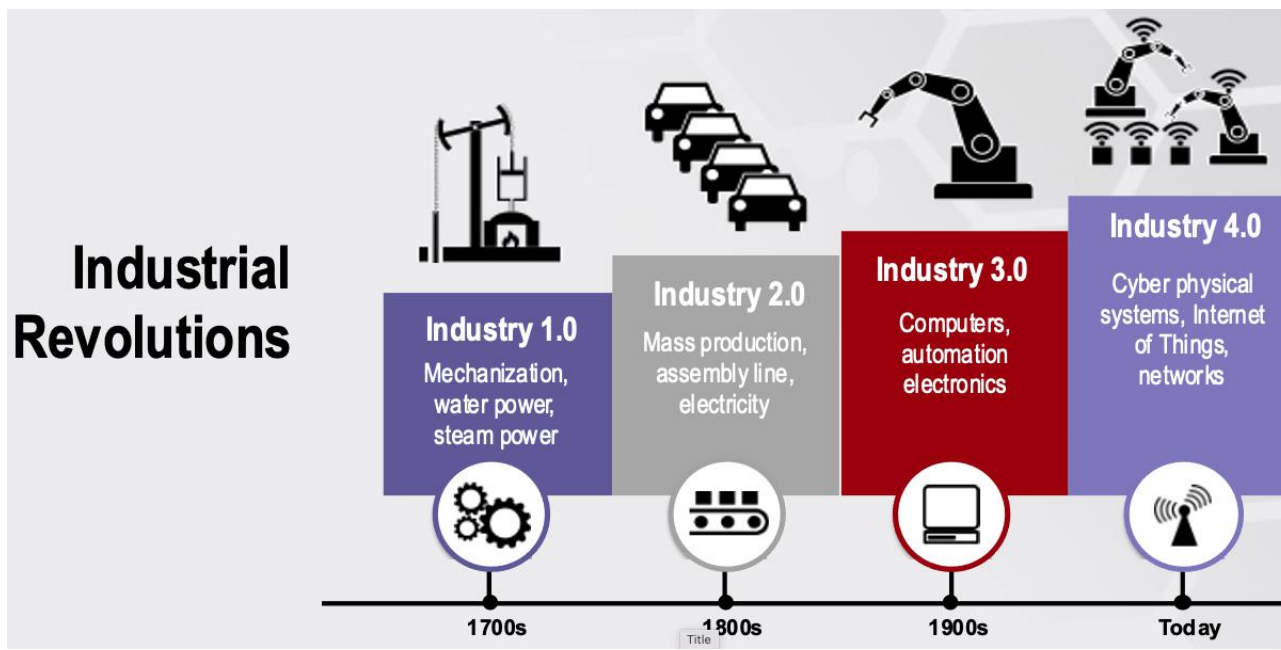
Stakeholders
Departamentos
Political Parties
Electoral Commisioners
Dept. Corrección
Metropolitan Detection Center
Dept. of Education
Dept. of Health
Police Dept.
IT Consultants

EDM Enterprise Data Management
Data Governance

PRESS – National & International
International Observers

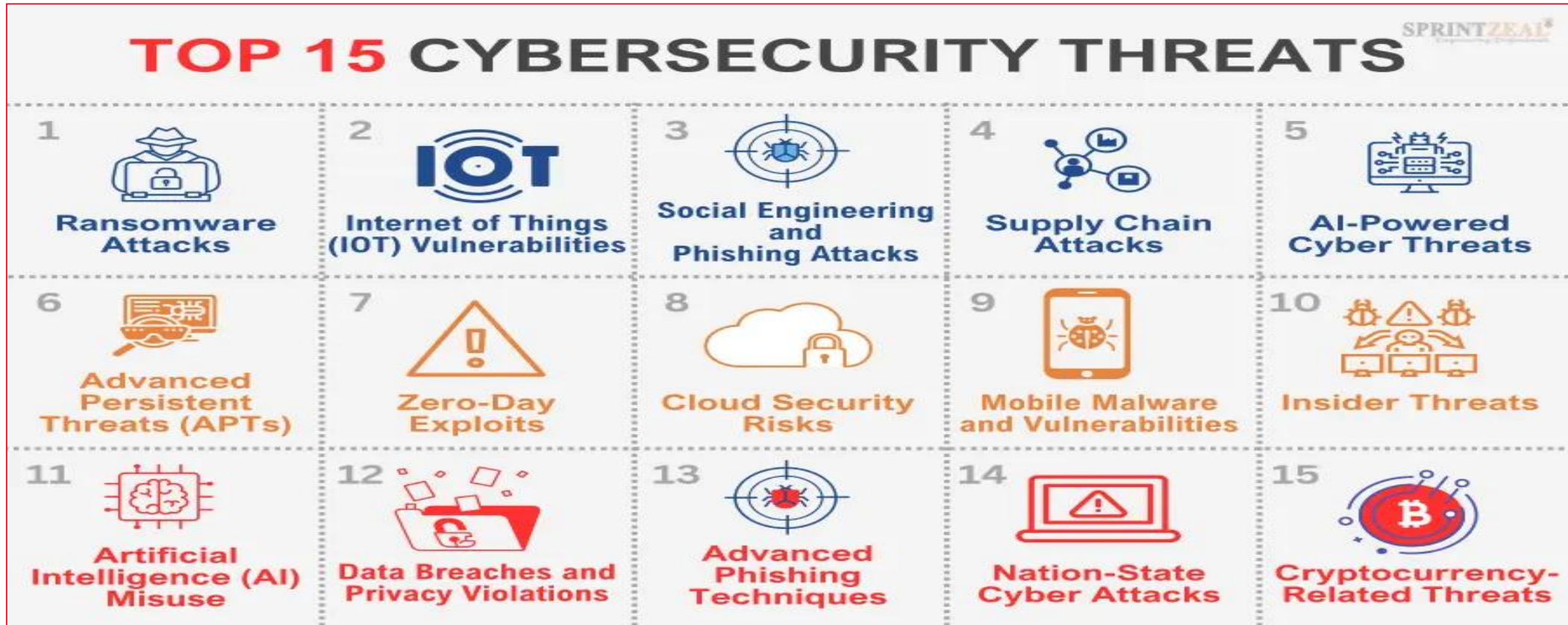


Industry 4.0 5.0 The Internet of Things (IoT)



Source: Toth, Pay (2022, May 11). Cybersecurity and Industry 4.0 – What You Need to Know. NIST-Manufacturing Innovation Blog.
<https://www.nist.gov/blogs/manufacturing-innovation-blog/cybersecurity-and-industry-40-what-you-need-know>

Cybersecurity Issues in a Distributed Work Environment



Source: Prajwall. (2023). List of Top Cybersecurity Threats in 2024. *SprintZeal*. <https://www.sprintzeal.com/blog/top-cybersecurity-threats>

The Evolving Data Landscape

Information Lifecycle Management

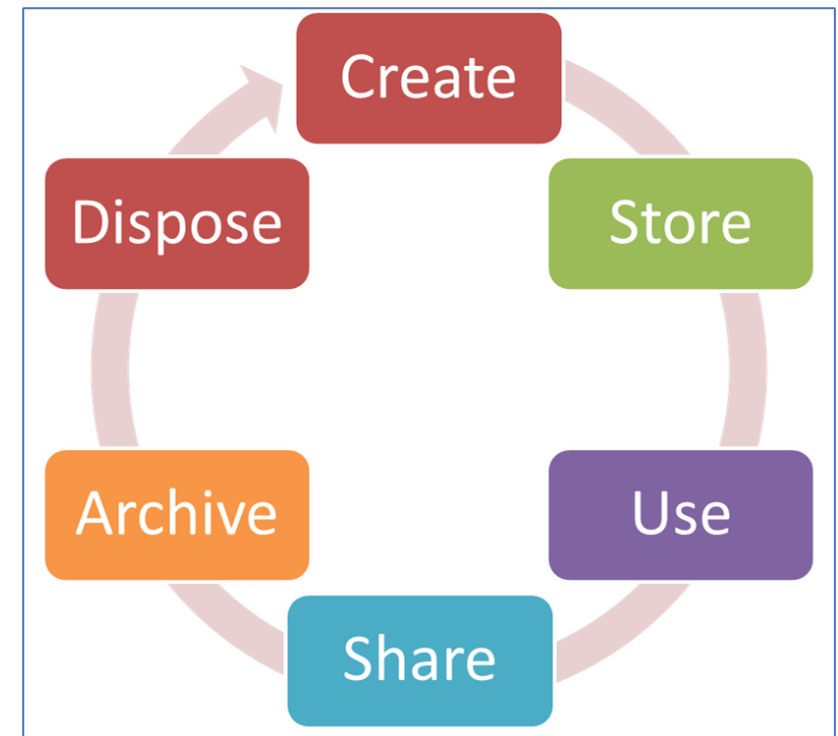
Create – Data Capture, Data Entry, Input Controls – Due Care

Store – Databases, Files – Management Policies, Data Retention

Use – Processed through processes and workflow

Share – Used and transformed across applications and organizational units

Archive – Dispose –Catalog and send data to secondary storage to free up storage space. Automated or non-automated removal of expired data





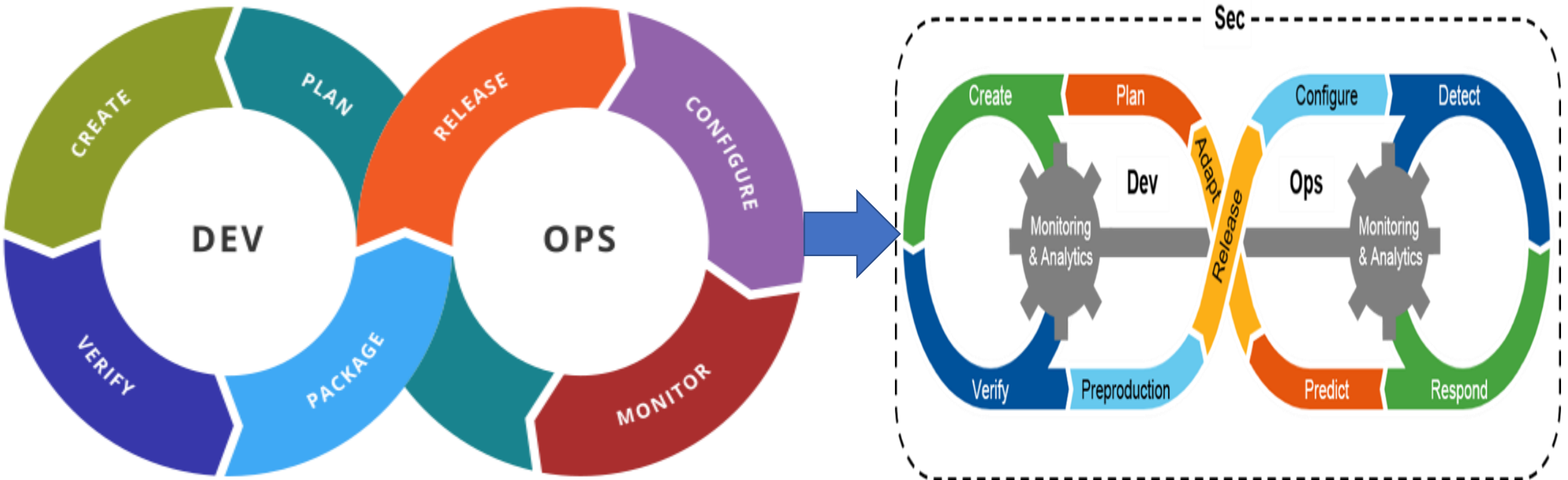
The Pillars of Data Governance



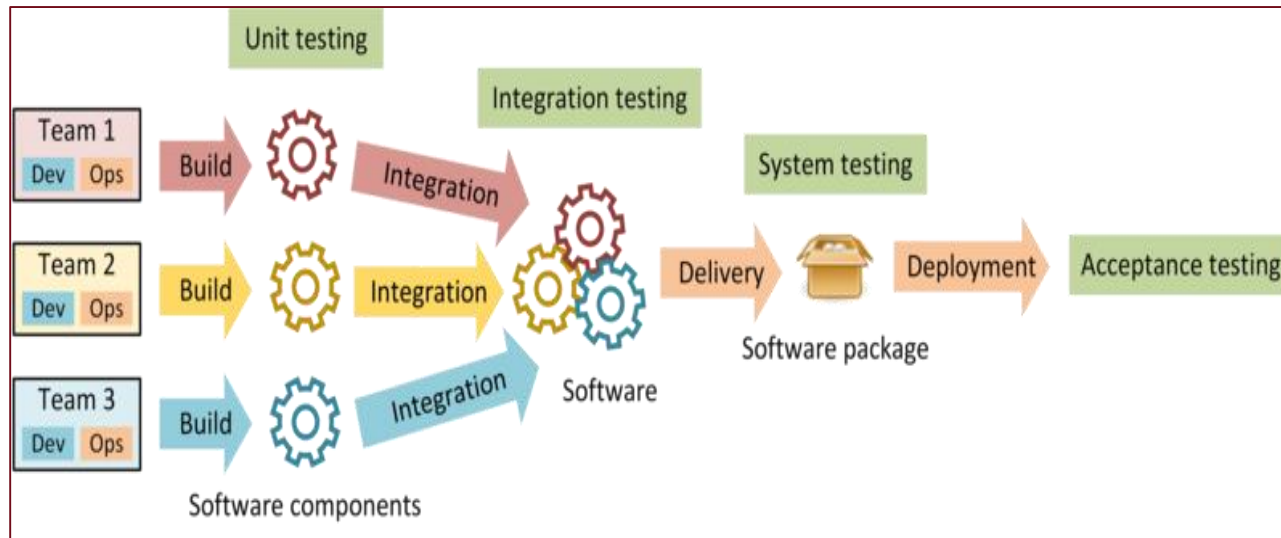
Source: Data Governance Framework. Adapted from: Richman, J. (2023). Data Governance: Framework, Principles & Best Practices. *Estuary*. <https://estuary.dev/data-governance/>



DevOps and DevSecOps Model

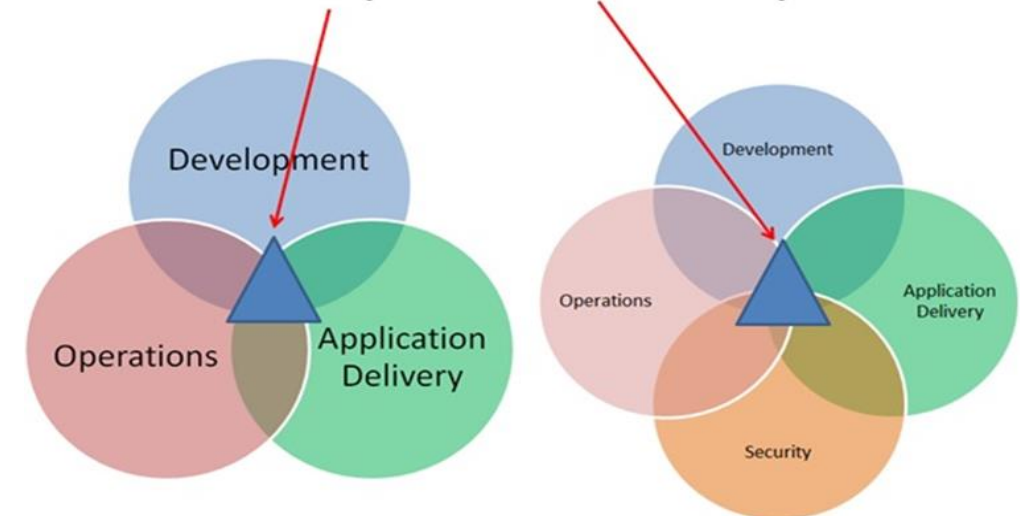


DevOps and DevSecOps Model



- **Teams integration and collaboration**
- **Ensure control structures and frameworks are configured**
- **User Interface Design for Continuous integration and improved user experience**

DevOps vs. DevSecOps



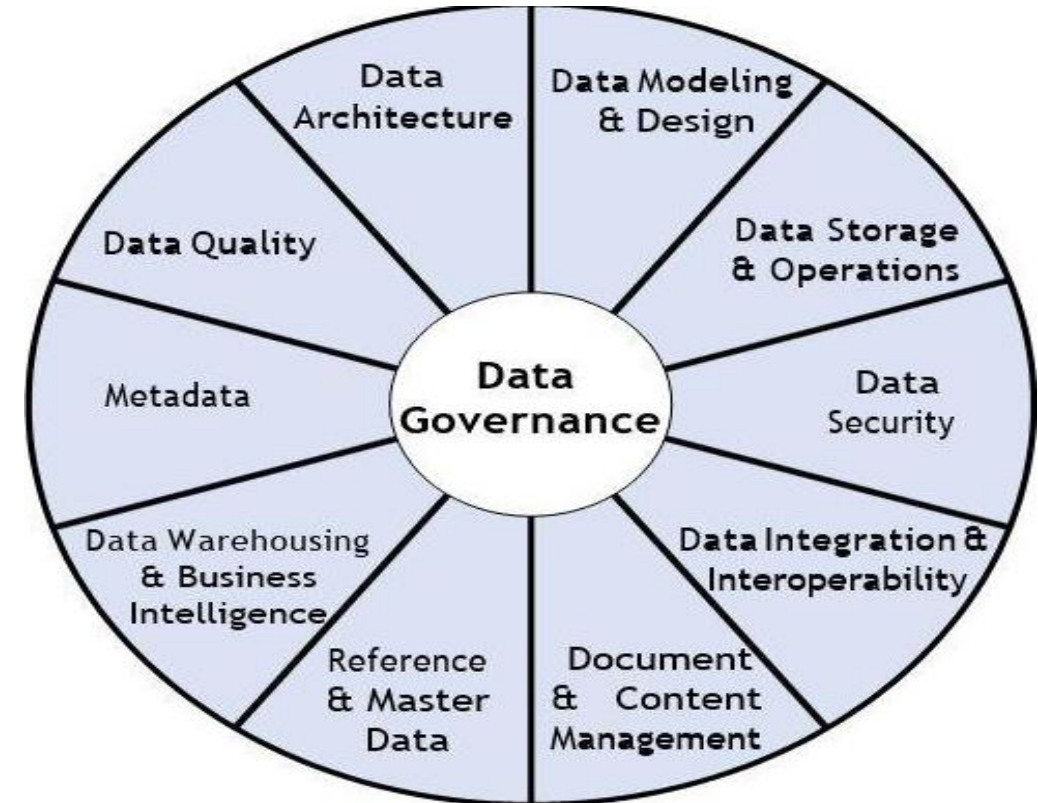
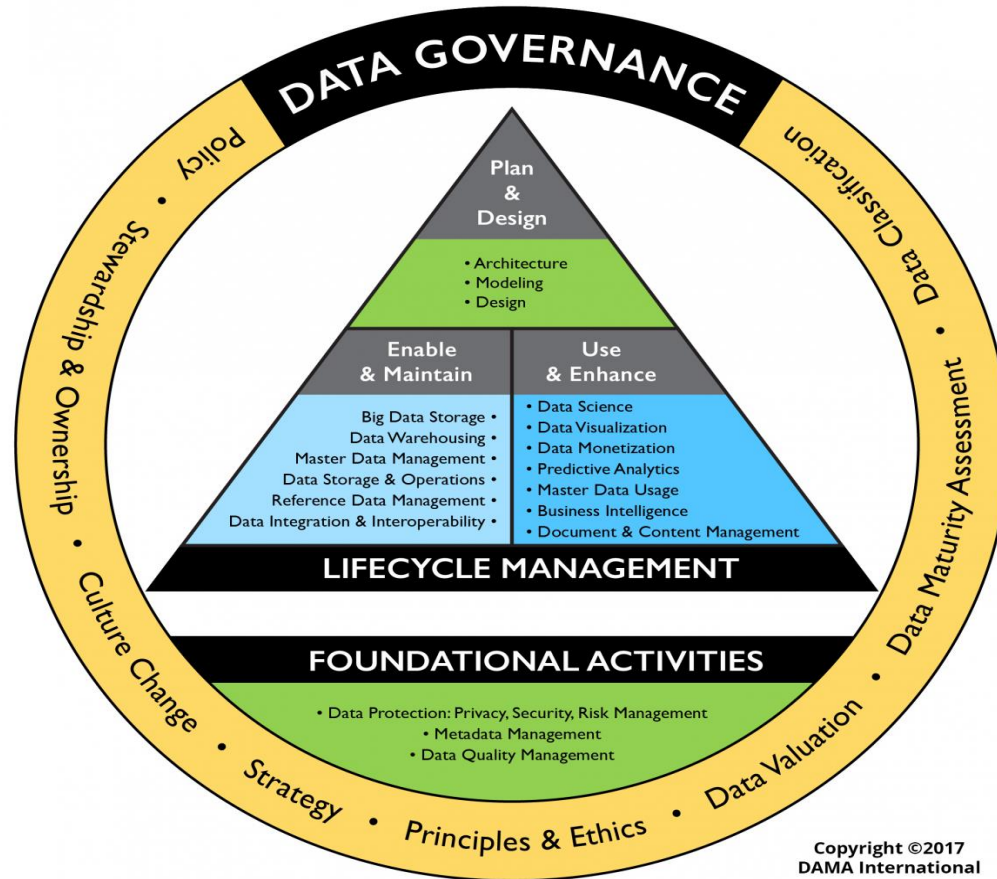
Adapted from:
https://tech.gsa.gov/guides/understanding_differences_agile_devsecops/



Data Governance Framework

- Set of management activities that organizes, implement and manage a set of structured policies, standards and procedures for effective use of the organization's structured and unstructured data.
 - A sound data governance program includes a governance council, similar to the security steering committee
 - Policies
 - Standards
 - Procedures
 - Metrics for QA
 - Roles & Responsibilities

Data Governance Framework



Source: DAMA Wheel. Adapted from: DAMA Rocky Mountain Chapter. <https://damarmc.org/news>



Steps for Assessing and Managing Risk in Projects

- ❑ **Risk identification.** The PM and IT team identifies and defines potential risks that may negatively influence a tasks, work packages, or processes.
- ❑ **Risk analysis.** Once risks are identified, both PM and IT teams analyze the root cause and determines direct and indirect impact based on the risk matrix.
- ❑ **Risk assessment and evaluation.** Identified risks are classified to determine severity levels based on the risk matrix, measured and quantitatively/qualitatively analyzed to determine risk acceptance and appetite level and the action steps to follow.
- ❑ **Risk mitigation and control.** Based on the defined metrics, controls are implemented and documented in the risk plan and risk log.
- ❑ **Risk monitoring.** Metrics and follow-up assessment to determine whether the controls or countermeasures implemented are working as expected, or if more fine tuning is needed. Keep track of operations and certify risks have been contained or mitigated.

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Conclusion

- There's an ongoing need to plan IT solutions based on customer or end-user needs and expectations.
- There is the need of improved user interface design for continuous user satisfaction and support to make programs, applications and contents appealing, practical, private and secure.
- In information technology, the user interface (UI) is everything designed into an information device with which a person may interact, while controlling and safeguarding data integrity and security.
- Embrace change and maximize the use of technological tools available
- Training and awareness is essential for successful project development and transition to production



Some References

- Bulnabm M. (2018). Why Supplier Master Data Governance. *HICX*.
<https://www.hicx.com/supplier-master-data-governance-part-2-2/>
- Melanahalli, P. (2020). Digital Transformation- Enabling Automated DevSecOps Success. *Cisco Blogs*. <https://blogs.cisco.com/networking/digital-transformation-enabling-automated-devsecops-success>
- Ranger, S. (2020). What is the IoT? Everything you need to know about the Internet of Things now. *ZDNet*. <https://www.zdnet.com/article/what-is-the-internet-of-things-everything-you-need-to-know-about-the-iot-right-now/>
- Tech at GSA. (n.d.) Understanding the differences between Agile & DevSecOps from a business perspective. https://tech.gsa.gov/guides/understanding_differences_agile_devsecops/
- TopDesk (n.d.) The Service Excellence Maturity Model. <https://page.topdesk.com/maturity-model>



Thanks for your Attendance!

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