A Mind Shift in Interface Handling

- Streamline efficiency, provide better interface architecture, and reduce costs in interface implementation and monitoring.
- Improve architecture of complex information and communication flow between different business units to secure business goals.

Standardization and harmonization of interface implementation and monitoring
Holistic Interface Handling by SAP Application Interface Framework

SAP Application Interface Framework
• A powerful framework for interface implementation, monitoring and error handling
• A proven solution with more than six years of development and customer history
• A cross-industry solution with customers from 22 industries

Interface Implementation (Design Time)
• Interface implementation mainly through Customizing menus
• Easy access to relevant data or functions of underlying SAP application
• Re-use of interface components (e.g. checks, mappings, actions)
• Supports variants of interfaces (exceptions or additional steps)
• Independent implementation and testing of interface components and interface variants

Monitoring and Error-Handling (Runtime & Operations)
• Business user monitoring (power user)
• Customizable authorizations for interface access
• Overview of interface status
SAP Application Interface Framework
Architecture Overview

Legend:
- SAP Basis
- SAP Application Interface Framework
- SAP Standard Application

SAP Application System

- SAP Application Interface Framework
  - Checks
  - Field Mappings
  - Value Mappings
  - Actions
  - Local Variants
  - Customizing (Interface-specific)
  - Monitoring and Error Handling

- BAPI (BAPI®)
- Standard Function
- Customer Function
- Application Log
- Alert Management
- Security/Authorizations

Interface Implementation
(Technical User)

Monitoring and Error Handling
(Business User)

Alerting
(Business User)
Typical Components in Complex Integration Scenarios
Solution Manager, SAP Process Integration and SAP Application Interface Framework

Solution Manager, SAP PI, and SAP AIF together provide a complete toolset for complex integration scenarios. They efficiently combine Operational Monitoring, Technical Integration, and Transactional Error Resolution capabilities.
SAP Application Interface Framework
Usage Scenarios and broad Coverage of underlying Basis Technologies

Multiple Usage Scenarios allow Implementation of new Interfaces as well as Monitoring of existing Interfaces. A broad range of underlying Basis Technologies can be addressed.

SAP Application System

**Scenario 1**
Use AIF **Runtime AND Monitoring**
- Checks
- Structure Mappings
- Value Mappings
- Actions

**Scenario 2**
Use **Monitoring** on top of multiple technologies (e.g. existing IDOC)

**Scenario 3**
Use **Runtime only** (e.g. for synchronous interfaces RFC etc.)
- Checks
- Structure Mappings
- Value Mappings
- Actions

Implementation possible (partly supported by templates) on e.g.:
- qRFC
- ALE / IDOC
- bgRFC
- Web Service
- BDOC
- Files
- Enterprise Service
- CIF
- Synch. RFC
- MWB
- Proxy XI Runtime
- Customer specific technology
Sample Use Cases of SAP Application Interface Framework based Interface Implementation and Functional Monitoring

Applications | Analytics | Cloud / On Demand | Mobile | HANA | DB / Technology
--- | --- | --- | --- | --- | ---
Middleware/ESB or Technical Integration Layer | PI | Crossgate | Gateway | Other Integration

Business Integration Layer with AIF for interface implementation, AIF runtime, and functional monitoring and error handling

Error monitoring with focus on business users
Framework for interface implementation
SAP Application Interface Framework

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Benefits and Values
SAP Application Interface Framework
Benefits for the IT, Business & Management

Benefits for the IT:
A Framework for Interface Implementation with great Governance through interface lifecycle

⇒ Simplified Interface Landscape and Architecture

Benefits for the Business:
Easy and efficient Interface Monitoring targeted at business users

⇒ Reduced time needed for error handling

Benefits for the Management:
Transparency, Governance, Cost Savings, and Compliance

⇒ Controlling Interface Landscape & the Budget
SAP Application Interface Framework
Benefits for the IT

Benefits for the IT:
A Framework for Interface Implementation with great Governance through interface lifecycle
• Fast implementation of Interfaces
• Enforcement of implementation guidelines
• Re-use of components in multiple interfaces
• Allows versioning of interfaces
• Unification of required skills
• Test tool for automated testing
• Tool-supported documentation of interfaces

→ Simplified Interface Landscape and Architecture
SAP Application Interface Framework
Benefits for the Business

**Benefits for the Business:**
Easy and efficient Interface Monitoring targeted at business users
- Transparency of interfaces within area of responsibility
- User-friendly Interface Information
- Ability to correct errors within their system on User Friendly Screens
- Capabilities for mass error handling
- Highlighted Errors in Interface Documents which offer forward navigation to issue
- User Alerts in case of Errors

➔ Reduced time needed for error handling
Benefits for the Management:

Transparency, Governance, Cost Savings, and Compliance

- Interfaces with significantly reduced implementation costs
- Efficient Interface Monitoring leads to reduced monitoring costs
- Secure compliance by providing a multi-layer authorization concept
- Restrict changes of interface data down to field level
- Central compliance report to track changes
- Transparency and governance throughout complete interface development life cycle

➔ Controlling Interface Landscape & the Budget
SAP Application Interface Framework
Positive Effects on TCO and ROI

Positive Effects on TCO and ROI:

• Implementation
  – Reduced interface implementation costs and efforts
  – Enabling reusable interfaces and interface components
  – Minor testing efforts
  – Shorter project duration by parallelization of tasks
  – Lower interface lifecycle costs

• Operations
  – Saves time in daily work
  – Increases efficiency in monitoring and error handling
  – Improves data quality
  – Clear responsibilities and reduced dependencies between IT and business users
  – Avoid duplicate efforts (technical and business monitoring)

Savings up to 40%
Savings up to 75%

Reduce Costs by Using SAP Application Interface Framework

Effort Comparison

Conventional Development
AIF Methodology
Example Daimler AG: High Potential for Cost Reductions and Shorter Project Duration

Slide from a presentation by Thomas Dietz, Daimler AG (SAP CCoE Forum in Salzburg, Austria)

Advantages in the Area of Compliance

- Restrict visibility of interface data
  - In contrary to many traditional monitoring transactions, the monitoring in AIF is role based and access to data can be restricted by customizable authorizations
  - Authorizations can be restricted on interface level and based on interface data (e.g. plant, company code)

- Restrict changes to interface data
  - Interface data changes can be restricted down to individual field level (e.g. in financial documents bank account number and value not changeable)

- Compliance reporting
  - A central compliance report exists where all interface data changes can be reviewed centrally (e.g. if auditor requests list of changes)

- Ensure consistency of data generated from interfaces
  - Build-in re-start logic ensures that correct interface version and mapping values are used even if in multi-actions subsequent steps of the interfaces are restarted after a new interface version has been activated or new mapping values are active
Sample Business Cases
## Sample Calculation:
### Monitoring and error handling for one interface (Inbound delivery)

The optimized approach for monitoring and error handling allows to significantly reduce the effort for monitoring and error handling.

<table>
<thead>
<tr>
<th>Source of Savings</th>
<th>Conventional setup</th>
<th>SAP AIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of inbound deliveries per month</td>
<td>10000</td>
<td>10000</td>
</tr>
<tr>
<td>Error rate in percent</td>
<td>1 %</td>
<td>1 %</td>
</tr>
<tr>
<td>Average processing time in minutes</td>
<td>30 Minutes</td>
<td>10 Minutes</td>
</tr>
<tr>
<td>Total processing time in hours</td>
<td>50</td>
<td>16,7</td>
</tr>
<tr>
<td>Internal cost rate for employee in Euro</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Total processing cost per year in Euro</td>
<td>60.000</td>
<td>20.000</td>
</tr>
<tr>
<td>Reduction of error rate for repeated errors</td>
<td>1 %</td>
<td>0,5 %</td>
</tr>
<tr>
<td>Reduced costs per year under consideration of better efficiency for repeated errors</td>
<td>60.000</td>
<td>10.000</td>
</tr>
</tbody>
</table>

**Yearly Cost Savings (one interface): **40.000 to 50.000 Euro
Value / Business Case for Usage of SAP AIF (Example with real data from a customer)

**Total Benefits with SAP AIF**

- **Yearly Cost Saving Potential**
  - Likely: € 1.750.000
  - Conservative: € 1.385.000

**Implementation of Interfaces**

- **New Interfaces**
  - € 50.000
  - € 45.000

- **Optimization**
  - € 50.000
  - € 20.000

- **Roll-out**
  - € 150.000
  - € 120.000

**Operations**

- **Monitoring**
  - Likely: € 1.500.000
  - Conservative: € 1.200.000

- **€ 1.500.000**
- **€ 1.200.000**

- **€ 45.000**
- **€ 50.000**
- **€ 150.000**
- **€ 120.000**
- **€ 250.000**
- **€ 185.000**
Value / Business Case for Usage of SAP AIF
(Example with real data from a customer)
Collaboration of PI/PO and AIF
Joint usage of PI and AIF

“I already have PI, does it still make sense for me to use AIF?”
Customer A

“I want AIF, does it still make sense for me to use PI?”
Customer B

The answer to both questions is: yes
Joint usage of PI and AIF (2)

Positioning
PI is an integration platform
AIF is an integration add-on for your business applications

They have different capabilities and purposes
General Recommendations

...in an IT landscape with both business applications and integration platforms/middlewares

No business logic into the integration platform!

No integration logic into the business applications!
In a landscape with SAP AIF and SAP NetWeaver PI this means:

**Business logic into AIF, not PI!**

Typical business logic patterns
- Calculations
- Validations
- Checks
- ...

**Integration logic into PI, not AIF!**

Integration Logic – Typical patterns
- Mapping of data structures from different sender formats to AIF format
- Routing of messages
- Connectivity to various protocols (FTP, RFC, ....)
Target Users

The typical AIF user is

- A business user
- A functional user

The typical PI user is

- A Technical User
Collaboration of Monitoring Tools
SAP Solution Manager/Business Process Monitoring and
SAP Application Interface Framework
Monitoring Pyramid with different Levels of Monitoring

**Strategic:**
Complex analysis and overview of monitoring results or KPIs based on multi-dimensional criteria and for a long time frame.
Example: SAP Business Intelligence, SAP Business Objects

**Operational (Process-oriented):**
Holistic monitoring (overview level/alerts) of business processes (often cross-system) which are in execution or for a historic view.
Example: SAP Solution Manager, SAP Business Process Monitoring

**Transactional:**
Detailed monitoring of process parts, individual process steps or interfaces inside of a single system which are in execution or for a specific, quite recent time frame.
Example: SAP Application Interface Framework, Individual transactions like BD87, WE02 etc.
Collaboration based on Monitoring Pyramid

Local End User

- Process Execution
  - Business Process User
- Check & Act
- Solve errors in Accounting Interface

Central Operational Level

- Business Process
  - Outbound Delivery
  - Post Goods Issue
- Create Accounting Document
- Check Alerts and Thresholds on process level

Management Level

- Process Management
  - Business Process Expert
- SAP Business Process Monitoring
- Check Strategic Business KPIs

SAP Application Interface Framework

Management Level

- Business Management
  - Board or executive level, Controlling units, Business Analyst
- Business Warehouse
Collaboration of SAP Business Process Monitoring and SAP Application Interface Framework

**SAP Business Process Monitoring**
- … is focused on stabilization of business processes which can be cross-system
- Goal is to **centrally** monitor critical process steps and interfaces within business processes
- Identify critical situations by monitoring predefined thresholds
- Alert in case of identified critical situations

**SAP Application Interface Framework**
- … is focused on monitoring and error handling on detail level **inside** single application system
- Enable business users to efficiently solve specific interface errors inside application system
- Allow controlled mass change of interface data

**Both together**
- … complement each other
- Efficiently combine **Operational Monitoring** with **Transactional Error Resolution** capabilities
IDOC Use Cases
IDOC processing with standard ALE function called inside an Action

In addition the AIF Enabler is called to write AIF index tables and statistics

Monitoring of interface documents in AIF monitoring, but this scenario provides more benefits than the previous scenario with only little more implementation effort. The business user has more “comfort” features in monitoring.
IDOC processing is done in AIF from where a standard ALE function is called inside an Action. Now it is possible to implement additional Checks, Field Mappings, Value Mappings, call multiple Actions, enrich data and so on.

Monitoring of interface documents in AIF monitoring
Engine Concept and Engines
IDOC/BAPI Implementation and Monitoring

Basically same scenario as before but now a BAPI or other function is called instead of the IDOC standard function, this might enable additional functionality
IDOC processing is done in AIF from where a BAPI function is called inside an Action

Monitoring of interface documents in AIF monitoring

Legacy system - IDoc - SAP Application Interface System

SAP Application Interface Framework
- Checks
- Field Mappings
- Value Mappings
- Actions
- Customizing (Interface-specific)
- Monitoring and Error Handling

- BAPI
- Customer Function
- Standard Function
Further Information
SAP Application Interface Framework is a modification free add-on to SAP application systems based on SAP Netweaver Basis 7.0® (from SP17)

Certain functions (part of additional add-on “AIFX”, e.g. web UI, SIW generator, monitor ECH messages, …) require SAP Netweaver Basis 7.31

- SAP Application Interface Framework is available in the following languages:
  - Arabic, English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Simplified Chinese, Spanish, Traditional Chinese, Turkish


- Additional information can be found at: http://www.sap.com/aif and inside the AIF SCN Community http://scn.sap.com/community/aif

- A ~2 minute video on AIF can be found on YouTube: http://www.youtube.com/watch?v=Kbs8HiIUYzg
SAP Consulting AIF Consulting Services
SAP Education AIF Course Offerings

Discover → Evaluate → Plan → Build → Run

- Web Session
- Discovery Workshop
- Enablement Workshop
- Planning Service
- Pilot Implementation
- Implementation
- Coaching
- Application Management Services

Business Case Calculation
Value Visibility

Course BIT 750 – Interface Implementation with AIF
Please see SAP Education Course Catalog for schedule
Thank you

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