Business Rules
Putting the Business Back in the Driver's Seat

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Acknowledgment

- Diagrams and examples taken directly or derived largely from material copyrighted by BRSolutions.com are so noted.
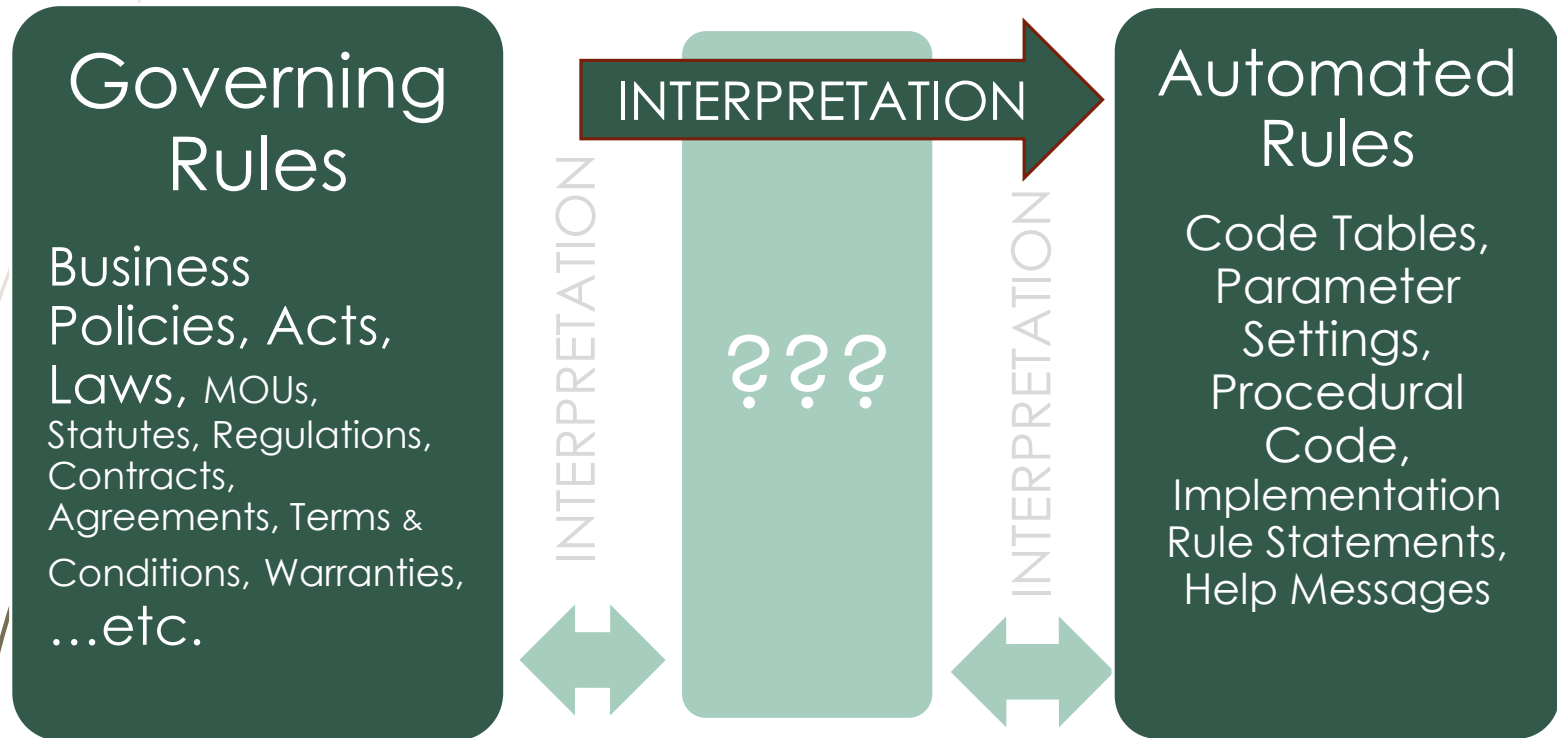
Agenda

1. Why is the Business not in driver's seat?
2. What is a Business Rule?
3. Clear, Unambiguous, in plain English
4. Business Rules and Process Flows
5. Business Rules lead to Requirements
6. Preventing multiple "almost similar" clones of BRs
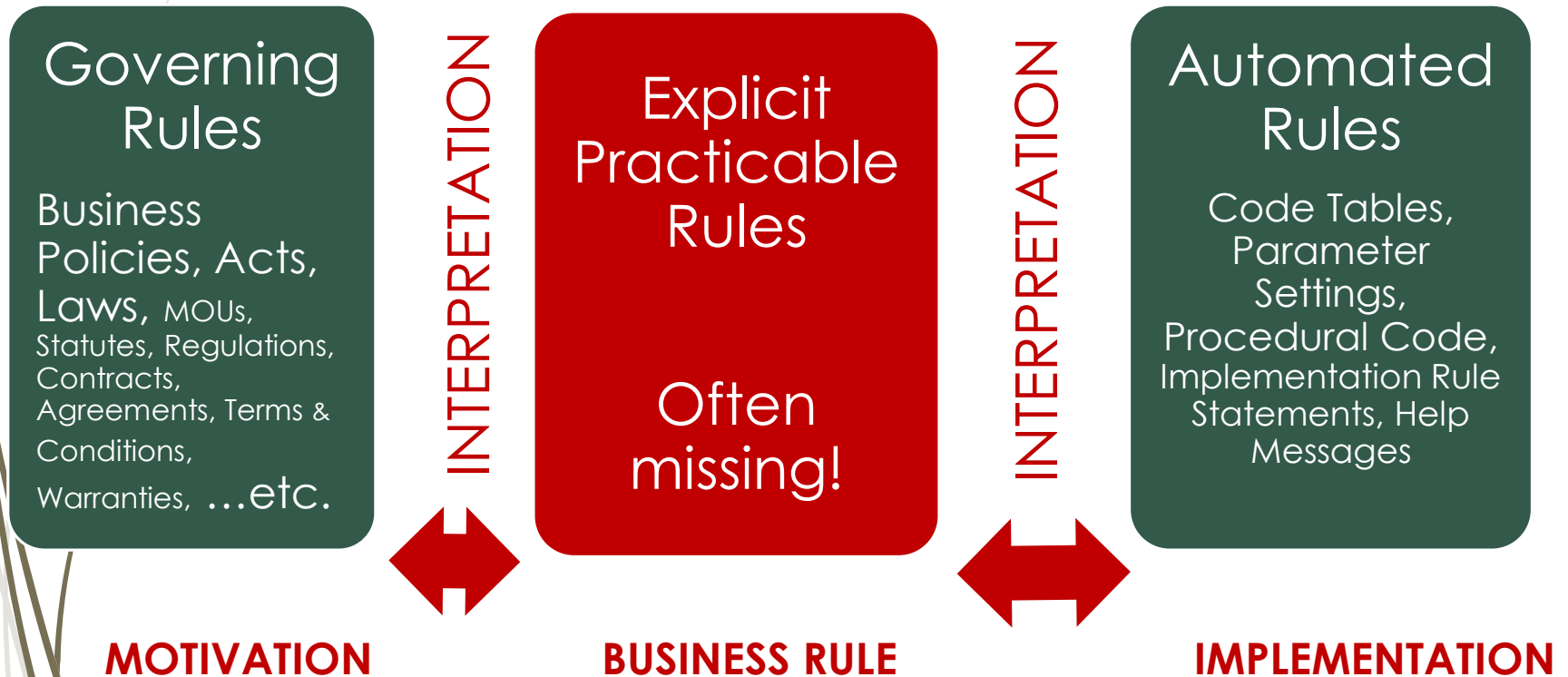   1. Trigger
   2. Enforcement Level

1. Why is the Business Not in Driver's Seat?

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Traceability & Compliance – There is a gap.

Governing Rules

Business Policies, Acts, Laws, MOUs, Statutes, Regulations, Contracts, Agreements, Terms & Conditions, Warranties, …etc.

INTERPRETATION

INTERPRETATION

???

INTERPRETATION

Automated Rules

Code Tables, Parameter Settings, Procedural Code, Implementation Rule Statements, Help Messages

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Traceability & Compliance – The Missing Piece

Governing Rules	INTERPRETATION	Explicit Practicable Rules	INTERPRETATION	Automated Rules
Business Policies, Acts, Laws, MOUs, Statutes, Regulations, Contracts, Agreements, Terms & Conditions, Warranties, …etc.		Often missing!		Code Tables, Parameter Settings, Procedural Code, Implementation Rule Statements, Help Messages
MOTIVATION		**BUSINESS RULE**		**IMPLEMENTATION**

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Example - Traceability & Compliance

Business Policy:

High-value customers should get preferential treatment.

INTERPRETATION

Business Rule:

A Gold Customer must be given free overnight shipping.

INTERPRETATION

Code:

If Cust_Type == "Gold", Then ship_speed = 1

MOTIVATION

BUSINESS RULE

IMPLEMENTATION

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To Get Back in the Driver's Seat…

The business needs a "Rule Book"

- Containing all Business Rules
- Kept current
- With Rules stated in "practicable" terms
- Written in clear, unambiguous, plain English
- With traceability to/from Governing Rules (Motivation)
- With traceability to/from Automated Rules (Implementation)

And, finally, the ability to answer "WHY?" built into systems.

2. What is a Business Rule?

Not Every Rule is a Business Rule.

In fact, there are rules that govern

- Workflows ("Route request to approver… if…")
- System actions ("Run script at 1a.m. …")
- Etc…

So how do we know if it is a Business Rule?

Business Rule - Definition

Criterion used in business operations to

- Guide behavior
- Make decisions

Examples:

- A Customer must have an address.

- A customer must be considered a Gold Customer if their total purchase in past 12 months exceeds $2000.

- A Gold Customer must be given free overnight shipping.

- Sales tax must be computed as 8.00% of purchase amount.

Tip! Business Rules Transform Nothing. Workflow/Process Tasks Do.

So what about this rule:

Listing Status is set to "expired" on Expiration Date.

Is this a business rule?

A workflow task?

Both?

Tip! Business Rules Transform Nothing. Workflow/Process Tasks Do.

Rule: Listing Status is set to "expired" on Expiration Date.

Analysis:

The rule combines a **Guidance** and a **Transformation.**

So, we get:

1. Business Rule (Guidance)

Listing Status must equal "Expired" on or after Expiration Date.

2. Process Task (Transformation)

On or after the Expiration Date, if the Listing is not already in expired status, change status to "Expired".

3. How To Write Business Rules Clearly, Unambiguously, in Plain English

Clear, Unambiguous, Plain English…Why is it Difficult?

A Business Rule is a communication, displaced in

- Time, Place, & Cultural context

Other Problems:

- IT Speak – not spoken by the Business!

- Choice of words can confuse – "Request" or "Application"?

- Plain English is ambiguous – "and", "or", "comma"

RuleSpeak® to the rescue!

Absolutely Essential:
Use Consistent Vocabulary!

- Define each concept (vocabulary)
- Do not use different terms to refer to the same thing
- Or, same term to refer to different things!
  - A very common example: "Customer"

Useful technique: Concept Modeling

Tool: http://rulexpress.editme.com/FactXpress

Reference: Business Rule Concepts: Getting to the Point of Knowledge (Fourth Edition) By Ron Ross.

RuleSpeak® Guideline – Do Not Use IF/THEN.

Bad: IF/THEN

IF customer's total purchase over past 12 months exceeds $1000, and unpaid_invoices_flag = 0, and … and… THEN customer is considered a gold customer.

Why?

➮ Rule intent is obscured by details in the IF conditions

➮ Perpetuates implementation mindset – thinking in terms of variables, parameters, etc.

➮ May impose artificial IF/THEN. There's no IF/THEN in "Customer must have a name."

… Same Rule minus IF/THEN

Better:

A Customer must be considered a Gold Customer if all of the following are true:

- Customer's total purchase over past 12 months exceeds $1000.

- Customer has no unpaid invoices.

"Business people don't speak in terms of IF/THEN and they don't set variables." **Source: Adapted from BRSolutions copyrighted material.**

RuleSpeak® Guideline – "must" or "may…only" is required.

Every Business Rule statement should include "must" or "may…only".

Example 1:

- Rule: A freshman <u>is not allowed</u> to register for more than 16 credit hours.

- Revised: A freshman <u>must</u> not register for more than 16 credit hours.

Example 2:

- Rule: A customer <u>can</u> buy a ticket if it is available.

- Revised: A customer <u>may</u> buy a ticket <u>only</u> if it is available .

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RuleSpeak® Guideline – "and", "or", "comma" create ambiguity.

Contract Says:

"Our law firm shall receive $4,000 in fees and reimbursement for costs advanced."

Lawyer's interpretation: "Our law firm shall receive **[**$4,000 in fees**] and [**reimbursement for costs advanced**]**."

Client's interpretation: "Our law firm **[**shall receive $4,000**] [**in **fees and reimbursement** for costs advanced**]**."

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RuleSpeak® Guideline – Use bulleted list instead of "and", "or", "comma".

The contract should have been written as below.

The client must pay all of the following:
- $4,000 in fees
- Reimbursement for costs advanced.

Google "million dollar comma" for an interesting episode. Or two!

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RuleSpeak® Guideline – Don't Front-Load Qualifiers.

Example:

- Rule: A machine ***owned by an employee included in a team assigned to Project X*** must not be serviced by a company located in a country suspected of terrorist activity.

- Revised: A machine must not be serviced by a company if all of the following are true:

  - The company is located in a country suspected of terrorist activity.

  - The machine is owned by an employee included in a team assigned to Project X.

Go to RuleSpeak.com for more.

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5 Steps to RuleSpeak®.

Let us rewrite the following rule in RuleSpeak® using 5-Step approach.

Rule:

When the total number of leave days exceeds or equals 6 days, the approval of the General Manager is required.

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5 Steps to RuleSpeak® - 2

When the total number of leave days exceeds or equals 6 days, the approval of the General Manager is required.

Step 1: Vocabulary. Don't forget <u>verbs</u>!

- Leave Request, Number of Days, General Manager, <u>Approve</u>

Step 2: Subject – What is the rule about?

- A leave ~~application~~ request …

Step 3: Rule keyword – must or may…only

- A leave request must …

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5 Steps to RuleSpeak® - 3

When the total number of leave days exceeds or equals 6 days, the approval of the General Manager is required.

Step 4: Object – something about the subject

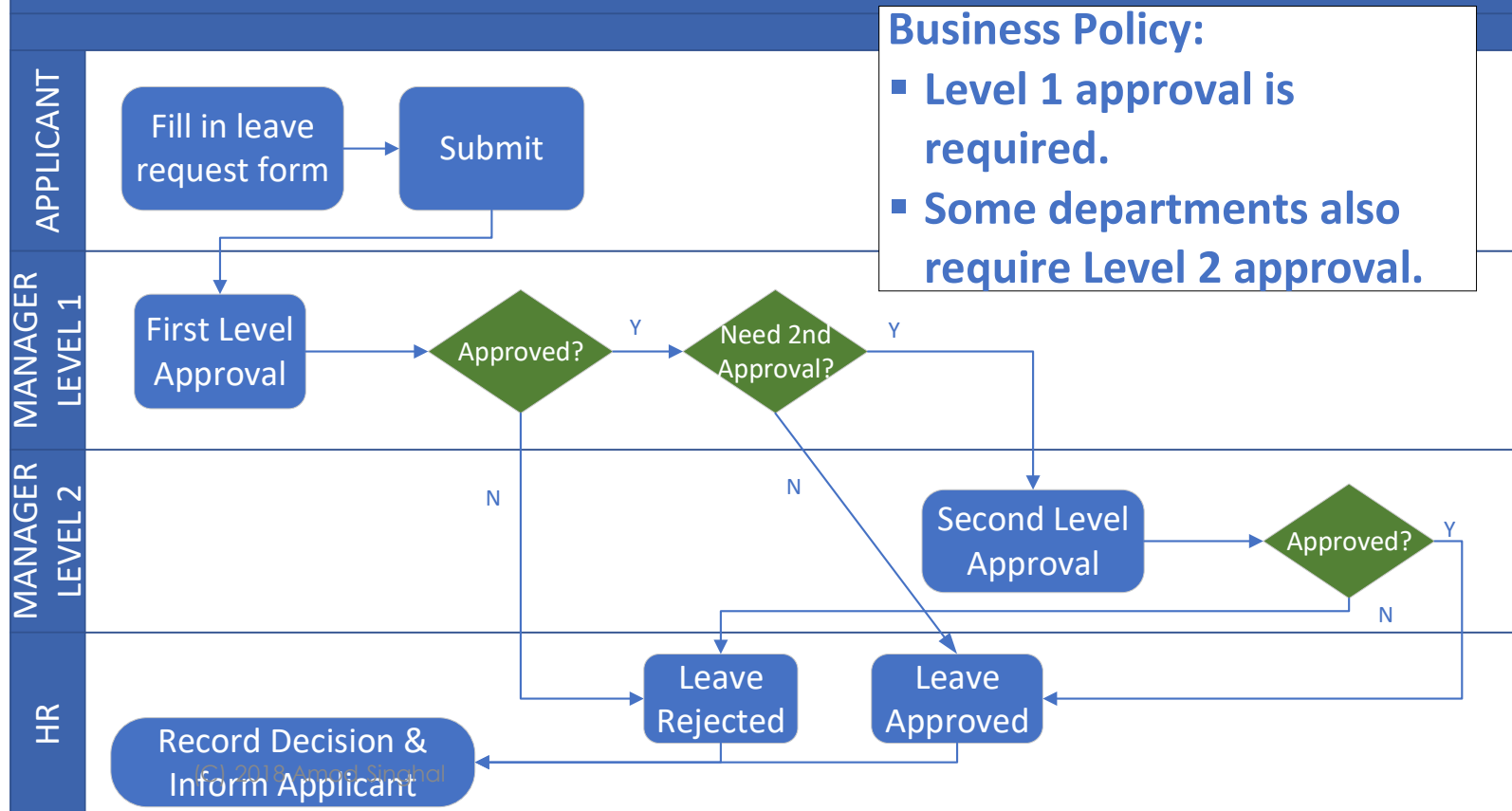- A leave request must be ~~reviewed~~ approved by a General Manager…

Step 5: Conditions – if conditions

- A leave request must be approved by a General Manager if the number of days of leave request equals or exceeds 6 days.

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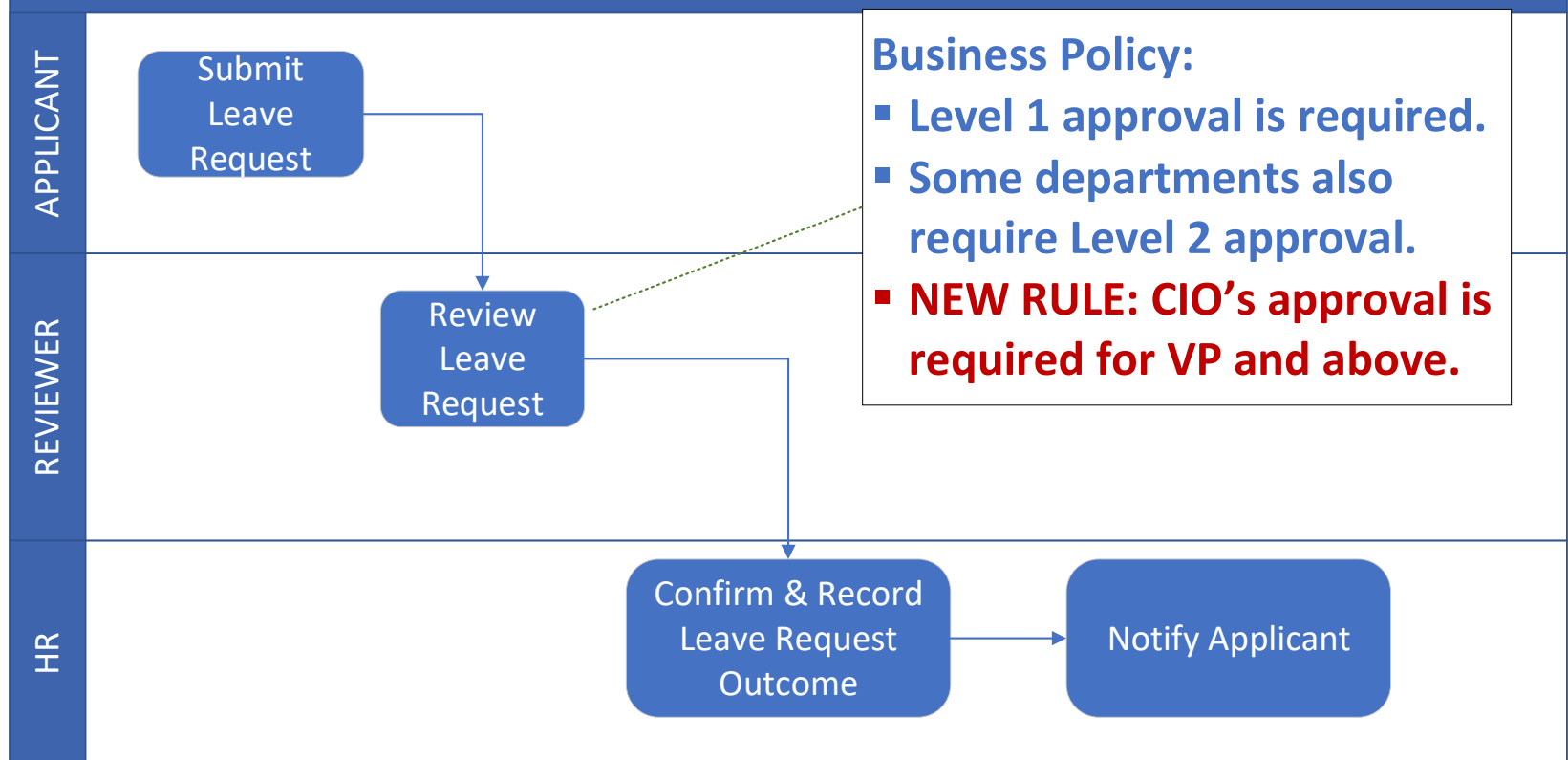
4. Business Rules Don't Belong in Process Flows.

Business Rules Imbedded in Process = Complexity!

How complex will this diagram be with one more approval?

Business Policy:
- **Level 1 approval is required.**
- **Some departments also require Level 2 approval.**

APPLICANT
- Fill in leave request form → Submit

MANAGER LEVEL 1
- First Level Approval → Approved? —Y→ Need 2nd Approval? —Y→

MANAGER LEVEL 2
- Second Level Approval → Approved? —Y→
- N

HR
- Leave Rejected
- Leave Approved
- Record Decision & Inform Applicant

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Business Rules Externalized = Simplified Process!

Changes in Review Rules do not change process!

Business Policy:
- **Level 1 approval is required.**
- **Some departments also require Level 2 approval.**
- **NEW RULE: CIO's approval is required for VP and above.**

APPLICANT: Submit Leave Request

REVIEWER: Review Leave Request

HR: Confirm & Record Leave Request Outcome → Notify Applicant

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How to Externalize Business Rules from Process?

- Workflows should have only transformations (i.e., tasks) and handoffs.
- Remove business rules with binary outcomes.
- Replace multiple business rules with the single decision they support.

Business Rules change often! Business Processes are more stable.

5. Business Rules Lead to Requirements.

Business Rules Lead to "Ability" Statements.

- Each "Ability" statement is a requirement, i.e., a demand on system design.

- Of course, Business Rules are not the only source of requirements. But they can be a great starting point.

Example 1: Business Rules Lead to "Ability" Statements.

Business Process (Step)	Submit Leave Request
Business Rule	**Requirement**
• A leave request must be signed by the applicant. • A leave request may be considered signed by the applicant only if the signature matches the applicant's signature on file. • An applicant's new leave balance must be -5 days or higher.	• Ability to accept applicant's signature (electronic?) • Ability to match applicant signature • Ability to calculate new balance

Source: Adapted from BRSolutions copyrighted material.

Example 2: Business Rules Lead to "Ability" Statements.

Business Process (Step)	Review Leave Request
Business Rule	**Requirement**
• A leave request must be approved by a line manager. • A leave request must be approved by the GM if the requested leave is 6 day or more. • A reason must be provided if the leave request is not approved.	• Ability to notify reviewers • Ability to approve or deny leave request • Ability to capture reason if review outcome is "denied"

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6. How to prevent multiple "almost similar" clones of a Business Rule?

Trigger & Enforcement Level

Consider an eCommerce site.

Rule: Customer must have address.

Trigger #1: Rule is triggered when Customer first registers on site.

Question: Customer does not provide address. Allow to continue?

Answer: Yes.

Enforcement Level #1: Ignore (or Warning).

Trigger & Enforcement Level

… **Same eCommerce site.**

… **Same Rule: Customer must have address.**

Trigger #2: Rule is triggered when Customer places an order.

Enforcement Level #2: Strict.

Customer is Not allowed to continue.

Can you guess why?

Common Enforcement Levels :

➡   *Warning, Override, Strict.*

Tip! Separate the Rule from Trigger & Enforcement Level!

If trigger and enforcement level are part of the rule:

- One rule for each combination of Rule, Trigger & Enforcement Level!

To avoid multiple "almost similar" copies of a rule:

- Separate the Rule from Trigger and Enforcement Level!

Note: Implementation may need to use multiple copies.

Resources

- BOOK: Business Rule Concepts: Getting to the Point of Knowledge (Fourth Edition)

- RuleXpress http://www.rulearts.com/RuleXpress

- Publications For Business Analysts & Business Rule Practitioners http://www.brsolutions.com/publications/#primers

Includes links to FREE pdfs: All are excellent!

- How to Define Business Terms in Plain English: A Primer

- TABULATION OF LISTS IN RULESPEAK® – A PRIMER Using "The Following" Clause

- DECISION TABLES – A PRIMER How to Use TableSpeak™

- DECISION ANALYSIS – A PRIMER How to Use DecisionSpeak™ and Question Charts (Q-Charts™)

Questions? Comments?

Thank you!