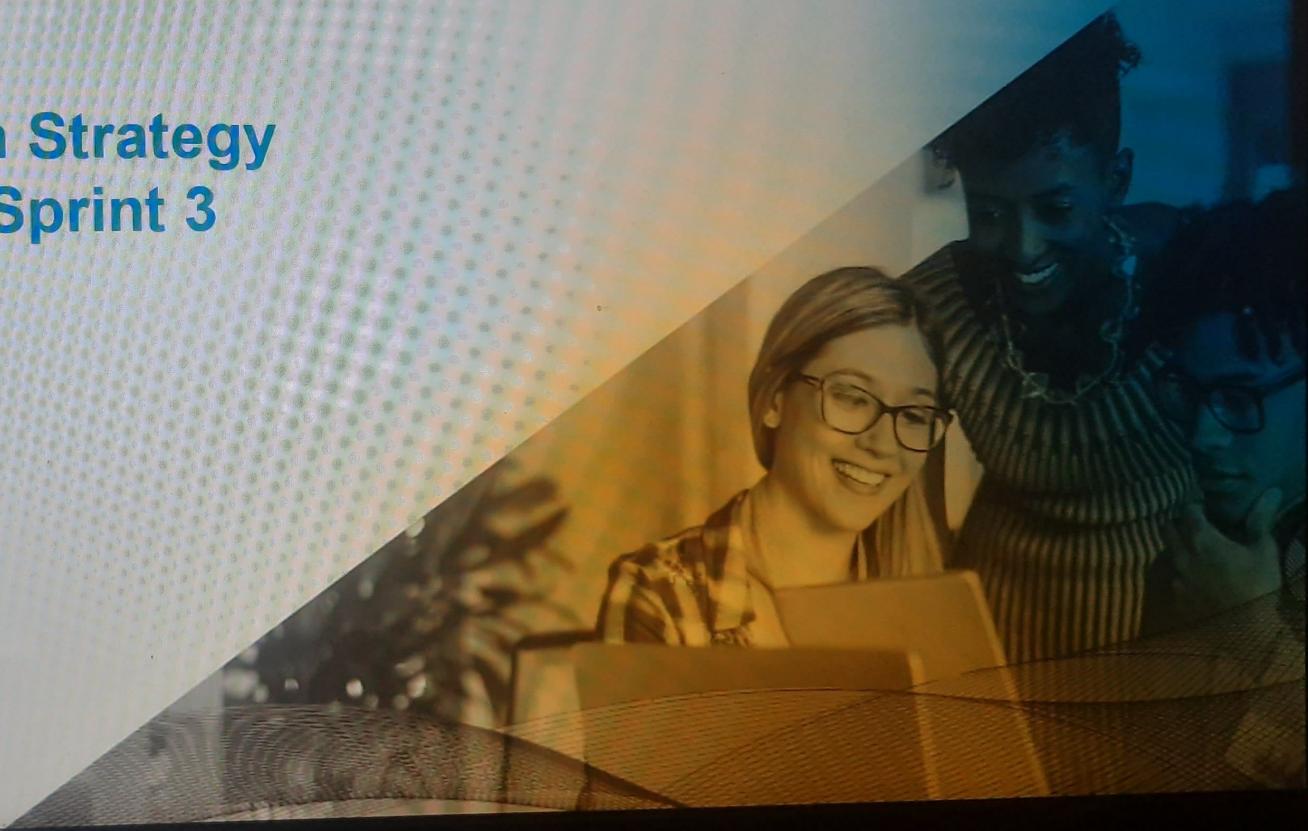


D365 F&O – Integration Strategy

Technical workshop – Sprint 3



Agenda

- Key Considerations
- Finance and Operations Apps Integration – Future state
- Dynamics 365 F&O Integration Framework
- Native Integrations
- Factors to consider when choosing a pattern
- Integration Strategies
- Integration Requirements

Factors to consider when choosing a pattern

- **Latency** – Synchronous/Asynchronous
- **Frequency** - High: seconds or minutes / Medium: Hours or Days / Low: Weeks or Months
- **Interaction/Operation** – Create / Read / Update / Delete / Action
- **Volume** - Low / Medium / High Volume
- **Batching** - Un-batched / Batched
- **Transport Protocol** - Windows File Service, FTP/SFTP, HTTP/HTTPS, SOAP Web Service, Direct SQL Query, REST API.
- **File formats & Schema/Data Dictionary** - File Formats / Message/API Schema/ Data packages
- **Transformation** - Data transformations that are external to the system.

Key Considerations

Business Process Requirement

An interface must only be developed if there is an appropriate Business Process requirement.

Executive summary

The process flow in F&O and other associated systems.

Solution Design Document

Solution design document is required to interface design for all the system.

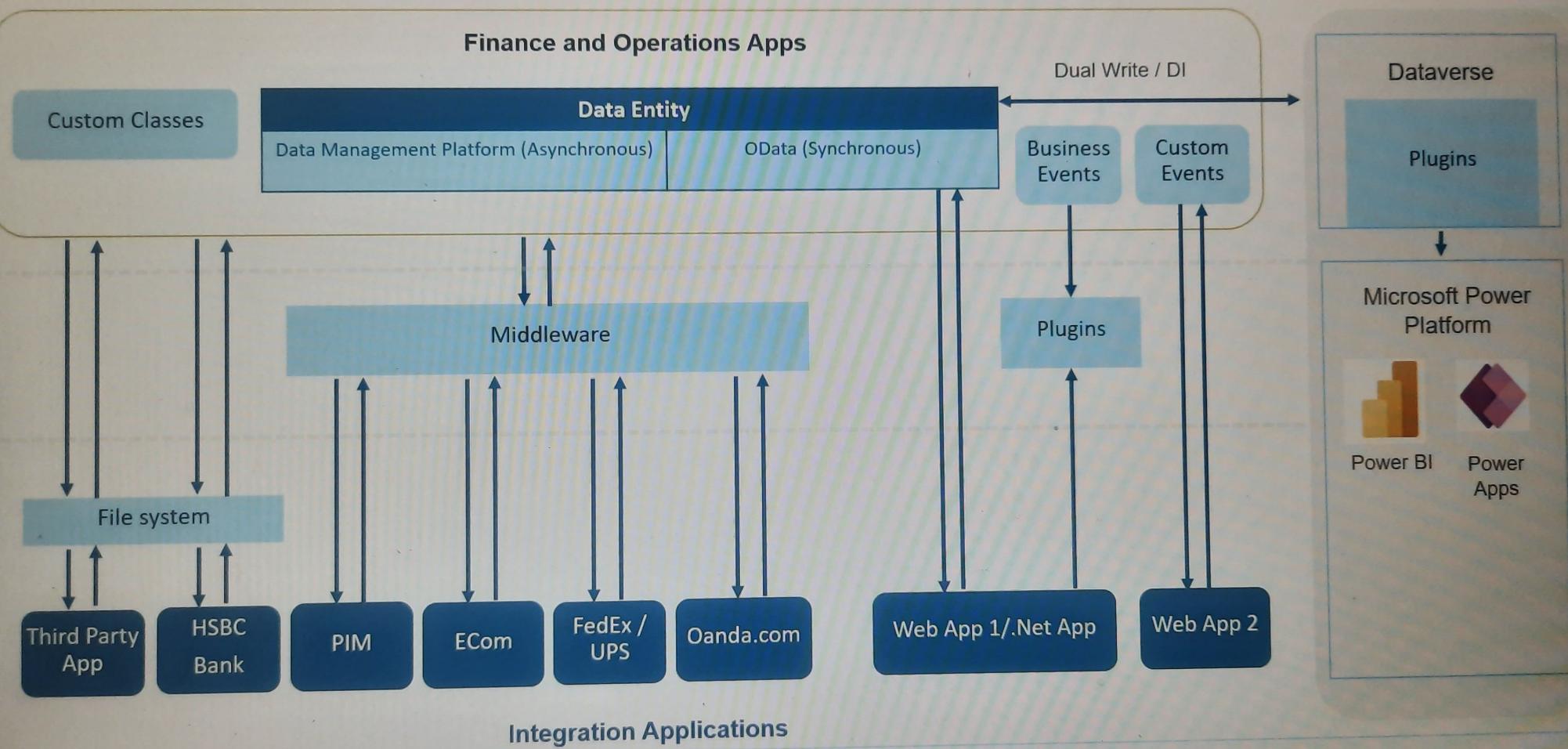
Scope & Approach

Scope of the work needs to be identified and the approach for the integration.

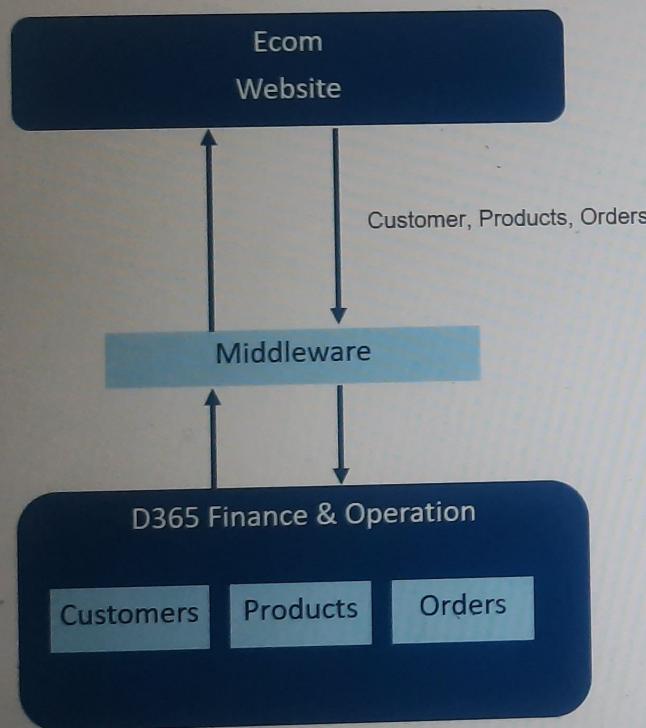
Security

Ensure that information passing through interfaces is secure and complies with Client security standards.

Finance and Operations Apps Integration – Future state

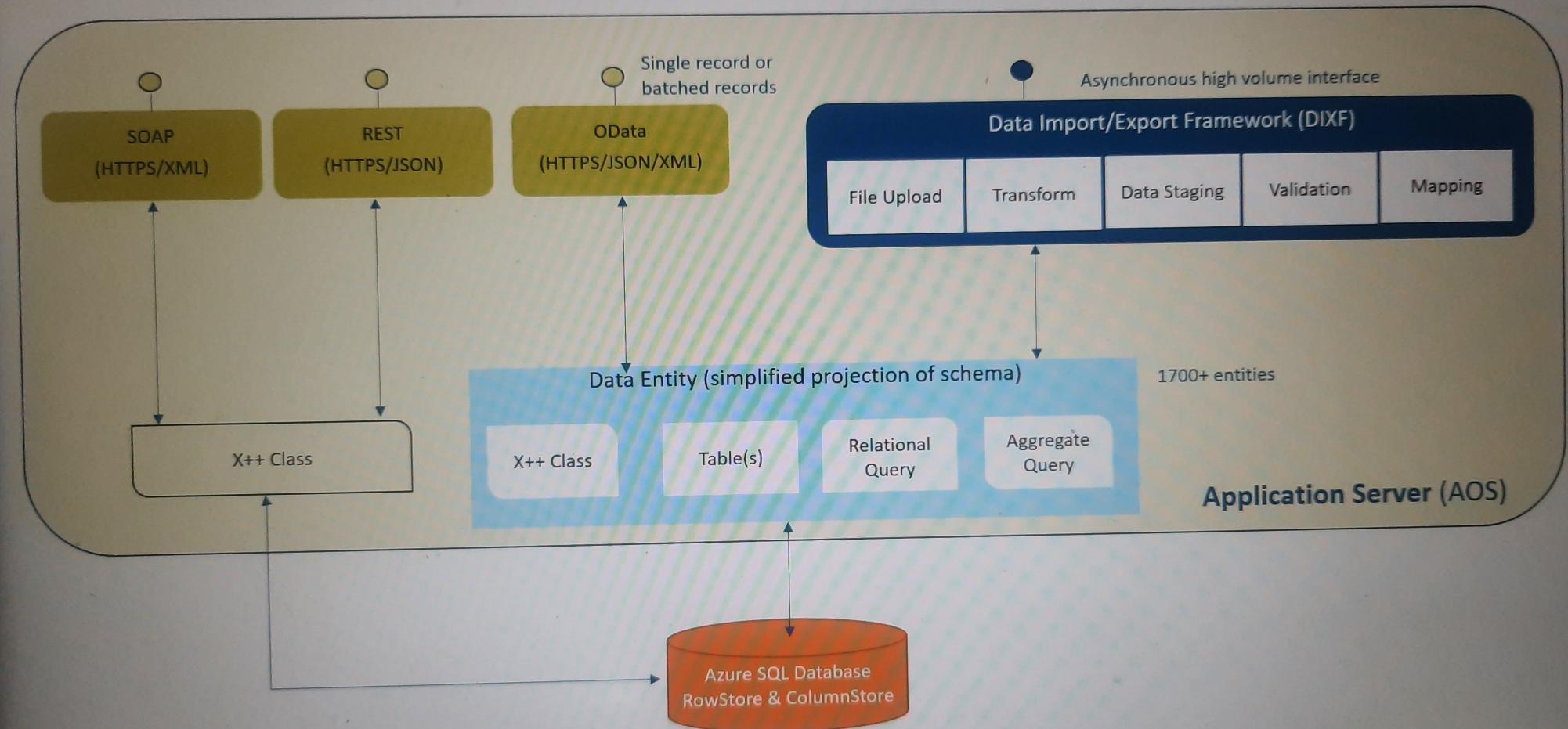


E Com Integration – Future state



- Ecom websites sends data of Customers, Products and Orders to D365 F&O
- D365 F&O process and creates Customers, Products and orders respectively
- The key changes done in D365 F&O is sent back to E com for update
- Data from different brand are Pasternack, Fairviewmicrowave, Kppermanence, Hayden/Transtector, Polyphaser

Dynamics 365 F&O Integration Framework



Native Integrations

- **File based** – DMF/ Recurring Interface Scheduler or Logic Apps supports File based Integrations
- **Bank** – Electronic Reporting(ER) facilitates the integration using bank transaction file
- **OData** – Data entities can be used as OData Endpoints for Integrations with Authentication(AAD)
- **BYOD** – Supports Azure SQL Data base, Projects, Mapping, Execution schedule
- **Azure data lake** - Centralized Repository for Data, Supports Blob storage on Azure cloud.
- **Business events** – Integration to send notifications from D365 F&O, Used by Azure Service Bus, Azure Logic Apps, Microsoft Flow, Azure Functions, HTTPS Trigger
- **Custom services** – X++ code to develop a Custom service. Deployed as both SOAP and REST Endpoints
- **Power Platform integration** - Automate processes, build solutions, and analyze data. Includes Power BI, Power Apps, Power Automate, Power Virtual Agents

Synchronous vs asynchronous?

Type	Technologies	Pros	Cons	Good for	Examples
Synchronous	<ul style="list-style-type: none"> • OData V4 (REST API) • Custom services • Dual-write (Real-time). 	<ul style="list-style-type: none"> • Fail-safe communication. • Error/exception handling • Real-time processing 	<ul style="list-style-type: none"> • Tight coupling between systems. • Blocks sender until the receiver is finished. • Network dependency; calling system must be available 	<ul style="list-style-type: none"> • Transaction processing across multiple systems. 	<ul style="list-style-type: none"> • Mobile app/handheld for PO receiving. • SO picking, inventory on-hand • Editing data in excel.
Asynchronous	<ul style="list-style-type: none"> • Data import/export (Recurring & API based). • Business events 	<ul style="list-style-type: none"> • Decoupled systems. • The integrating system doesn't need to be available. • Messages can be queued • Batch Processing 	<ul style="list-style-type: none"> • Reliability. • Error/exception handling. 	<ul style="list-style-type: none"> • Publish and subscribe. • Request reply. • Conversation. 	<ul style="list-style-type: none"> • General ledger, sales order. • Purchase orders • Master data integrations. • Nightly credit card data file • Business event triggering retrieval of packing slip details

Integration Strategies

Integration technology	Integration type	Integration pattern	Best suited for
OData	Inbound/Outbound	Synchronous	Low to medium volume, a real-time, system to system integration
Custom services	Inbound/Outbound	Synchronous	Low to medium volume, a real-time, system to system integration
MF Recurring Integration Package API	Inbound/Outbound	Asynchronous	High volume asynchronous import/ export
Business events	Outbound	Asynchronous	High volume status event notification, workflows, and outbound integrations
Dual-write	Inbound/Outbound	Synchronous	Integration with Dynamics 365 Apps
Data Lake integration	Outbound	Asynchronous	High volume data integration for Analytics

Web Integration Concepts

RESTful API

- Representational State Transfer (REST) is an architecture style for an API that uses HTTP request to access and use Data
- Web service APIs that adhere to the REST architecture are called RESTful APIs

OData

- OData is a standard protocol for creating and consuming data
- Provide a protocol that is based on Representational State Transfer (REST) for create, read, update, and delete (CRUD) operations

SOAP APIs

- The Simple Object Access Protocol (SOAP) is a specification for exchanging structured information for web service implementation.
- SOAP uses XML as a message format and relies on application layer protocols
- Protocols include HTTP, TCP, and SMTP, for message transmission

JSON message format

- JavaScript Object Notation (JSON) is a lightweight data-interchange format.
- JSON is self describing and easy for humans to read and write.
- It is the most used data format on the web and for RESTful web services

RESTful vs SOAP APIs

- SOAP is a protocol, while REST is an architectural style.
- SOAP defines standards to be strictly followed, while REST doesn't define too many standards.
- SOAP requires more bandwidth and resources than REST.
- SOAP defines its own security; RESTful web services inherit security measures from the underlying transport layer.
- SOAP permits the XML data format only; REST permits different data formats, such as plain text, HTML, XML, and JSON.

Integration pattern limitations

- OData - Inbound message size: 50MB
- OData Max Page Size: 10k
- OData Max Parts per Batch: 100
- OData Max Operation per Changeset: 1K
- DMF - export file size (<PU32): 256MB
- OData Timeout: 20 mins, but other infrastructure might shorten it
- BYOD Timeout(s): Command 10 mins, send 1 hour, configurable
- Entity Store Timeout: 1 hour

Note: These limitations may exist in the platform and underlying infrastructure and may influence the design patterns you choose for integrations.

Integration Requirements

1. Ability for D365 trial balances across Legal entities to export file automatically into outside financial reporting tool

ID	Work Item Type	State	Title	Description	Solution Details
2545	Requirement	Proposed	Ability for D365 trial balances across Legal entities to export file automatically into outside financial reporting tool	Ability for D365 trial balances across Legal entities to export file automatically into outside financial reporting tool (Hyperion)	

Approach 1

- Create a excel/csv file for the trial balances using custom code and export the file to FTP server.
- The Third-party application can pick the file from FTP Server for processing

Approach 2

- Create an export project
- Create a recurring data job for the export project
- The Third-party application can use Recurring Integration APIs to get the Trail balance data from D365 F&O

Integration Requirements

2. Ability to integrate multiple PDM, PIM and Product Data sources into the D365 Item Master data

ID	Work Item Ty	State	Title	Description	Solution Details
2916 Requirement	Requirement	In Progress	Ability to integrate multiple PDM, PIM and Product Data sources into the D365 Item Master data	<div>Ability to integrate multiple PDM, PIM, and Product Data sources into the D365 Item Master data </div>	Modifications for integration

Approach 1

- OOB data entity are available to import Items
- Recurring Integration API can be used to import item data into D365 F&O.

Approach 2

- Custom Service can be created to import with business logic
- Third party application can consume the API to import the data in to D365 F&O

Integration Requirements

3. Ability to provide new product creation functionality to support process for developing new custom products and integrate with D365 item data

ID	Work Item Ty	State	Title	Description	Solution Details
2918	Requirement	Proposed	Ability to provide new product creation functionality to support process for developing new custom products and integrate with D365 item data (refer to NAV customization)	Ability to provide new product creation functionality to support process for developing new custom products and integrate with D365 item data (refer to NAV customization)	OOB Functionality using standard functionality , autom require modifications

Approach 1

- OOB data entity are available to import Items
- Recurring Integration API can be used to import item data into D365

F&O.

Approach 2

- Custom Service can be created to import with Item data
- Third party application can consume the API to import the Item in to D365 F&O

Integration Requirements

4. Ability to automatically create BOMS from multiple external systems (including PIM) integration and upload processes for data

ID	Work Item Ty	State	Title	Description	Solution Details
2975	Requirement	Proposed	Ability to automatically create BOMS from multiple external systems (including PIM) integration and upload processes for data	<div>Ability to automatically create BOMS from multiple external systems (including PIM) integration and upload processes for data</div>	<div>to be clarified and confirmed. Likely requires integration </div>

Approach 1

- OOB data entity are available to import BOM
- Recurring Integration API can be used to import BOM data into D365 F&O.

Approach 2

- Custom Service can be created to import with BOMs data
- Third party application can consume the API to import the BOM in to D365 F&O