Migrations Support Digital Transformation

Presenter: Altair Kaminski

Presenters Bio

Altair Kaminski

Northrop Grumman
Manager - PLM & Digital Strategy

**12 years of PLM experience**

Northrop Grumman Overview

Northrop Grumman solves the toughest problems in space, aeronautics, defense and cyberspace to meet the ever evolving needs of our customers worldwide. Our 90,000 employees are Defining Possible every day using science, technology and engineering to create and deliver advanced systems, products and services.

Aeronautics Systems

Defense Systems
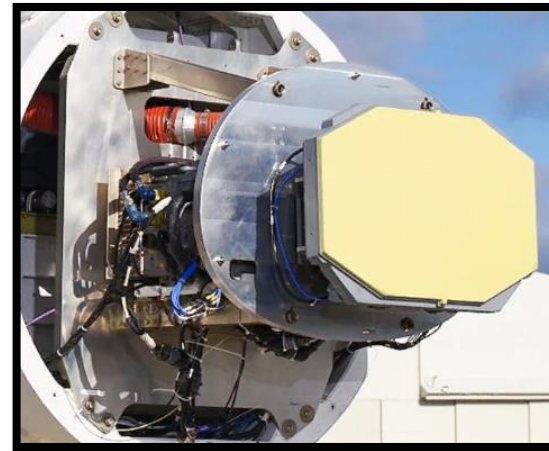
Mission Systems

Space Systems

Propulsion System Division

NORTHROP GRUMMAN

World's leading supplier of solid rocket motors for civil, commercial and defense customers

Six decades of unmatched experience in designing and manufacturing:

- **Strategic grade solid rocket motors**
- **Solid propulsion for space applications**
- **Human rated solid rocket boosters**
- **Specialty products using energetic materials**

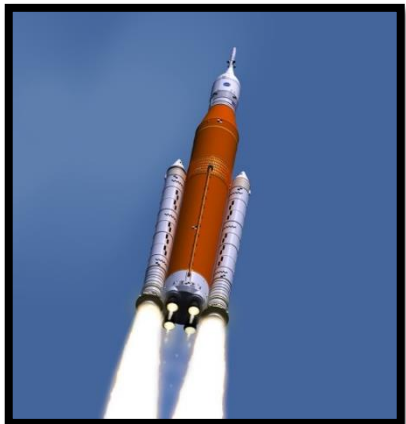**Modern, automated facilities and a world-class safety record**

Located in Magna and Corinne, Utah

Propulsion System Division Programs

NORTHROP GRUMMAN

Space Launch System and Orion Launch Abort Motor

Minuteman III and Sentinel (Ground Based Strategic Defense)

CASTOR® Motors for Antares launch vehicles

Orion Motors for Ground-Based Midcourse Defense

GEM motors for Delta, Atlas and Vulcan launch vehicles

Trident II (D5)

Digital Transformation is how PEOPLE generate, access and consume DATA while using TOOLS to follow their PROCESSES

Digital Transformation is a Journey

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"… digital transformation is not a single thing, but a multi-faceted journey with differing goals depending on your industry and digital maturity."

(Furr, Shipilov, Rouillard & Hemon-Laurens, 2022)

| Culture & People	Programs & Development	Business & Operations	Technology Enablers
Focus on employees as central to Digital Transformation	Ensure access to the right tools to support Enterprise Transformation	Drive efficiencies into business and operations	Integrate digital technologies at every stage of the product lifecycle

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The butterfly is often used as the symbol of a transformation,
from a caterpillar to a beautiful butterfly

But consider that many species of butterfly also migrate

These two processes are often intertwined
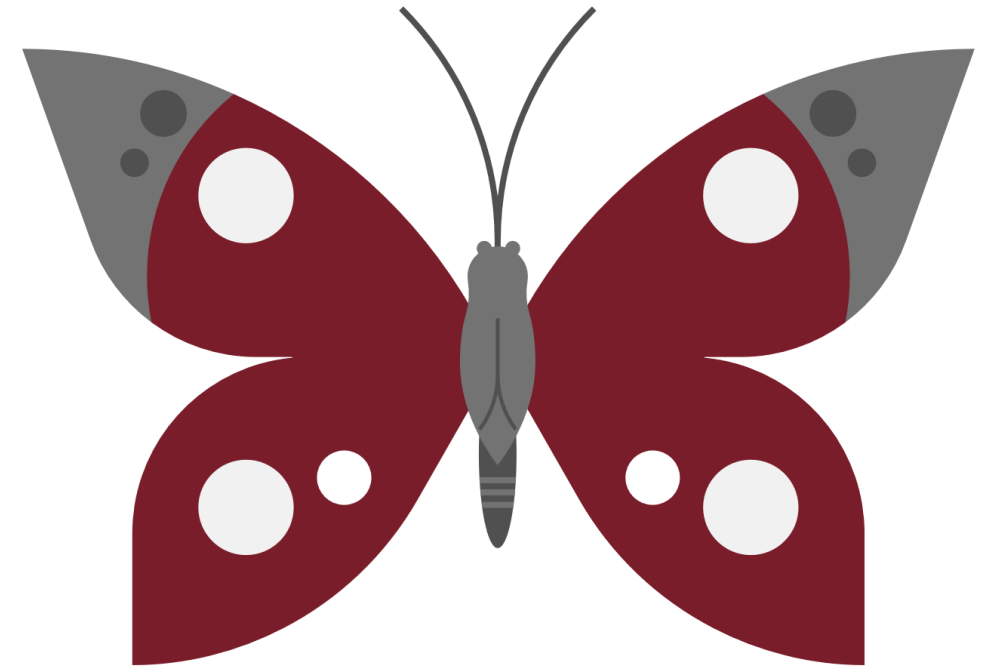
Migration & Digital Transformation

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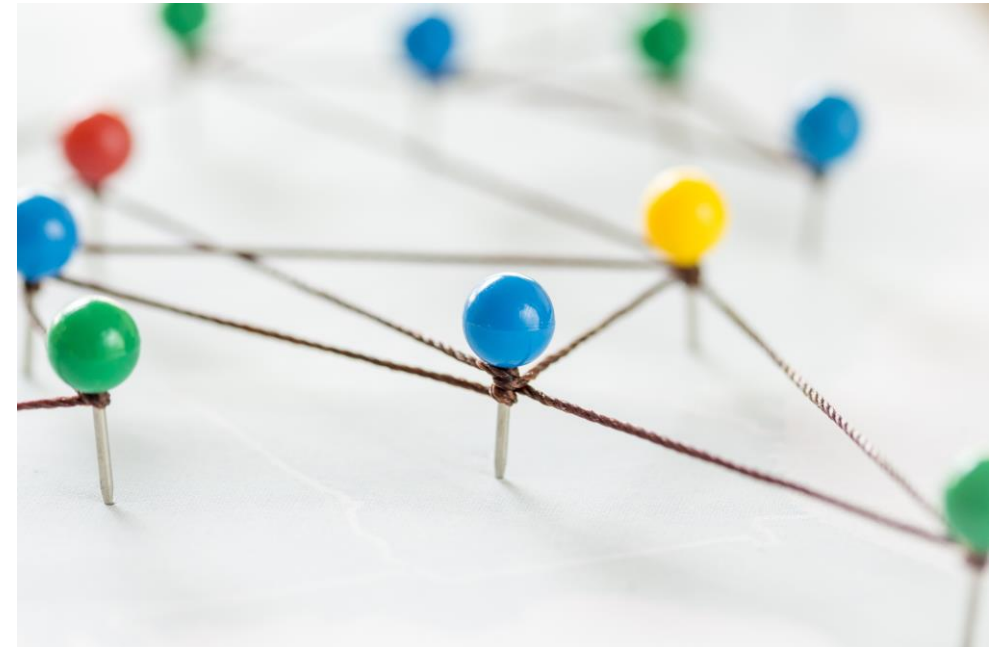
Much like butterflies migrate to their food…

People converge on new processes if they include familiar data

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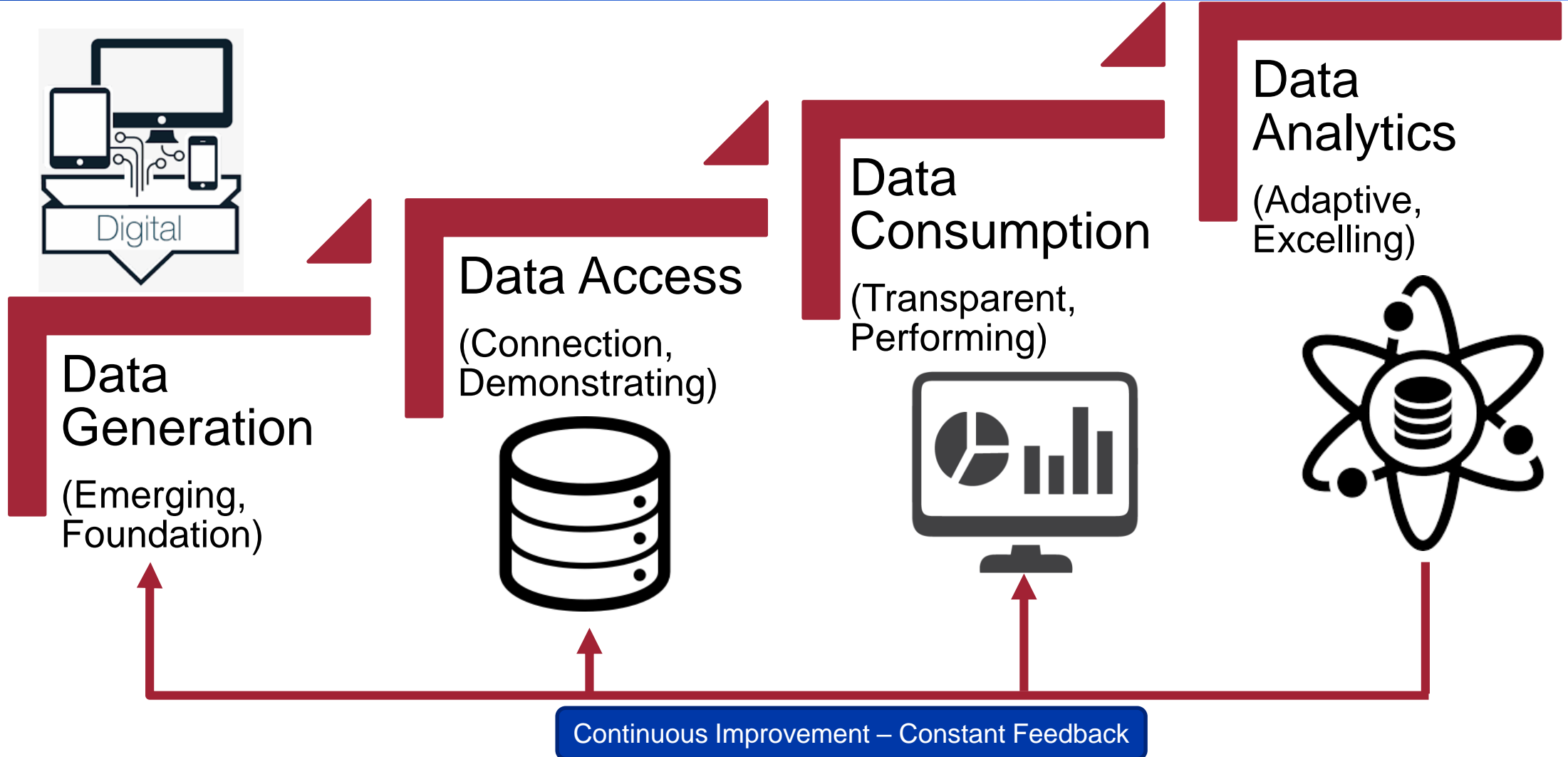## Data Connectivity throughout the lifecycle of a product

- Data is at the heart of digital transformation, but the **connections** are what provide the big picture
- Connections do not have to be made at the beginning of product lifecycle or continuous to be a leveraged

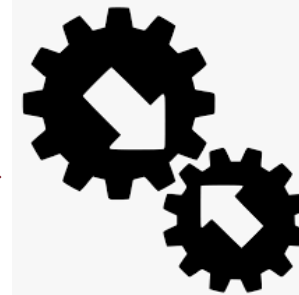**Data Migration can and should support both the preservation and the creation of these connections**

GLOBAL PRODUCT DATA INTEROPERABILITY SUMMIT 2022

Data Generation
(Emerging, Foundation)

Data Access
(Connection, Demonstrating)

Data Consumption
(Transparent, Performing)

Data Analytics
(Adaptive, Excelling)

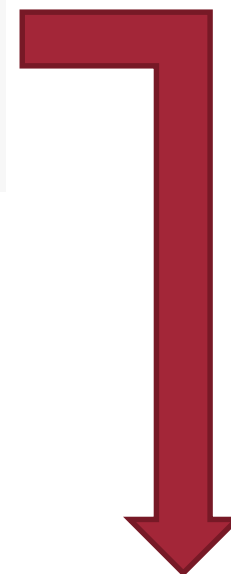Continuous Improvement – Constant Feedback

Generate, Access and Consume Data

Silos to ASoT Integrated Flow

Desktop/Shop-floor to Database

Digital

Paper to Digital

Digital Transformation

Migration Badges of Honor

- **Big Bang Migration**
  - 3 years
  - 3500+ users
  - Replaced over 120 legacy systems with new PLM, ERP and MES systems and processes

- **SolidWorks Migration**
  - 9 months
  - 50+ users
  - 63K objects
  - Replaced legacy SmarTeam system and established the framework for additional document management

- **Access Database Migration**
  - 1 year
  - 2000+ users
  - 35K objects
  - Replaced legacy SharePoint system to converge change & document management data with CAD data
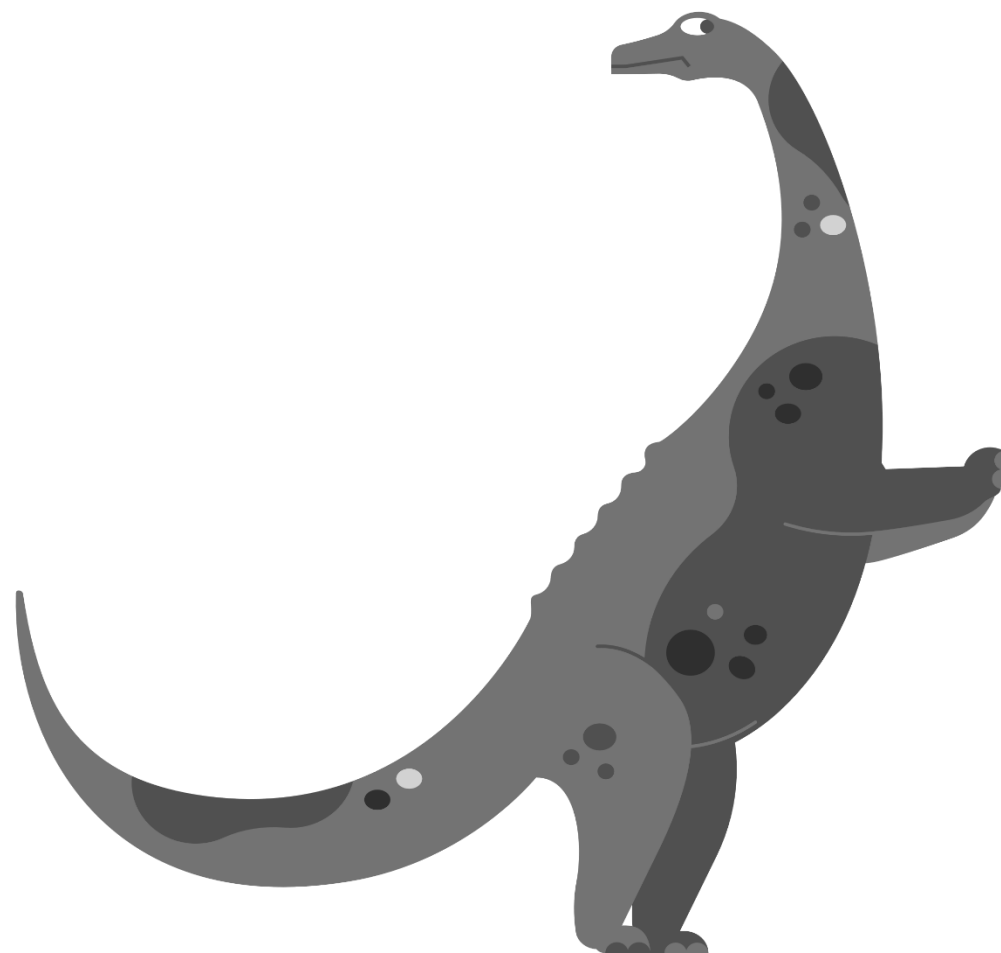
- **Teamcenter Enterprise migration**
  - 4 years
  - 4700+ users
  - 5M objects and 11M relationships
  - Converging all document management data into existing Teamcenter Unified instance

Checklists

Development

Contractors

Profiling

Mapping

Verification

Cleansing

So why spend time, energy and resources on migrations?

Drivers for Making the Move

- **Software/Infrastructure Obsolescence**

- **Mergers & Acquisitions**

- **Data Consolidation**

- **Legacy Data Digitization/Access**

- **Improved Software Capabilities**

- **Management Mandate**

- **Other**
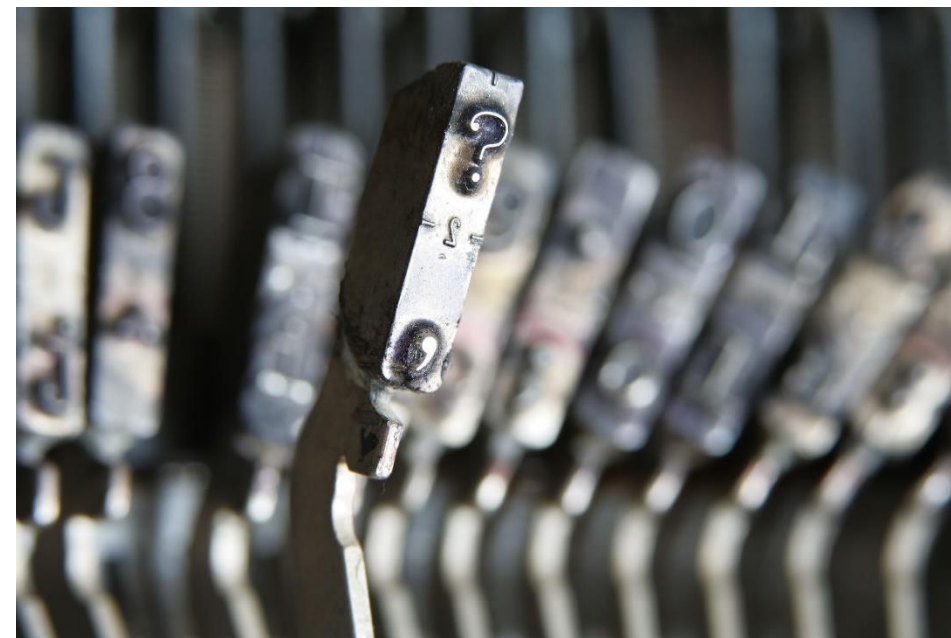
## Every Migration is an opportunity for Digital Transformation!

Migration Balancing Act

Data migration is often needed in support of digital transformation to help meet business and contractual requirements

But, migrations involve more than just moving data
– **Successful migration engagements include the following prerequisites/concurrent implementations:**

- Process discussions and how the migrated data will support the go forward processes

- Process development and supporting data model updates in the system

- Process and tool interface training for validators and eventually for the users
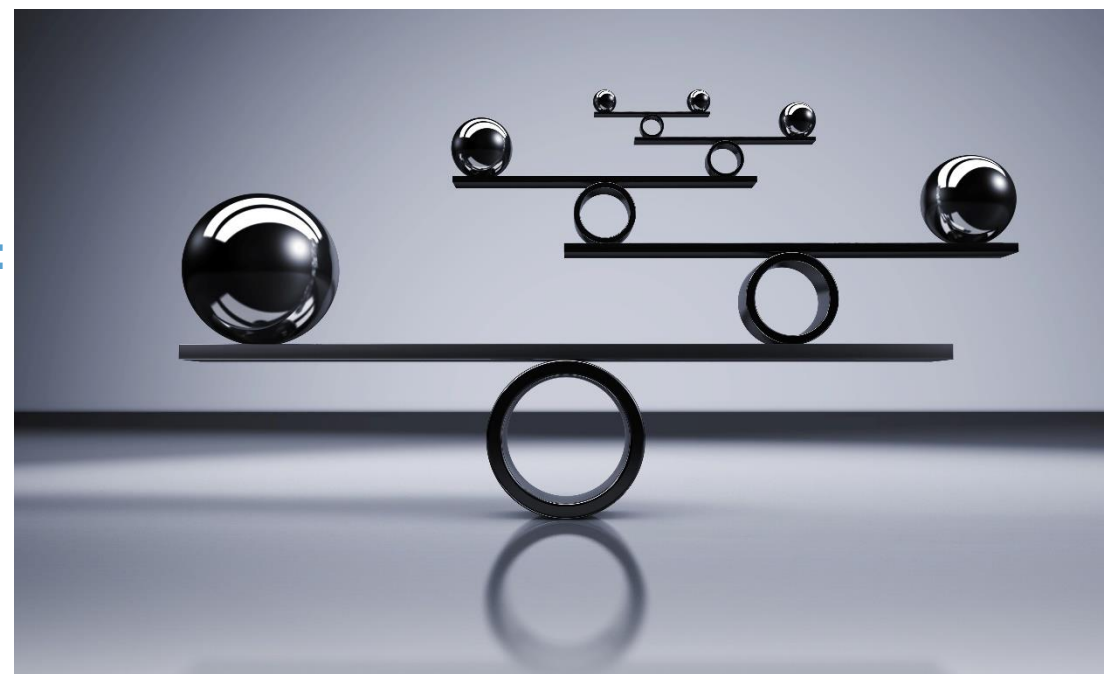
Initial Data Migration Tasks

- **Migration requirements defined**
  - Data conversions/translations defined
- **Prerequisites defined**
- **Profiling identified**
  - Internal data collisions
  - Data Collisions with data already in the destination system
  - Data that is invalid for the destination system
  - Potentially review to exclude stale/unused data
- **Profiling resolutions implemented**
  - Source data clean up
  - Collision renaming
    - Source system vs part of translation to destination
- **Data sequencing requirements identified**
- **Validation/Testing plan developed**
- **Reporting metrics defined**

Initial Process Migration Tasks

- **Develop Communication Plan**
  - Account for differing levels of communication
    - Account for external change communication needs
  - Use several methods for communication: email, posters, etc.
- **Identify Subject Matter Experts (SMEs)**
- **Identify Change Agents**
- **Workflow/Process Definition & Development**
  - Look for opportunities
    - Process Improvements
    - Reduce data re-entry
- **Training Plan**
  - Development
  - Delivery timing
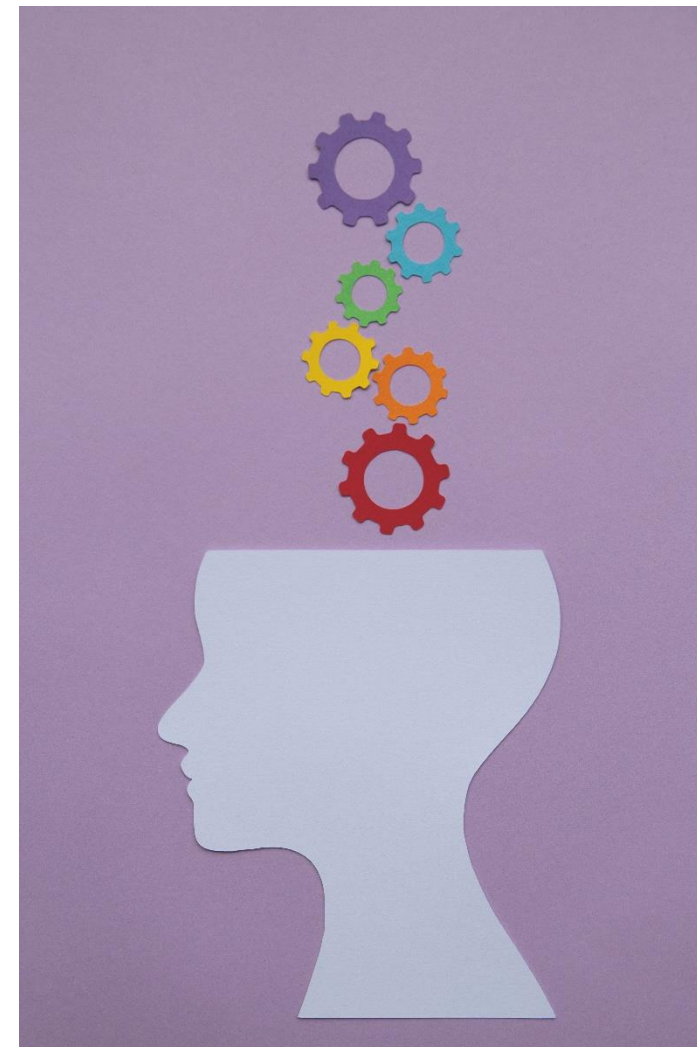
Conclusion

Data migration is a chance

    To cleanse data

    To connect data

    To re-evaluate and improve processes

    To support the future while not re-creating the past

Process migration is an opening

    To take advantage of new technology

    To develop more efficient methods

    To create integrations

Put a heavy focus on organizational change management to help people see the beauty in both
Migration & Transformation

Questions

Potential Backup Slides

Path to Accomplish Goal

- Establish RACI chart for all migration tasks
- Determine quantity of data
  - Determine file storage requirements
  - Determine historical data access requirements
    - Move all data to destination vs migration archiving strategy
- Define data security requirements
- Determine migration method (In house vs Vendor)
  - In house – Identify Method
  - Vendor – Identify Vendor
- Determine Timing
  - When data is needed in production
  - Big Bang, Delta, Process Specific
- Develop migration validation methods and reporting
- Establish sun setting timeframe for source system