Get what you want: Designing Approvals Management Engine (AME) rules for your iProcurement approvals

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Introduction

Zero workflow customizations for your organization's complex document approvals? Can Approvals Management Engine (AME) really do it? What challenges follow an AME implementation? Are they functional or technical? If you've found yourself asking these questions, then this white paper is for you. This white paper attempts to provide answers to these questions and guides iProcurement users and business analysts on the necessary prerequisites for designing AME. Using practical business scenarios, it elaborates on the specific setup steps to be performed in each of the modules, and provides a step-by-step solution for configuration alternatives and rules in AME.

When an organization decides to implement an iProcurement solution for its employees´ requisitions management one important consideration and driving factor for implementation is to simplify the way the requisition approvals are addressed as a part of the solution. With the increasing number of iProcurement implementations, AME is being used more widely to address these requirements.

What is AME?

AME is a separate module which can be leveraged for routing documents for approvals and can be integrated with other modules in Oracle E-Business Suite. In case of requisition approvals, AME is integrated with Purchasing and iProcurement modules to achieve the desired result for requisition approvals. From a business perspective, the goal is for the end user to be able to work with iProcurement screens without having to navigate or even know setups performed in AME. However, it is important for a business analyst to understand the process for implementing AME and how it integrates with the setup in core Purchasing, HR and iProcurement applications.

Factors which impact AME design

Before we get into the actual process of defining rules in AME, let us look at important prerequisites and factors which impact design of AME rules. The business end users of the application (requisition preparers, managers or approvers) using iProcurement have an important role to play in defining the business rules or document approval exception scenarios. This forms the basis of rules configuration in AME. Once the business rules are clearly defined, a business analyst can translate these rules into 'AME rules' which govern the behavior of transactions for requisition approvals, performed in iProcurement.

1. White boarding requirements for requisition approvals (Functional Flowchart)

The business process owners and business analyst should develop a functional flow of the approval process. This helps clearly define business rules in AME and also uncovers any exception rules. You can have one process flow depicting all business scenarios or multiple process flows based on the transaction type. Valid transaction types in AME when integrating with iProcurement are 'Purchase Requisition Approval', 'Internal Requisition Approval', and 'Requester Change Order Approval'.
The advantage of creating this document is that less time is spent in actually translating it into AME rules.
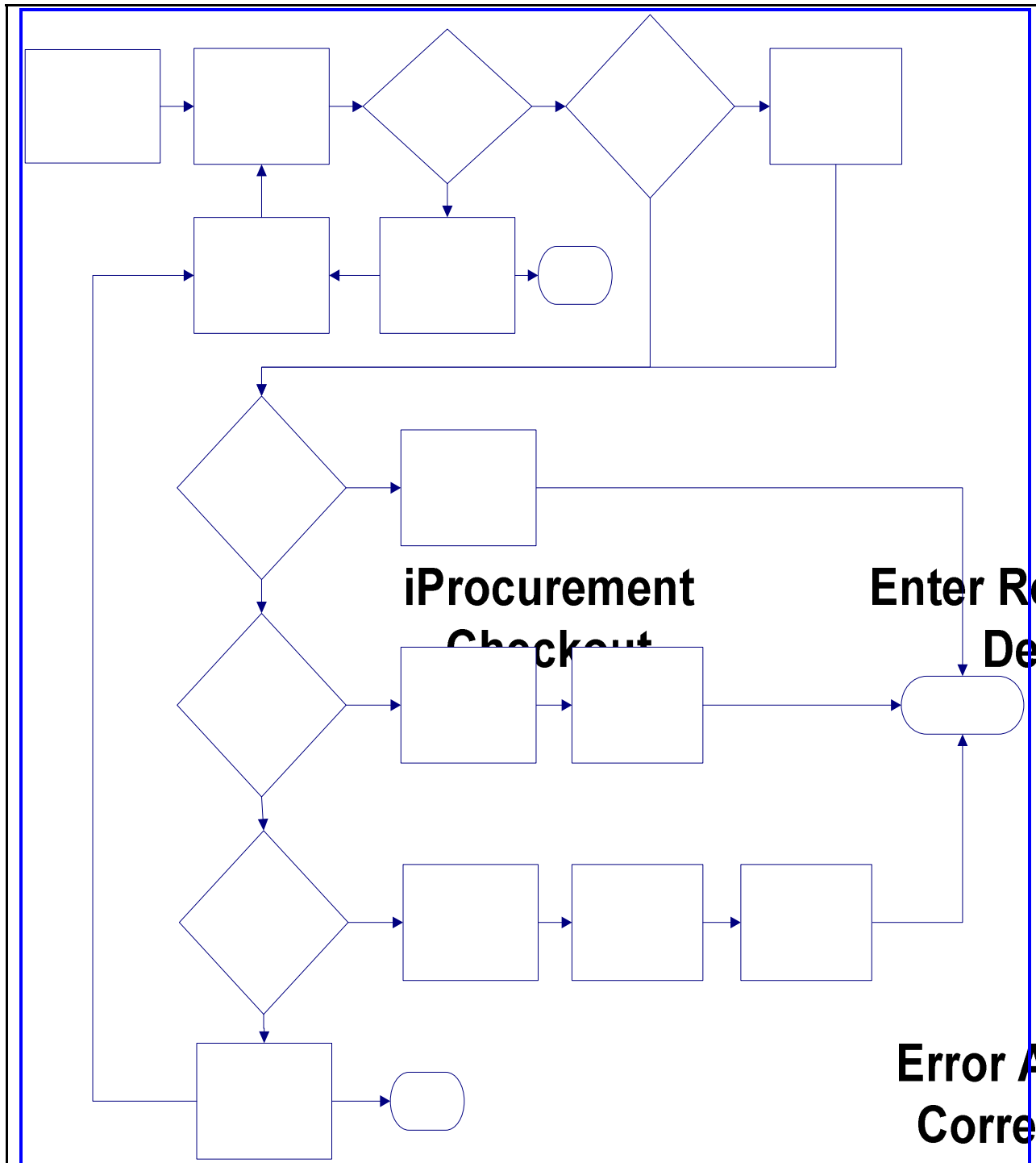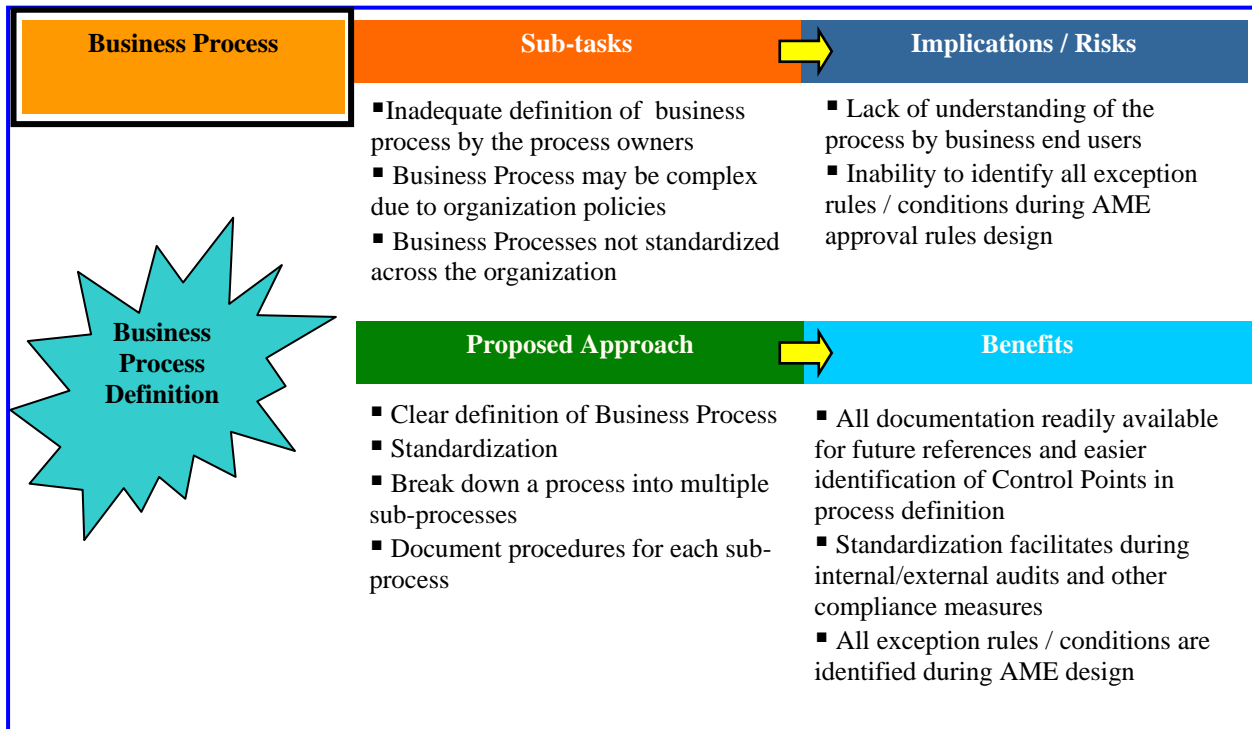
iProcurement Checkout

Enter Requisition Details

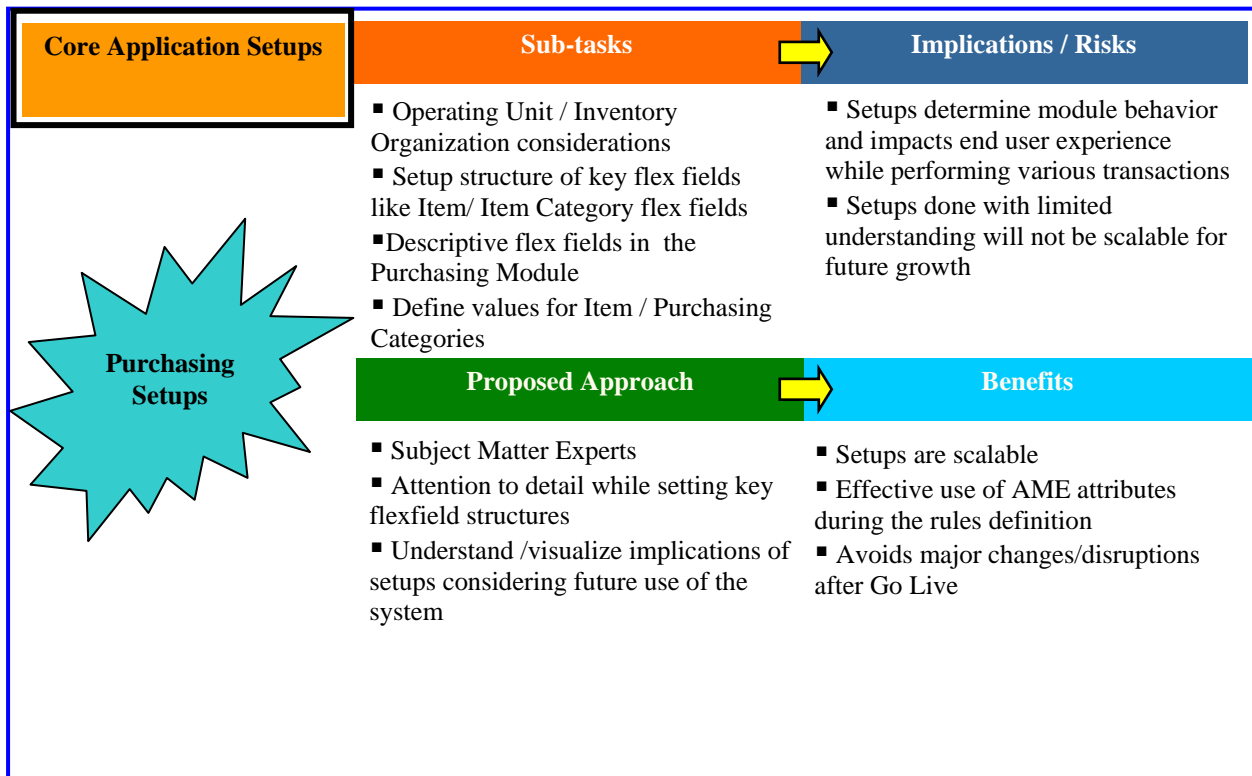**Error Analysis Correct error conditions**

Exhibit 1

2. Implementation considerations

While it is true that AME provides flexibility to the organization in the way rules can be configured within the AME module, the foundation exists in the core setups of the modules of Oracle Purchasing and Human Resources and the initial implementation considerations. The final approval process will largely depend on how this combination of setups work in tandem for meeting the complex requisition approval routing requirements.
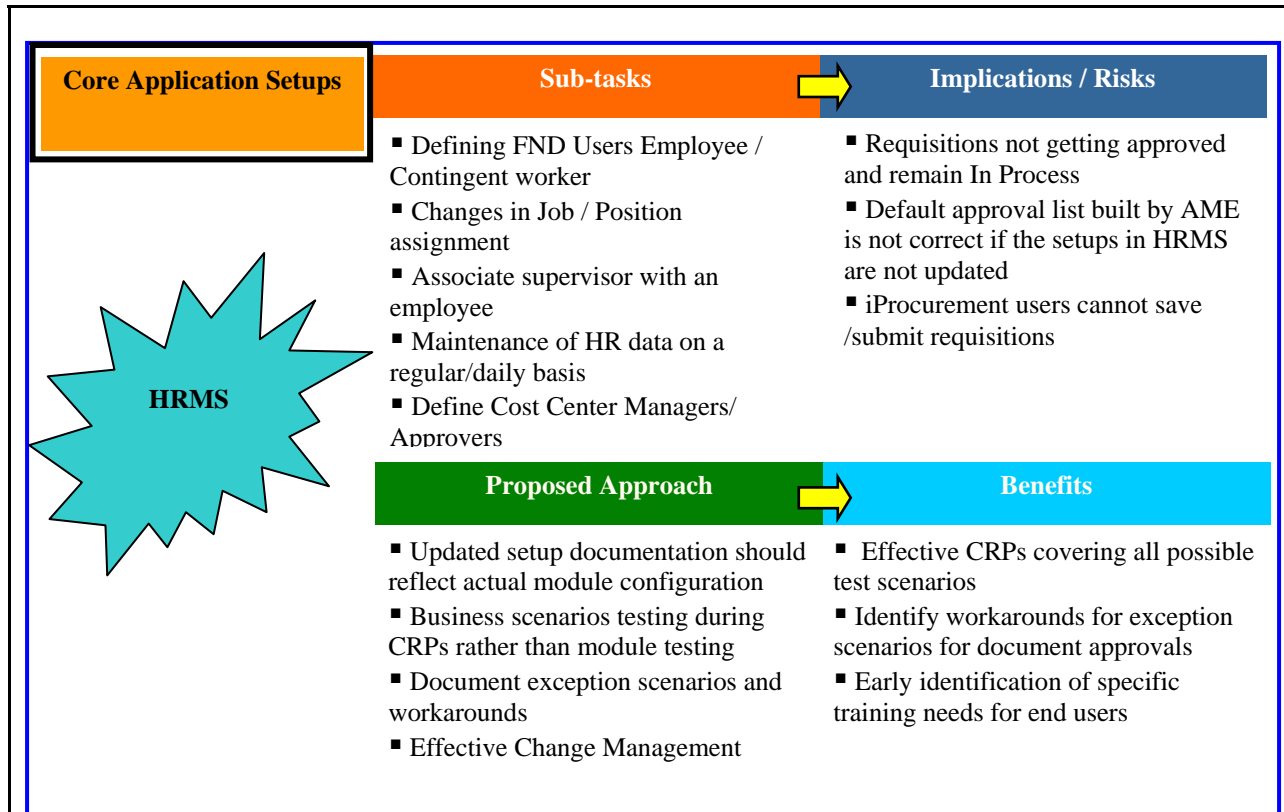
Business Process Definition

Business Process	Sub-tasks	➡	Implications / Risks

Sub-tasks:
- Inadequate definition of business process by the process owners
- Business Process may be complex due to organization policies
- Business Processes not standardized across the organization

Implications / Risks:
- Lack of understanding of the process by business end users
- Inability to identify all exception rules / conditions during AME approval rules design

Business Process Definition

Proposed Approach	➡	Benefits

Proposed Approach:
- Clear definition of Business Process
- Standardization
- Break down a process into multiple sub-processes
- Document procedures for each sub-process

Benefits:
- All documentation readily available for future references and easier identification of Control Points in process definition
- Standardization facilitates during internal/external audits and other compliance measures
- All exception rules / conditions are identified during AME design

Setups in Purchasing

Core Application Setups	Sub-tasks	➡	Implications / Risks

Sub-tasks:
- Operating Unit / Inventory Organization considerations
- Setup structure of key flex fields like Item/ Item Category flex fields
- Descriptive flex fields in the Purchasing Module
- Define values for Item / Purchasing Categories

Implications / Risks:
- Setups determine module behavior and impacts end user experience while performing various transactions
- Setups done with limited understanding will not be scalable for future growth

Purchasing Setups

Proposed Approach	➡	Benefits

Proposed Approach:
- Subject Matter Experts
- Attention to detail while setting key flexfield structures
- Understand /visualize implications of setups considering future use of the system

Benefits:
- Setups are scalable
- Effective use of AME attributes during the rules definition
- Avoids major changes/disruptions after Go Live

Setups in HRMS

Core Application Setups	Sub-tasks	Implications / Risks
HRMS	▪ Defining FND Users Employee / Contingent worker ▪ Changes in Job / Position assignment ▪ Associate supervisor with an employee ▪ Maintenance of HR data on a regular/daily basis ▪ Define Cost Center Managers/ Approvers	▪ Requisitions not getting approved and remain In Process ▪ Default approval list built by AME is not correct if the setups in HRMS are not updated ▪ iProcurement users cannot save /submit requisitions

Proposed Approach	Benefits
▪ Updated setup documentation should reflect actual module configuration ▪ Business scenarios testing during CRPs rather than module testing ▪ Document exception scenarios and workarounds ▪ Effective Change Management	▪ Effective CRPs covering all possible test scenarios ▪ Identify workarounds for exception scenarios for document approvals ▪ Early identification of specific training needs for end users

3. Integration requirements with individual modules

There are many modules in Oracle Applications E Business Suite which can be implemented with AME and each module has specific integration requirements. The AME integrates with iProcurement by providing the value for Approval Transaction Type for the following type of documents:

1.   Purchase Requisition (PURCHASE_REQ)
2.   Internal Requisition (INTERNAL_REQ)
3.   Change Order Request: Requisition (RCO)

The setup is performed in the Document Type screen in core Purchasing module and can be turned on or off for each of the Operating Units.

Exhibit 2

Exhibit 3

4. AME Installation and enabling AME responsibilities for use

AME uses the Role Based Access Model to provide access to the AME functions to users of the application. Use the Sysadmin login and User Management responsibility to assign AME roles for specific users. Data access is provided to the users from Functional Administrator responsibility. The two seeded responsibilities which can be enabled after completion of step 4 are Approvals Management Business Analyst and Approvals Management Administrator.

Designing AME rules for requisition approval

Once the prerequisites described in the earlier section are validated and documented, a business analyst can start the actual process of rules definition in AME. The AME module has various components which are used for complete definition of rules.

The process starts with the selection of an appropriate transaction type on the Business Analyst Dashboard using the responsibility Approvals Management Business Analyst.

Transaction type

This refers to the type of business process transactions for which approval rules have to be implemented. For example, to implement 'Purchase Requisition Approval,' transaction type, it needs to be selected on the Business Analyst Dashboard. All other components which will be set up or defined and the rules created are referenced to the transaction type selected.

Each of the transaction types will have its own set of rules to govern the approval process of these transactions.

Exhibit 4

Action type

Action type, by definition, is a collection of actions having similar functionality. This is the next logical step after a specific transaction type is selected. In most cases, the existing or predefined action type provided by AME can be used when selecting the Action type. Action Type is associated with the Rule type. Depending on the complexity of document approvals scenarios, different Action types should be enabled for use. While the majority of the rules can be defined using few action types, some iterative testing is required for exception scenarios.

Enabling certain Action Types also enables a set of required attributes. The value of these required attributes actually determine the first approver or sequence of approvers when AME builds the default approver list.

ORACLE Approvals Management

Return to Dashboard Diagnostics

Setup: Action Types >   Use Existing Action Type: Select Action Types >

Action Type: Absolute job level

Rule Type	**Chain Of Authority**
Name	**Absolute job level**
Description	**Chains of authority based on absolute job level**
Handler	**ame_absolute_job_level_handler**
Allowed Approver Types	**HR People**
Required Attributes	**INCLUDE_ALL_JOB_LEVEL_APPROVERS**
	JOB_LEVEL_NON_DEFAULT_STARTING_POINT_PERSON_ID
	TOP_SUPERVISOR_PERSON_ID
	TRANSACTION_REQUESTOR_PERSON_ID

Return to Use Existing Action Types

Return to Dashboard Diagnostics

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Exhibit 5

Attributes

Attributes represent business variables with a single value for a particular transaction. Attribute use can either be 'Static' or 'Dynamic'. Most of the flexibility which AME offers while defining the rules is based on its Attributes. A business analyst can define new Attributes for use in transaction type to meet certain business requirements. Depending on the selection of Transaction Type, the attributes seen on screen will be different. Some of the attributes are mandatory and can be seen across the various transaction types. The other attributes are related to the transaction type.

The key attributes which are used in the rules formulation for requisition approvals are provided in the table below. AME derives the value of these attributes at the run time (when a transaction is initiated) and applies AME rules to the transaction for routing it to appropriate approvers.

Sr #	Attribute	Description	Usage Type	Item Class	Data Type
1.	REQUISITION_TOTAL	Requisition Total	Dynamic	Header	Currency
2.	PO_COST_CENTER	Cost Center	Dynamic	Line Item	String
3.	PO_NATURAL_ACCOUNT	Natural Account	Dynamic	Line Item	String
4.	SUPERVISORY_NON_DEFAULT_STARTING_POINT_PERSON_ID	Person ID of non-default supervisor approver for the supervisory-level approval type	Static/Dynamic	Header	Number
5.	JOB_LEVEL_NON_DEFAULT_STARTING_POINT_PERSON_ID	Person ID of non-default first approver for job-level authority approval types	Static/Dynamic	Header	Number

Exhibit 6

When setting AME rules for requisition approvals in iProcurement, there are a number of predefined attributes which can be leveraged and effectively deployed in the rules definition based on the core application setups (i.e. how the purchasing/inventory modules are setup).

Sr #	Attribute	Description	Usage Type	Item Class	Data Type
1.	COMMODITY	Commodity	Dynamic	Line Item	String
2.	DELIVER_TO_LOCATION	Deliver To Location	Dynamic	Line Item	String
3.	ITEM_CATEGORY	Item Category	Dynamic	Line Item	String
4.	ITEM_NUMBER	Item Number	Dynamic	Line Item	String
5.	TRANSACTION_ORG_ID	Org Id in which transaction occurred	Dynamic	Header	Number

In addition to the above attributes, several new attributes can be defined which can map to 1) descriptive flexfields on the requisitions, 2) particular segment in the item category flexfield if you have multiple segment category structure or 3) a particular segment from your chart of accounts structure.

Examples of new attributes defined in AME are:

Sr #	Attribute	Description	Usage Type	Item Class	Data Type
1.	REQ_HDR_DFF_ATTRIBUTE_1	Descriptive Flexfield created at the Requisition header level	Dynamic	Header	Number
2.	ITEM_CATEGORY_SEGMENT_1	Segment 1 from multiple level item category structure	Dynamic	Line Item	String
3.	COMPANY	Company segment from chart of accounts	Dynamic	Line Item	String

Exhibit 7

Conditions

Condition is one of the components within the approval rules ('If' part), which can either be true or false for a given transaction. For the rule to be active, all conditions specified in the rule definition have to be true. The conditions defined in AME use the predefined attributes provided by AME or new attributes defined by the business analyst.

Exhibit 8

Action

Action is the component within approval rules which forms the 'Then' part. Each predefined Action Type has a set of Actions associated with it which are responsible for modifying the approvers based on the conditions ('If' part) which the transaction satisfy.

Approver groups

From a business perspective, approver groups contain functional approvers outside a transaction's chain of authority. Typically, approver groups are used either for 'pre-approvals' or for 'post-approvals'. AME also allows the use of 'chain of authority' approval groups. Approver groups can be dynamic or static and can be nested.

Exhibit 9

Requisition approvals in iProcurement: Configuration options available in AME

Formulating Rules

AME rules decide the default approver list for a transaction, based on the conditions and is in the form of 'If- Then' statement. All previous steps elaborated earlier and implementation considerations are put to use when defining rules in AME. This is the last step in the AME configuration. A business analyst has to understand that defining and testing AME rules is an iterative process. However, following the methodology and visualizing any exception scenarios for approvals, should provide a good foundation of rules in the first pass of testing.

Following are the key points to remember while formulating rules in the AME module.

1. Is business policy documented for dollar limits for each level of approver?

In almost all organizations, there is a dollar amount approval limit for each level of approver. If the policy is well documented, this can be used as the first guideline in rule formulation. A specific business case is discussed in the white paper delivered at Collaborate 07.[1]

Some dollar limits for approval may be reviewed considering automation of requisition approvals with AME.

2. Supervisory level vs. Job level approvers:

The manner in which the setups are maintained in HR and change management practices are carried out in an organization are key factors while creating AME rules. The action type associated with each option is different and enables required attributes based on the action type.
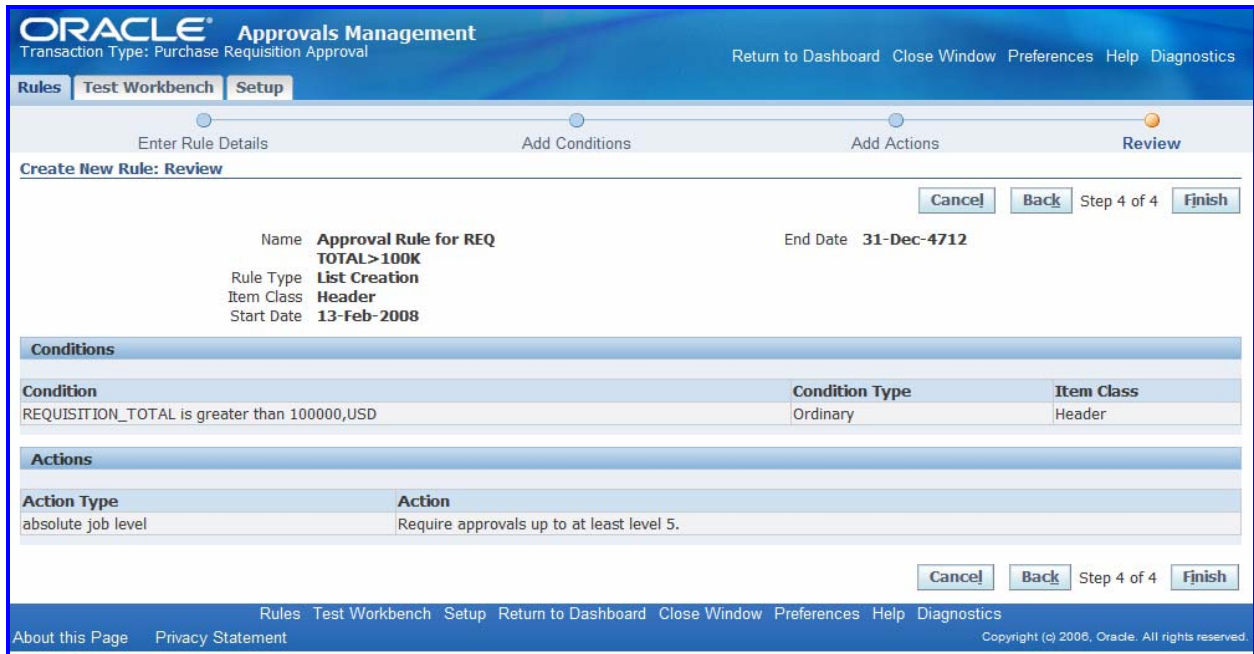

Exhibit 10

3. Identification of special approval requirements (Capital Purchases, IT purchases):

All the special approval requirements are usually met by defining a new approval group and then using pre or post approval group action types in the rule definition. Approval group members can be HR employees or FND users. The dynamic approval groups created can be nested in a static approval group.

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[1] Improving Productivity in the Procurement and Expense Reimbursement Process-Collaborate 07

Exhibit 11

4. Define the need for parallel approvals:

Parallel approval process is documented in releases prior to R12 release of AME, but is implemented only in R12. The business requirement for parallel approval process can be met by implementing the 'Order Number' and 'Ordering Mode' feature when selecting the Action Type.

6. Determine starting point for the approval chain:

Once a decision is made to implement a specific type of approval authority, either based on the supervisory level or job level, the next step is to define the required Attribute usage. Using a dynamic usage of attribute provides much flexibility for the approval list which is built. The first approver in the approval chain of authority is determined by the SQL query you use in the definition of these attributes. This attribute use, combined with rules based on dollar approval, should account for the majority of business scenarios for requisitions management.

7. Custom approval hierarchy (not maintained in HR application):

For any custom approval hierarchy requirements AME provides an option for defining an Action type as an 'Approval-group chain of authority', and then one can define the rules for this action type. As elaborated in previous sections, the approval group can be static, dynamic or static approval group with nested dynamic approval group.

8. Identification of exception scenarios for Sr. Management approvals:

During the rules definition process, it may be identified that certain employees (usually Sr. Management) do not have access to the iProcurement, but their approval is required for business purposes. In such scenarios, it is beneficial to document the business process for approvals.

9. Changes/additions required to the data or setup in HR/Purchasing applications:

As a part of the overall process of AME implementation, changes or modifications to the Job/Position screen will need an approval from the organization's HR. During the course of implementation, it is good to have a dialogue with HR, being proactive and letting them know about some of these changes. AME Rules can be based on the attributes like commodity, Item categories or descriptive flexfields in purchasing module. For complete approval scenarios testing, new values will have to be defined.

10. Providing access to iProcurement to organization employees (and contract labor)

The approvers of the AME rules need to be defined as employees with access to iProcurement or have an FND user id for Oracle applications. If the organization uses temporary workforce, this is an important consideration for iProcurement/AME implementation.

AME Implementation: Go Live Challenges:

Once the AME business rules are implemented, it is equally important to monitor the AME application and review exception logs. It may take a few weeks to stabilize the system and tighten the business processes. While most of the issues can be addressed by a business analyst, some fine-tuning may be required for the dynamic SQL queries used in the attributes or approver groups.

Some of the common issues which cause a disruption in the default approval list built by AME while performing transactions are provided below.

1. Maintain valid FND user for approvers: AME will raise exception while performing transactions for end users whose approver does not have active Oracle userid.

2. AME rules are not set for Transaction Type: iProcurement classifies all transactions in three distinct transaction types. If you integrate all transaction types with AME but only implemented rules for Purchase requisition approval, users will receive an error for transactions relating to Internal requisitions or change orders.

3. Supervisor related changes: An employee/approver may leave the organization and the HR system may not be updated to reflect this change. If the end users are submitting transactions in iProcurement during this time, some users will receive an exception, as AME will be unable to build a default approver list based on AME rules.

4. TOP_SUPERVISOR_PERSON_ID attribute is blank: If a requisition is submitted in iProcurement which is a high dollar value requisition and there are no rules created, AME will raise an exception.

5. Changes or modifications to purchasing commodities/categories: It is quite common that certain commodities in Purchasing or categories may no longer be used or new values will be added. If you have AME rules using these values, these rules should be updated or deleted accordingly. Any delay in maintenance of these rules in AME will cause issues for the iProcurement users.

Since the error messages displayed to the iProcurement users are generic, business analysts should have a good understanding of the integration aspects of AME with iProcurement before these challenges are resolved. Responsibility 'Approvals Management Administrator' is a good starting point for analyzing or troubleshooting issues related to AME rules or attributes.

Name	Transaction Type Key	Application	Update	Delete
Internal Requisition Approval	INTERNAL_REQ	Purchasing		
PO ERES ASL Creation	oracle.apps.po.asl.create	Purchasing		
PO ERES ASL Update	oracle.apps.po.asl.update	Purchasing		
PO ERES Receiving Delivery	oracle.apps.po.rcv.deliver	Purchasing		
PO ERES Receiving Inspection	oracle.apps.po.rcv.inspect	Purchasing		
PO ERES Receiving Transfer	oracle.apps.po.rcv.transfer	Purchasing		
PO RCV ERES Receipt Group Transaction	oracle.apps.po.group.receive	Purchasing		
PO RCV ERES Receipt Line Transaction	oracle.apps.po.line.receive	Purchasing		
Purchase Requisition Approval	PURCHASE_REQ	Purchasing		
Requester Change Order Approval	RCO	Purchasing		

Exhibit 12

Review exception log for the type of error for AME:

Exhibit 13

Conclusion:

AME is capable of providing multiple alternatives for defining business rules for an organization. The flexibility in rule definition offered by AME also depends on the core application setups of purchasing and HR. Most of the customization in AME is related to the use of dynamic attributes and its usage in the rules. Technical expertise is required to the extent of constructing SQL queries for the new dynamic attributes defined. Once this component is finalized, a business analyst can perform the other tasks in AME with a user intuitive 'Business Analyst Dashboard' and a 'Administrator Dashboard'. A structured approach for designing of AME rules and key implementation factors discussed in this white paper will help the business analysts and procurement managers to address unique requirements for managing requisition approvals.