



RULES FEST



Knowledge Wars: Becoming a Knowledge Engineer

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www.VisibleKnowledge.com

KNOWLEDGE WARS

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Business is War



How Apple Stole 1 of Intel's
Greatest Weapons

[Apple wins **patent battle**: Samsung **tablets** ban in Australia – Latest ...](http://www.latestcnnnews.com/apple-wins-patent-battle-samsung-tablets-ba...)
www.latestcnnnews.com/apple-wins-patent-battle-samsung-tablets-ba...

Oct 13, 2011 – An Australian court has temporarily prohibited Samsung Electronics selling **Tablet** in Australia, a victory for Apple in its global **patent** dispute ...

Has Apple Already Won the **Tablet War?**

Apple's busy and very good 24 hours is only the beginning of what could be a sea change in the technology market.

Last week, rival Google ( **GOOG**, **Fortune 500**) reported **better-than-expected financial results**, as the company continues to pursue a \$12.5 billion purchase of Motorola Mobility ( **MMI**) in its attempt to battle Apple in the handset business. Google's Android mobile software has already eclipsed the iPhone in smartphone market share, though Apple has maintained a dominance of the tablet market.

Qualcomm Draws Battle Lines Against Nvidia, Prepares for Windows 8

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もくろく
The Solutions Manual for Sales and Marketing

ABI
Automotive
Technology

[Nikkei Electronics Asia --November 2010](#)

Cover Story

The Hardware Battle Begins with LTE: Capturing the Next-Gen Handset Platform

Oct 31, 2010 23:59

Hiroki Yomogita, Tomohisa Takei



Flickr accidentally **nuke**
user's 4,000 photos

Google **nuke** thousands of
Gmail accounts

PCWorld » Security

Recommend:  Like 290  41  +1 0  332  Email 16 Comments

Internet **'Kill Switch'** Could Cause Chaos

By John E Dunn, techworld.com Jan 17, 2011 4:15 pm



A proposed US Internet 'kill switch' to be used in the event of a cyberwar could actually cause more problems than it would prevent, a new report commissioned by the Organisation for Economic Cooperation and Development (OECD) has argued.

Another blow in airline ticketing war

By Marnie Hunter, CNN

January 5, 2011 5:58 p.m. EST



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Drug Maker Goes Social to End Supply Chain Crisis

Generic drug maker Ratiopharm, now part of Teva Canada, turned to social networking tools to solve communication problems that choked the supply chain and made it difficult to respond to fluctuations in customer demand.

By Sharon Gaudin
Mon, July 25, 2011

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Bank of America website suffers outage

Bank of America Battles Questions as Options Explode - TheStreet

www.thestreet.com/.../bank-of-america-battles-questions-as-options-e...

Aug 23, 2011 – The bank's PR machine is on the defensive as the stock flirts with \$6 per share. ... **Bank of America Battles** Questions as Options Explode ... trades on similarly long-dated out-of-the-money options on JPMorgan Chase(JPM). ...

JPMorgan Chase Battles Bank of America for Title as 'Biggest U.S....

www.mybanktracker.com/bank.../jpmorgan-chase-battle-bank-ameri...

Sep 1, 2011 – As **Bank of America** engages in a string of asset sell-offs, JPMorgan Chase is on a path to become America's largest bank. JPMorgan Chase ...

Chase Bank Orders Tree Removed - War On Christmas - Fox Nation.

nation.foxnews.com/culture/2010/.../chase-bank-orders-tree-removed

Dec 3, 2010 – **Chase Bank** told a businessman to remove the Christmas tree he donated to a local branch because it could offend people. Antonio Morales ...

1/15/2011 @ 11:38AM | 2,169 views

In Tunisia, Cyberwar Precedes Revolution

Al Qaeda group contemplated poisoning food in U.S., officials say

By Mike M. Ahlers and Brian Todd, CNN

December 22, 2010 3:02 a.m. EST

David Bloom: 'Is There a Bigger Armageddon Out There?'

Published: Thursday, 23 Jun 2011 | 3:09 AM ET

Text Size - +

By: [Antonya Allen](#)

Assistant Editor, CNBC

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Investors are afraid of "Armageddon" in foreign exchange markets due to concerns beyond the Greek debt crisis and sluggish US growth, David Bloom global head of foreign exchange at HSBC told CNBC Thursday.

News

'War texting' lets hackers unlock car doors via SMS

KNOWLEDGE WARS

Knowledge is Power

Geithner Rips S&P for 'Really Terrible' Move on Downgrade

Published: Sunday, 7 Aug 2011 | 7:37 PM ET

Text Size - +

By: Jeff Cox

CNBC.com Senior Writer

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Treasury Secretary Timothy Geithner ripped Standard & Poor's two days after the ratings agency downgraded US debt, saying the stunning move was based on a "lack of knowledge" about the nation's finances.



CNBC.com

Treasury Secretary Timothy Geithner

Geithner also said the debt crisis presents Congress with a chance to "earn back confidence of investors around the world" and he reiterated his support for President Obama, who asked Geithner to stay on even as calls intensified over the weekend for his resignation.

"S&P has shown really terrible judgment and they've handled themselves very poorly," he said in an exclusive interview with CNBC. "And

they've shown a stunning lack of knowledge about basic U.S. fiscal budget math. And I think they drew exactly the wrong conclusion from this budget agreement."

Federal Inspectors Clueless About Cementing, Oil Spill Panel Finds

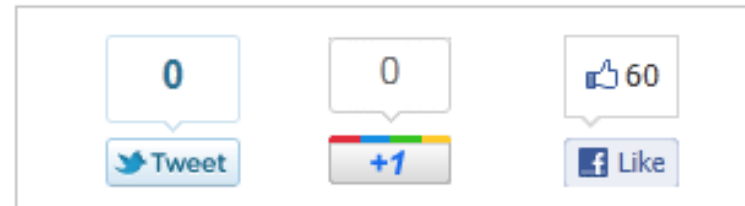
by [Marian Wang](#)

ProPublica, Oct. 29, 2010, 12:43 p.m.

7 Comments | Republish | Email | Print

Yesterday the government's oil spill panel released a letter alleging that Halliburton knew of potential flaws in its cement prior to the Deepwater Horizon blowout. That same spill commission, in a little-noticed report by the New Orleans Times-Picayune, had earlier this week criticized government inspectors for their lack of knowledge about how to safely cement an offshore well.

"When we asked about cementing and centralizers, they said very freely, 'We don't know about that stuff. we have to trust the



KNOWLEDGE WARS

*If Business is War
& Knowledge is Power
then...*

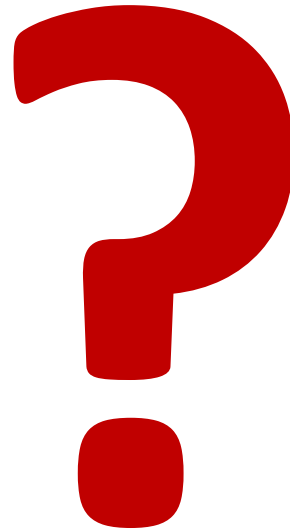
KNOWLEDGE WARS

*Who will Rule the
Battlefield ?*

KNOWLEDGE WARS

*Who will build the
Apps That Think,
outsmart competitors,
and win the battles ?*

KNOWLEDGE WARS



Stuff Experts said @ RF2011

“And then a miracle happens”

“KA is the hard problem”

“Nobody knows the rules”

“No clue how the whole system works”

“Coding rules is easy. Learning the rules is hard”.

Stuff My “Rule Guy” Says

Rules & Knowledge, Think & Reason

Design, Architecture, Engineering

KA, KR, KM, KA

About Me

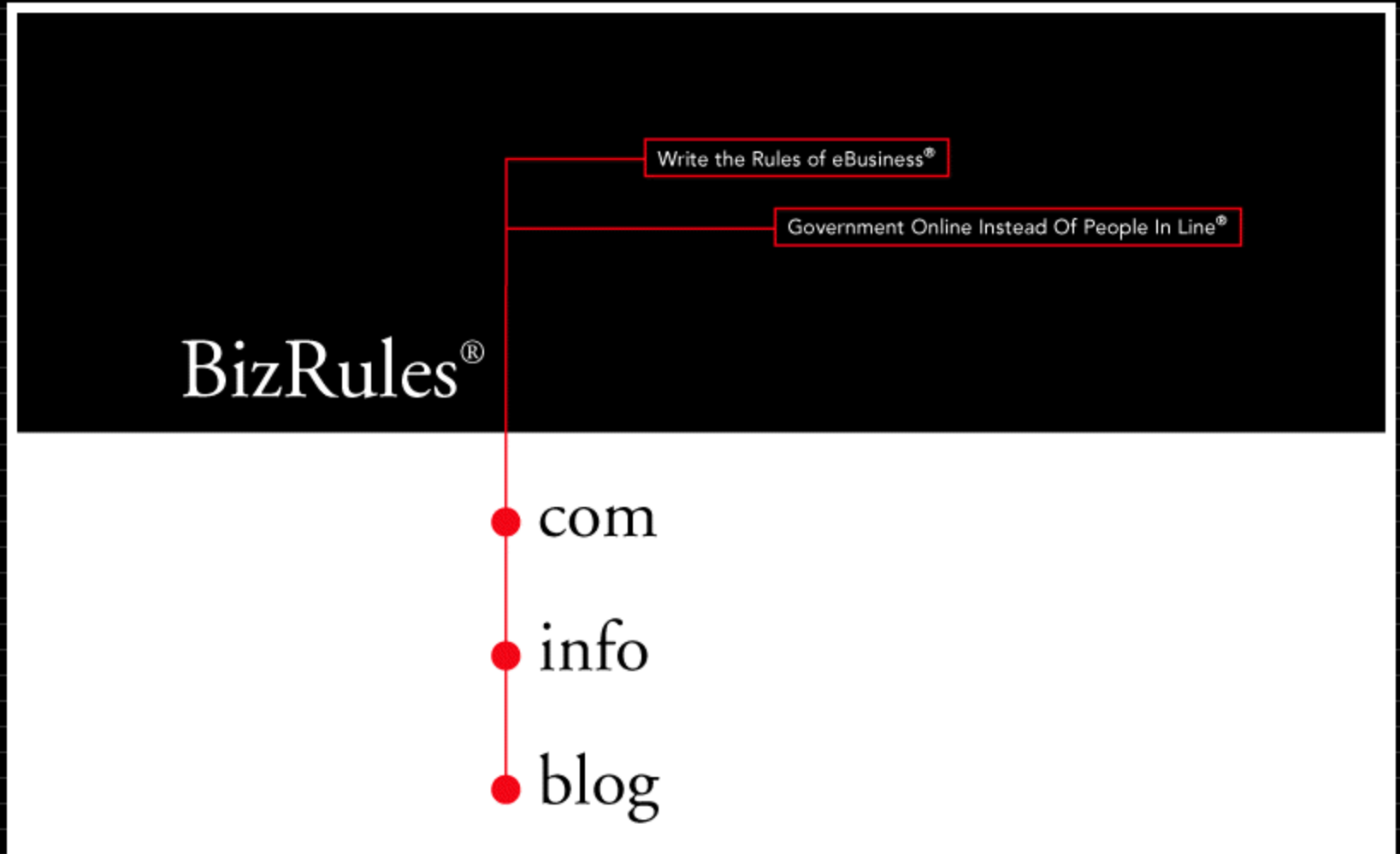
Rules Architect

Knowledge Engineer

What does a RA and KE do?...

Rules Architect:

Harvesting, Design, Strategy, Methodology, Framework



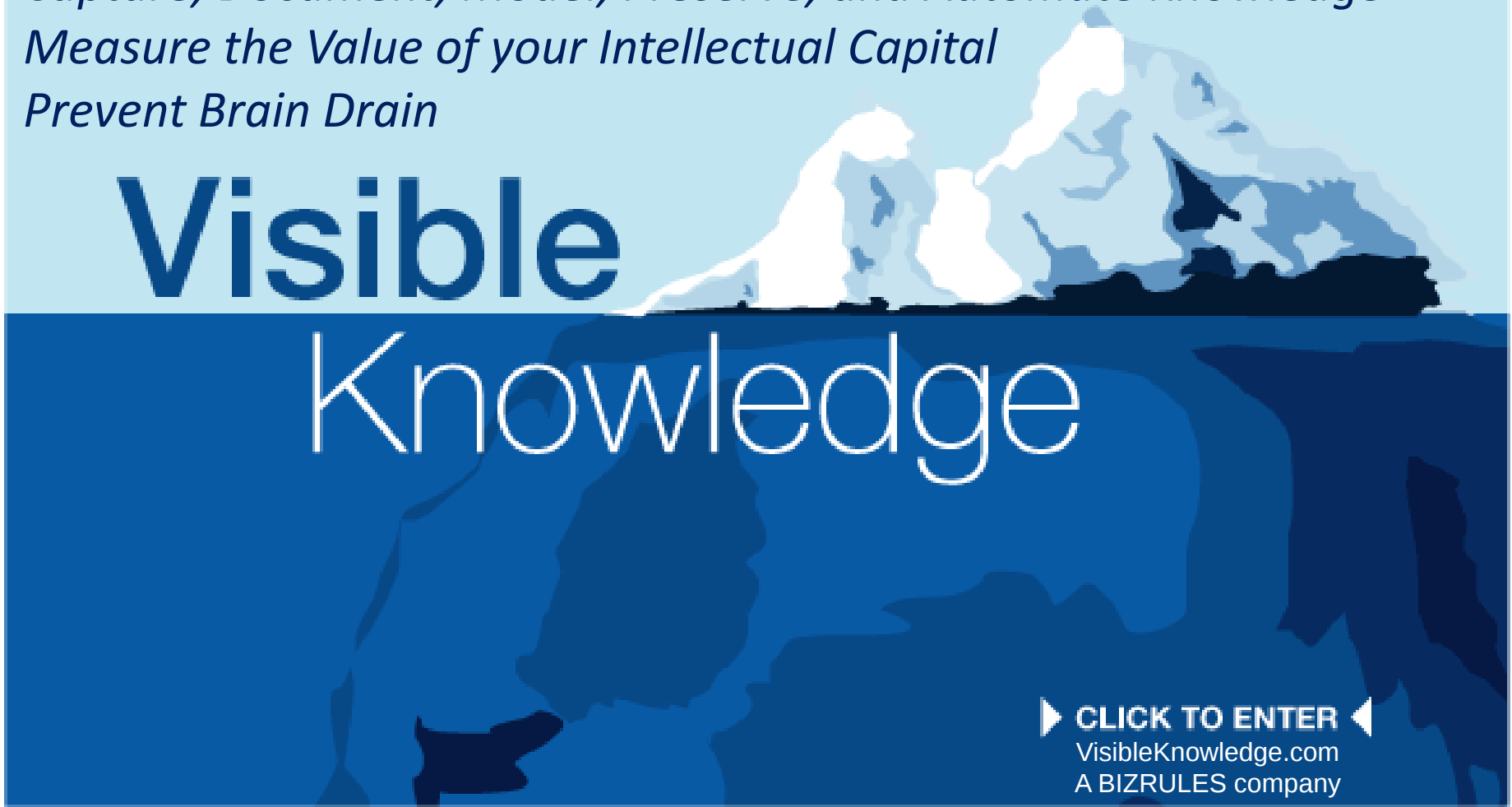
Knowledge Engineer:

Capture, Document, Model, Preserve, and Automate Knowledge

Measure the Value of your Intellectual Capital

Prevent Brain Drain

Visible Knowledge

An illustration of an iceberg floating in the ocean. The tip of the iceberg, which is visible above the water line, is white and jagged, representing 'Visible Knowledge'. The much larger part of the iceberg, which is submerged below the water line, is dark blue and represents 'Invisible Knowledge'. The background is a light blue sky and a dark blue ocean.

► **CLICK TO ENTER** ◀
VisibleKnowledge.com
A BIZRULES company

KNOWLEDGE WARS

Becoming a Knowledge Engineer

First, learn why systems fail, cannot adapt & do not last

- No architecture → It falls down like a house of cards
- No engineering → No reuse, integration, traceability
- Doesn't work → Doesn't do what was intended, no quality
- Doesn't change → System is too hard to change, no flexibility,
- Doesn't last → System is obsolete before it's built, no durability
- No alignment → System is not aligned to strategy...

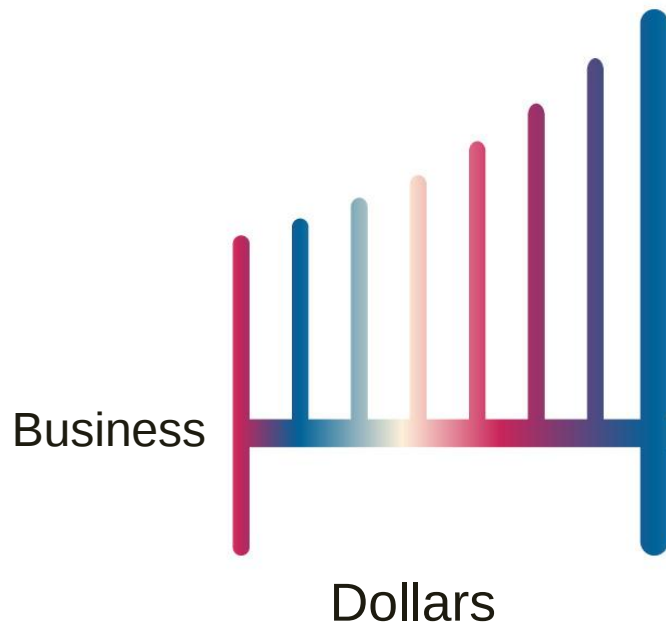
Business and IT alignment



**Next, make it your goal to align
business and IT once and for all**

**The knowledge engineer
must build a bridge
between business and IT**

Business and IT are in different worlds

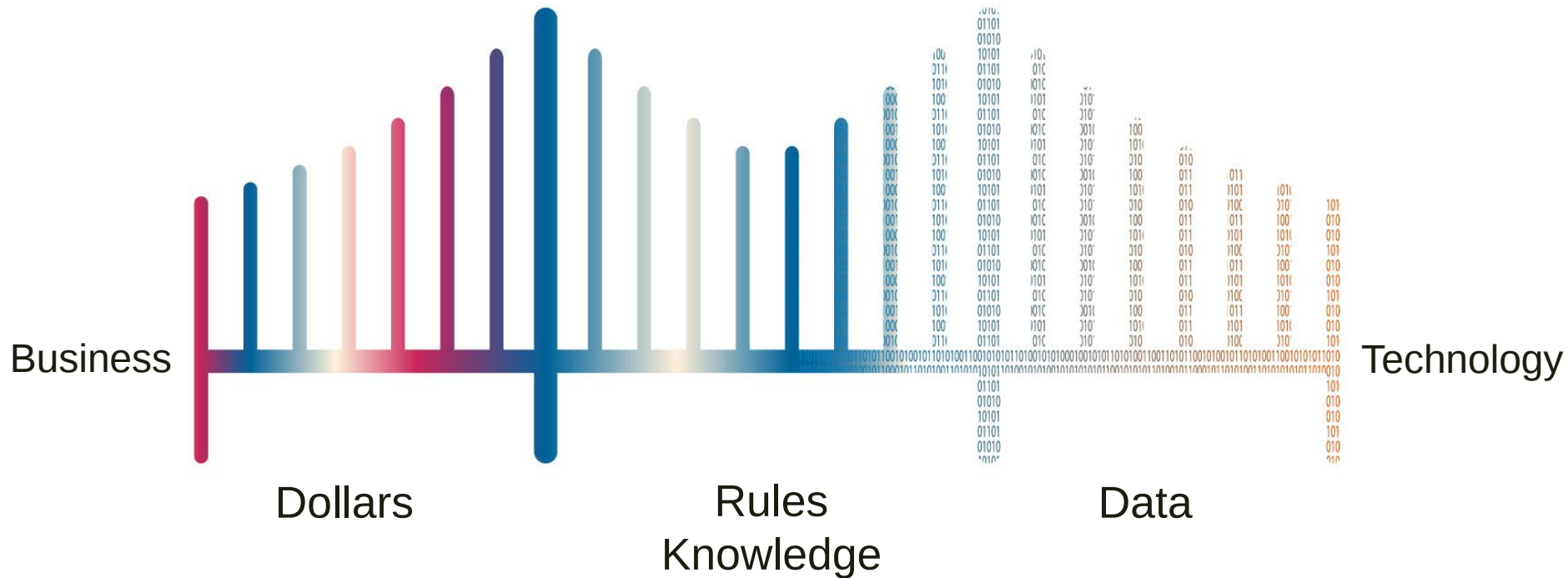


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Technology

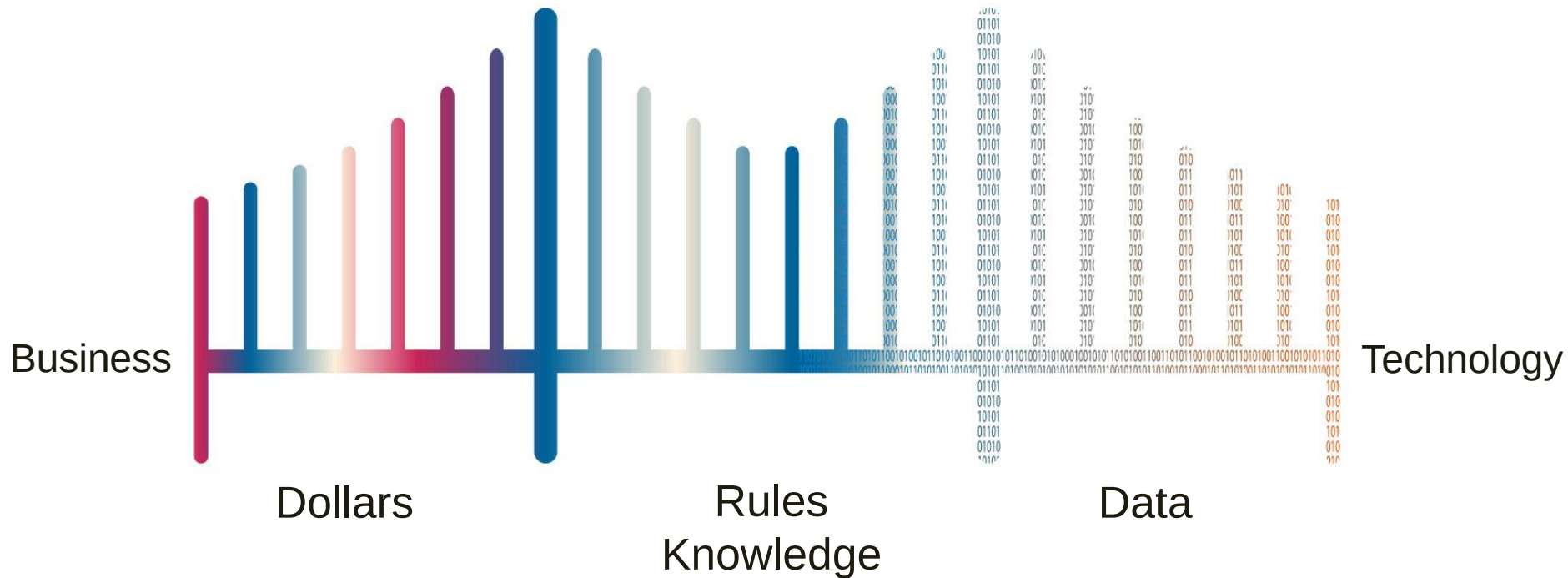
Data

Rules and knowledge are the bridge that connects Business and IT



Architecture is how to design the systems

Engineering is how to build the systems



Study Classic Literature

From A... *Aristotle's Categories*

Aristotle's Categories

- Substance
- Quantity
- Quality (Qualification; of what kind or quality)
- Relative / Relation (toward something)
- Somewhere (Place)
- Sometime (When)
- Being in a position (Posture, attitude)
- Having (To have or be; state; condition)
- Acting (Doing or Action; to make or do)
- Being acted upon (Being affected; to undergo)

Study Classic Literature

To Z...

Zachman's *Enterprise Architecture Framework*

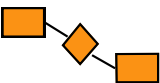
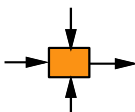
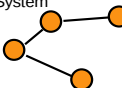
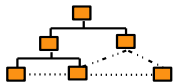
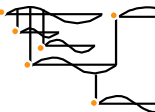
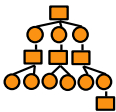
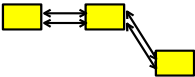
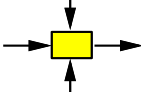
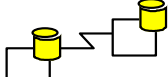
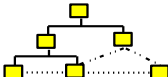
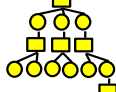
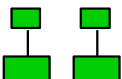
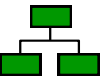
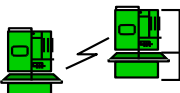
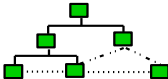
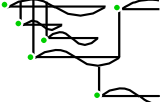
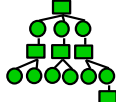
Zachman's Enterprise Architecture Framework

- What
- How
- Who
- Where
- When
- Why
- Data (Thing)
- Process (Action)
- Person
- Place
- Time
- Reason / Reasoning

Design in parts and sub-parts

Product	Building	Airplane	Enterprise Information System	DBMS	Rulebase Management System/BRE
Part	Floor Structure Roof	Airframe Tail Wing	Application	Database	Rulebase
Sub-part	Support column Support beam Truss Wall	Cabin / Cockpit Rudder Flap Landing Gear	Program GUI	Table	Rule Sets
Sub-part	Floor / Ceiling Door Window Bathroom	Instrument Panel Window / Door Seat Wheel	Component Window	Field / Column	Business Rule / Business Logic
Sub-part	Doorknob / Hinge Roof tile Carpet Wiring / Outlet	Dials / Switches Glass / Shade Seat Belt / Floating Cushion Tire	Object Button / Menu / Toolbar / Field	Type	Rule Condition/ Action (IF/THEN)

Enterprise Architecture – A Framework™

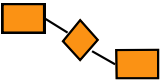
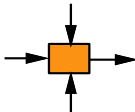
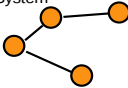
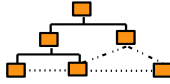
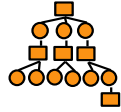
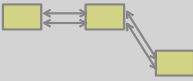
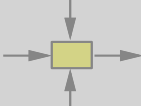
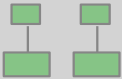
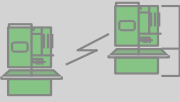
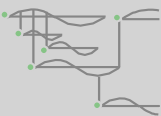
	DATA <i>What</i>	FUNCTION <i>How</i>	NETWORK <i>Where</i>	PEOPLE <i>Who</i>	TIME <i>When</i>	MOTIVATION <i>Why</i>	
SCOPE (CONTEXTUAL)	List of Things Important to the Business 	List of Processes the Business Performs 	List of Locations in which the Business Operates 	List of Organizations Important to the Business 	List of Events Significant to the Business 	List of Business Goals/Strat 	SCOPE (CONTEXTUAL)
<i>Planner</i>	ENTITY = Class of Business Thing	Function = Class of Business Process	Node = Major Business Location	People = Major Organizations	Time = Major Business Event	Ends/Mean=Major Bus. Goal/ Critical Success Factor	<i>Planner</i>
ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model 	e.g. Business Process Model 	e.g. Business Logistics System 	e.g. Work Flow Model 	e.g. Master Schedule 	e.g. Business Plan 	ENTERPRISE MODEL (CONCEPTUAL)
<i>Owner</i>	Ent = Business Entity ReIn = Business Relationship	Proc. = Business Process I/O = Business Resources	Node = Business Location Link = Business Linkage	People = Organization Unit Work = Work Product	Time = Business Event Cycle = Business Cycle	End = Business Objective Means = Business Strategy	<i>Owner</i>
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model 	e.g. Application Architecture 	e.g. Distributed System Architecture 	e.g. Human Interface Architecture 	e.g. Processing Structure 	e.g., Business Rule Model 	SYSTEM MODEL (LOGICAL)
<i>Designer</i>	Ent = Data Entity ReIn = Data Relationship	Proc. = Application Function I/O = User Views	Node = I/S Function (Processor, Storage, etc) Link = Line Characteristics	People = Role Work = Deliverable	Time = System Event Cycle = Processing Cycle	End = Structural Assertion Means = Action Assertion	<i>Designer</i>
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model 	e.g. System Design 	e.g. Technology Architecture 	e.g. Presentation Architecture 	e.g. Control Structure 	e.g. Rule Design 	TECHNOLOGY MODEL (PHYSICAL)
<i>Builder</i>	Ent = Segment/Table/etc. ReIn = Pointer/Key/etc.	Proc.= Computer Function I/O = Data Elements/Sets	Node = Hardware/System Software Link = Line Specifications	People = User Work = Screen Format	Time = Execute Cycle = Component Cycle	End = Condition Means = Action	<i>Builder</i>
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g. Data Definition 	e.g. Program 	e.g. Network Architecture 	e.g. Security Architecture 	e.g. Timing Definition 	e.g. Rule Specification 	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)
<i>Sub-Contractor</i>	Ent = Field ReIn = Address	Proc.= Language Stmt I/O = Control Block	Node = Addresses Link = Protocols	People = Identity Work = Job	Time = Interrupt Cycle = Machine Cycle	End = Sub-condition Means = Step	<i>Sub-Contractor</i>
FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	e.g. ORGANIZATION	e.g. SCHEDULE	e.g. STRATEGY	FUNCTIONING ENTERPRISE

Enterprise Architecture – A Framework™

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Complete “Business Model” Architecture

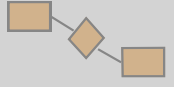
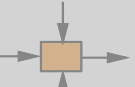
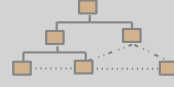
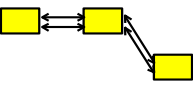
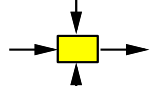
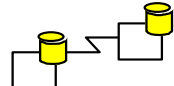
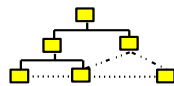
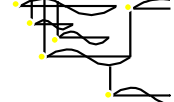
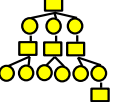
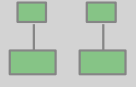
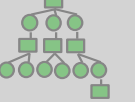
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Complete “System Model” Architecture

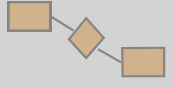
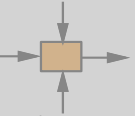
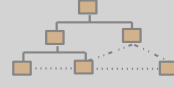
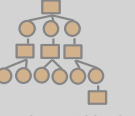
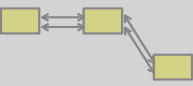
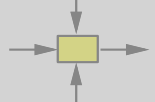
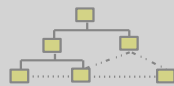
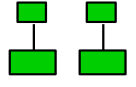
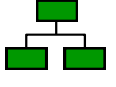
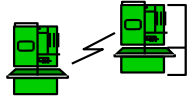
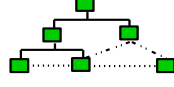
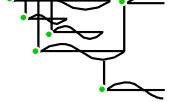
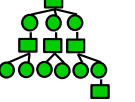
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Complete “Technology Model” Architecture

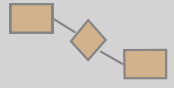
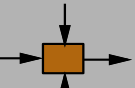
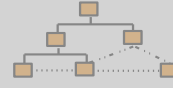
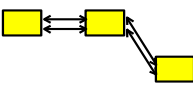
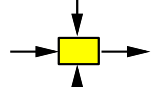
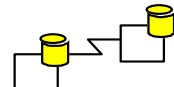
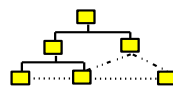
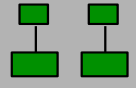
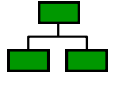
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Object Oriented Modeling (UML; Use Cases)

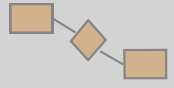
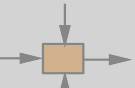
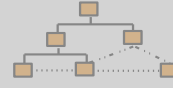
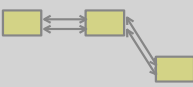
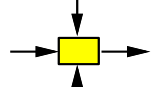
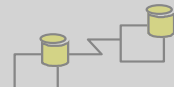
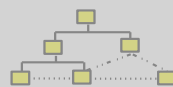
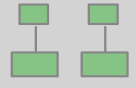
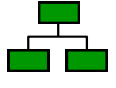
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Structured Methods Modeling

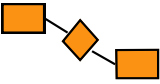
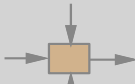
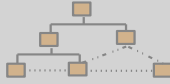
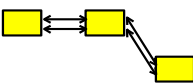
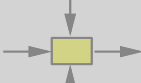
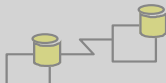
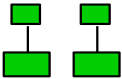
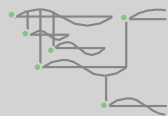
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Complete “Data Model” Architecture

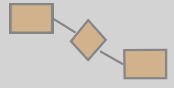
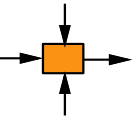
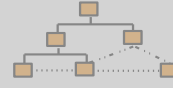
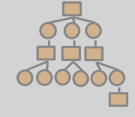
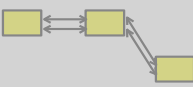
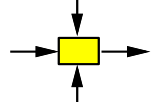
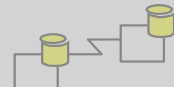
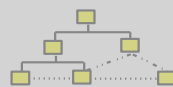
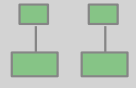
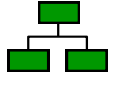
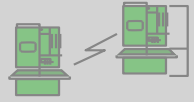
	DATA <i>What</i>	FUNCTION <i>How</i>	NETWORK <i>Where</i>	PEOPLE <i>Who</i>	TIME <i>When</i>	MOTIVATION <i>Why</i>	
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<i>Owner</i>	Ent = Business Entity ReIn = Business Relationship	Proc. = Business Process I/O = Business Resources	Node = Business Location Link = Business Linkage	People = Organization Unit Work = Work Product	Time = Business Event Cycle = Business Cycle	End = Business Objective Means = Business Strategy	<i>Owner</i>
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model 	e.g. Application Architecture 	e.g. Distributed System Architecture 	e.g. Human Interface Architecture 	e.g. Processing Structure 	e.g., Business Rule Model 	SYSTEM MODEL (LOGICAL)
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FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	e.g. ORGANIZATION	e.g. SCHEDULE	e.g. STRATEGY	FUNCTIONING ENTERPRISE

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Complete “Business Process Model” Architecture

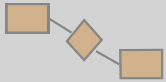
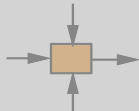
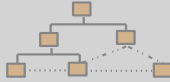
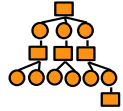
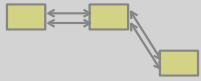
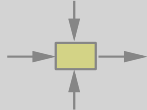
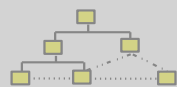
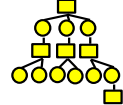
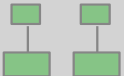
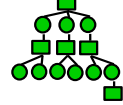
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Complete “Business Rule Model” Architecture

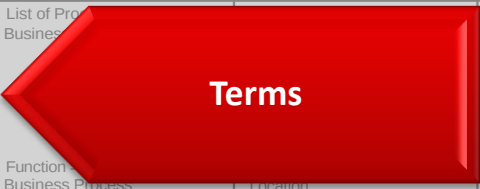
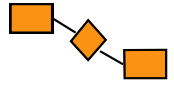
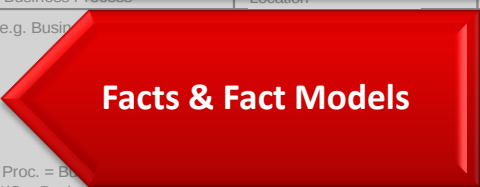
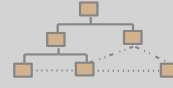
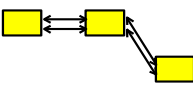
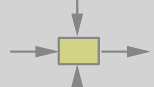
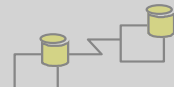
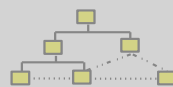
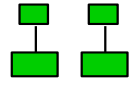
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Terms and Facts

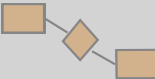
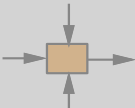
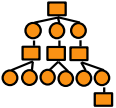
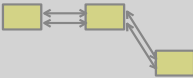
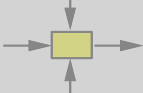
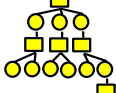
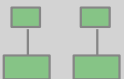
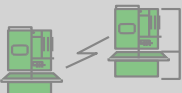
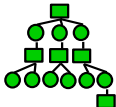
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Goals, Rules and Decisions

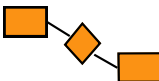
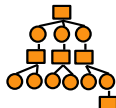
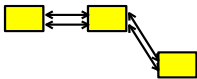
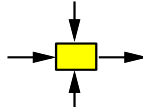
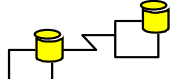
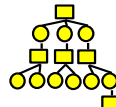
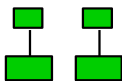
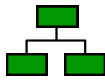
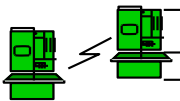
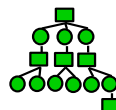
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TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model 	e.g. System Design 	e.g. Technology Architecture 	Formal/Detailed Rules (Textual/If...Then) Detailed Technical Specification		e.g. Rule Design 	TECHNOLOGY MODEL (PHYSICAL)
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DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g. Data Definition 	e.g. Program 	e.g. Network Architecture 	Source Code (Automated Rules) Implementation		e.g. Rule Specification 	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)
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FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	Execution / Enterprise Decision		e.g. STRATEGY	FUNCTIONING ENTERPRISE

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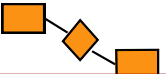
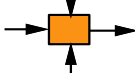
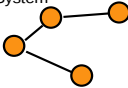
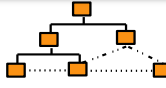
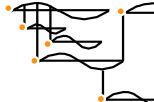
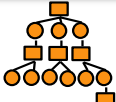
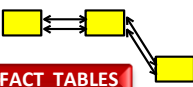
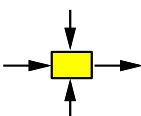
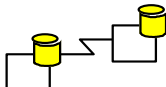
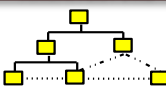
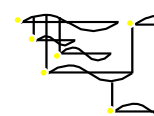
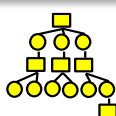
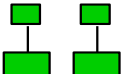
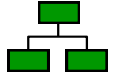
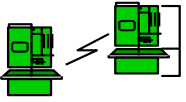
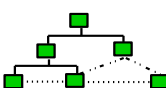
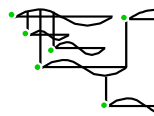
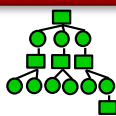
	DATA <i>What</i>	FUNCTION <i>How</i>	NETWORK <i>Where</i>	PEOPLE <i>Who</i>	TIME <i>When</i>	MOTIVATION <i>Why</i>		
SCOPE (CONTEXTUAL)	List of Things Important to the Business 	Terms			Mission & Goals/Objectives Management Intention		List of Business Goals/Strat 	SCOPE (CONTEXTUAL)
Planner	ENTITY = Class of Business Thing	Function = Business Process	Location	People = Business Event	Time = Business Cycle	Ends/Mean=Major Bus. Goal/ Critical Success Factor	Planner	
ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model 	Facts & Fact Models			Strategy & Policy (Governing Rules) Informal or Detailed Description		e.g. Business Plan 	ENTERPRISE MODEL (CONCEPTUAL)
Owner	Ent = Business Entity ReIn = Business Relationship	Proc. = Business Resources I/O = Business Resources	Link = Business Linkage	Work = Work Product	Cycle = Business Cycle	End = Business Objective Means = Business Strategy	Owner	
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model 	e.g. Application Architecture 	e.g. Distributed System Architecture 	Rulebase/Rulesets (Textual/Decision Trees/Decision Tables) Detailed Logical Definition		e.g., Business Rule Model 	SYSTEM MODEL (LOGICAL)	
Designer	Ent = Data Entity ReIn = Data Relationship	Proc. = Application Function I/O = User Views	Node = I/S Function (Processor, Storage, etc) Link = Line Characteristics	Work = Deliverable	Cycle = Processing Cycle	End = Structural Assertion Means = Action Assertion	Designer	
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model 	e.g. System Design 	e.g. Technology Architecture 	Formal/Detailed Rules (Textual/If...Then) Detailed Technical Specification		e.g. Rule Design 	TECHNOLOGY MODEL (PHYSICAL)	
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FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	Execution / Enterprise Decision		e.g. STRATEGY	FUNCTIONING ENTERPRISE	

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How does the BIZRULES approach fit into our Enterprise Architecture?

	DATA <i>What</i>	FUNCTION <i>How</i>	NETWORK <i>Where</i>	PEOPLE <i>Who</i>	TIME <i>When</i>	MOTIVATION <i>Why</i>	
SCOPE (CONTEXTUAL)	TERMS 	List of Processes the Business Performs 	List of Locations in which the Business Operates 	List of Organizations Important to the Business 	List of Events Significant to the Business 	MISSION & GOALS 	SCOPE (CONTEXTUAL)
<i>Planner</i>	ENTITY = Class of Business Thing	Function = Class of Business Process	Node = Major Business Location	People = Major Organizations	Time = Major Business Event	Ends/Mean=Major Bus. Goal/ Critical Success Factor	<i>Planner</i>
ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model  FACT MODELS	BUSINESS PROCESS MODELS 	e.g. Business Logistics System 	WORK FLOW MODELS 	e.g. Master Schedule 	GOVERNING RULES 	ENTERPRISE MODEL (CONCEPTUAL)
<i>Owner</i>	Ent = Business Entity ReIn = Business Relationship	Proc. = Business Process I/O = Business Resources	Node = Business Location Link = Business Linkage	People = Organization Unit Work = Work Product	Time = Business Event Cycle = Business Cycle	End = Business Objective Means = Business Strategy	<i>Owner</i>
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model  FACT TABLES	e.g. Application Architecture 	e.g. Distributed System Architecture 	USER INTERFACE ARCHITECTURE 	e.g. Processing Structure 	BUSINESS RULE MODELS 	SYSTEM MODEL (LOGICAL)
<i>Designer</i>	Ent = Data Entity ReIn = Data Relationship	Proc. = Application Function I/O = User Views	Node = I/S Function (Processor, Storage, etc) Link = Line Characteristics	People = Role Work = Deliverable	Time = System Event Cycle = Processing Cycle	End = Structural Assertion Means = Action Assertion	<i>Designer</i>
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model 	e.g. System Design 	e.g. Technology Architecture 	e.g. Presentation Architecture 	e.g. Control Structure 	RULE DESIGNS 	TECHNOLOGY MODEL (PHYSICAL)
<i>Builder</i>	Ent = Segment/Table/etc. ReIn = Pointer/Key/etc.	Proc. = Computer Function I/O = Data Elements/Sets	Node = Hardware/System Software Link = Line Specifications	People = User Work = Screen Format	Time = Execute Cycle = Component Cycle	End = Condition Means = Action	<i>Builder</i>
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g. Data Definition 	e.g. Program 	e.g. Network Architecture 	e.g. Security Architecture 	e.g. Timing Definition 	RULE SPECIFICATIONS 	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)
<i>Sub-Contractor</i>	Ent = Field ReIn = Address	Proc. = Language Stmt I/O = Control Block	Node = Addresses Link = Protocols	People = Identity Work = Job	Time = Interrupt Cycle = Machine Cycle	End = Sub-condition Means = Step	<i>Sub-Contractor</i>
FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	e.g. ORGANIZATION	e.g. SCHEDULE	e.g. STRATEGY	FUNCTIONING ENTERPRISE

If [Conditions] Then [Actions]

[Goals]

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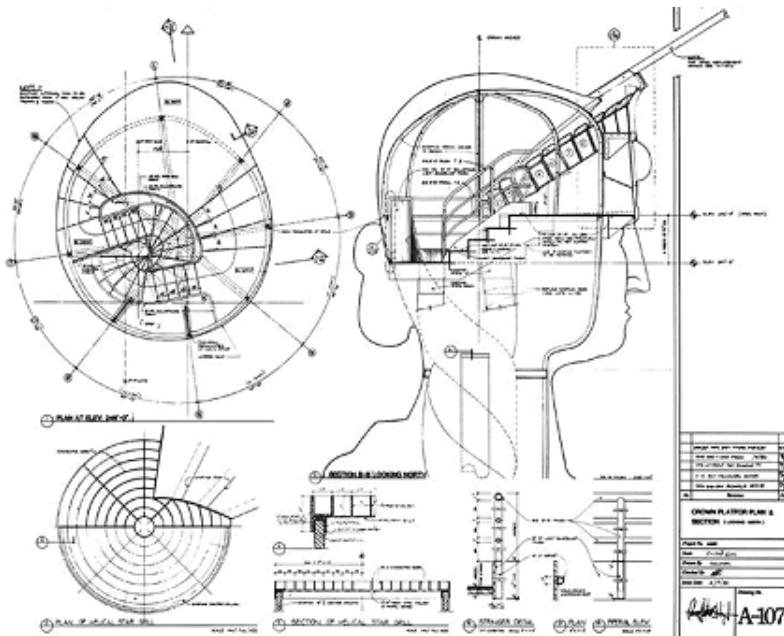
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Framework for building and designing systems that work, change, and last

Architecture
Engineering
Idea
Logical
Representation

The result of architecture
Design & Build
Implementation
Physical
Instantiation



A general framework for building any system

Architecture → Engineering → Design → Build



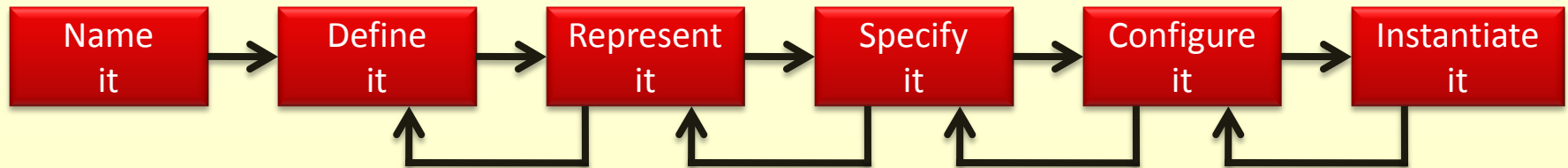
Lack of specificity in one step leads to ambiguity in the next steps...

Lack of quality in one step leads to mistakes in the next steps...

Lack of completeness in one step leads to gaps in the next steps...

A general framework for *building* any system

Architecture → Engineering → Design → Build



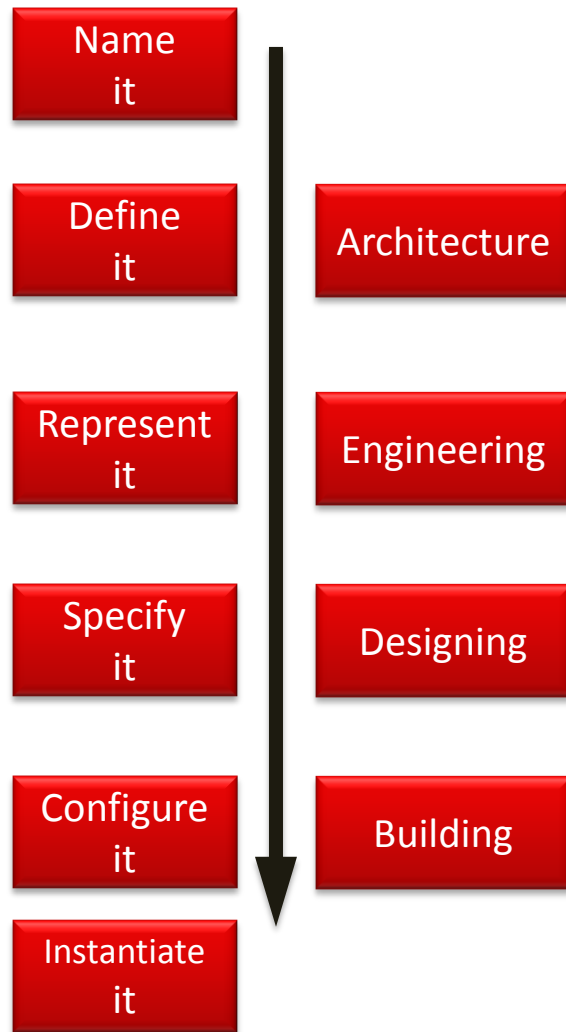
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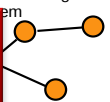
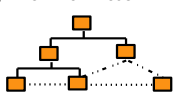
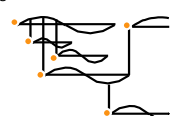
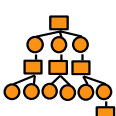
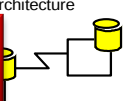
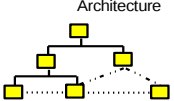
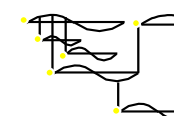
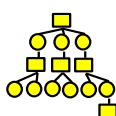
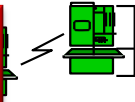
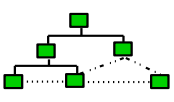
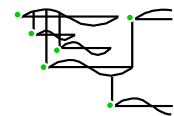
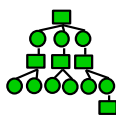
Lack of completeness in one step leads to gaps in the next steps...

and thus the need for reiteration & rework in the process

A general framework for *building* any system



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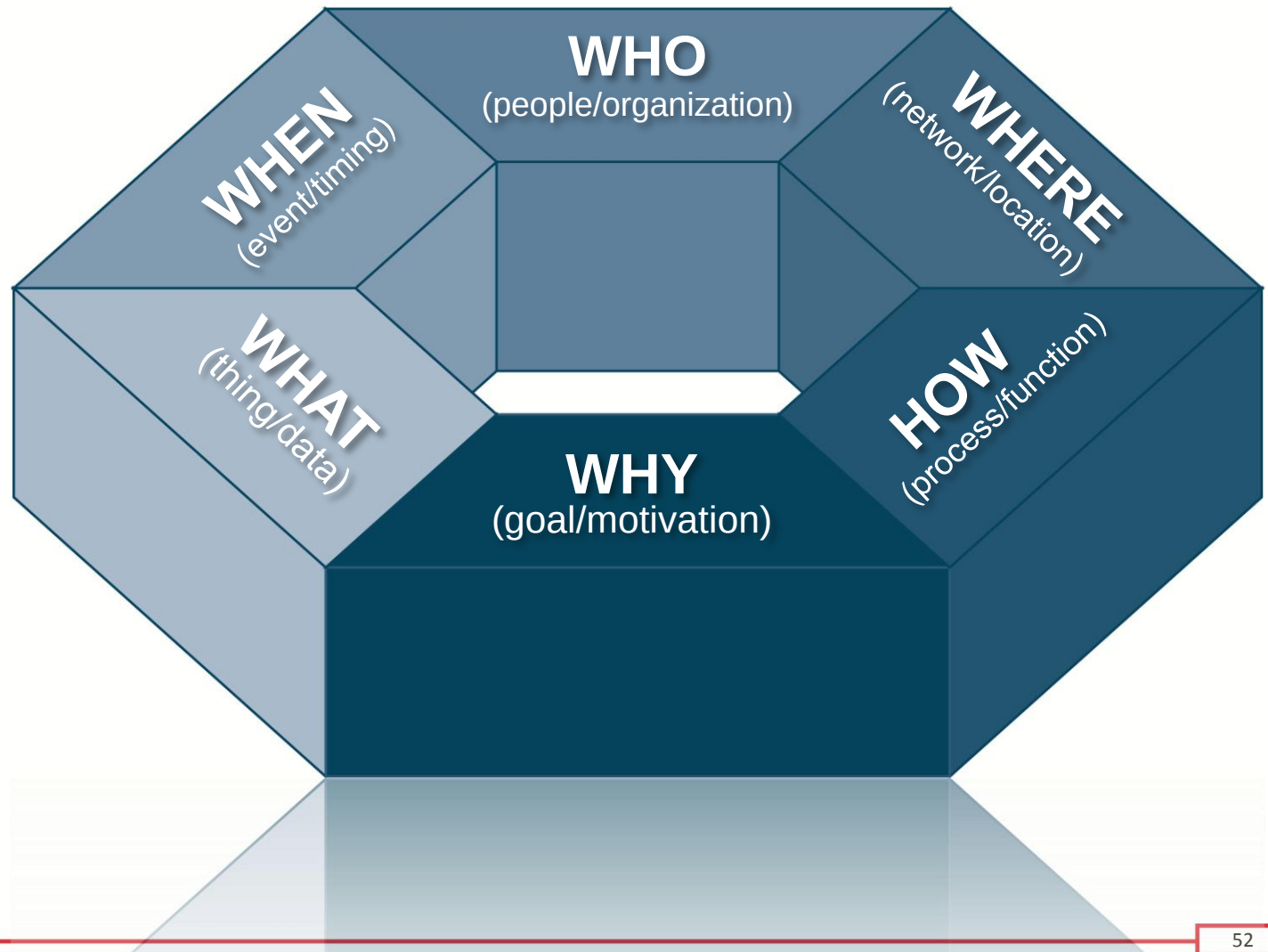
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ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model  Owner	e.g. Business Process Model  Owner	e.g. Business Logistics  Owner	e.g. Work Flow Model  Owner	e.g. Master Schedule  Owner	e.g. Business Plan  Owner	ENTERPRISE MODEL (CONCEPTUAL)
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model  Designer	e.g. Application Architecture  Designer	e.g. Distributed System Architecture  Designer	e.g. Human Interface Architecture  Designer	e.g. Processing Structure  Designer	e.g., Business Rule Model  Designer	SYSTEM MODEL (LOGICAL)
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model  Builder	e.g. System Design  Builder	e.g. Technology Architecture  Builder	e.g. Presentation Architecture  Builder	e.g. Control Structure  Builder	e.g. Rule Design  Builder	TECHNOLOGY MODEL (PHYSICAL)
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g. Data Definition  Sub-Contractor	e.g. Program  Sub-Contractor	e.g. Network Architecture  Sub-Contractor	e.g. Security Architecture  Sub-Contractor	e.g. Timing Definition  Sub-Contractor	e.g. Rule Specification  Sub-Contractor	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)
FUNCTIONING ENTERPRISE	 Sub-Contractor	e.g. FUNCTION	e.g. NETWORK	e.g. ORGANIZATION	e.g. SCHEDULE	e.g. STRATEGY	FUNCTIONING ENTERPRISE

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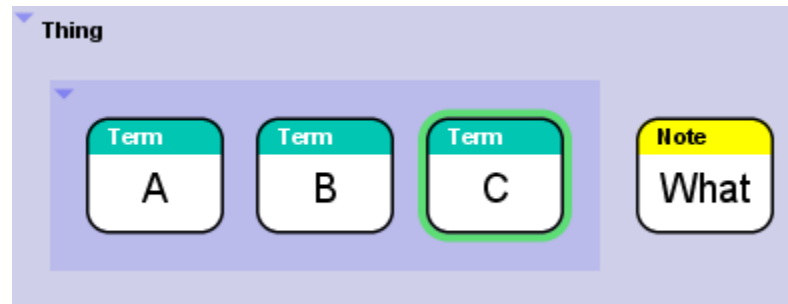
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A general framework for *designing* any system



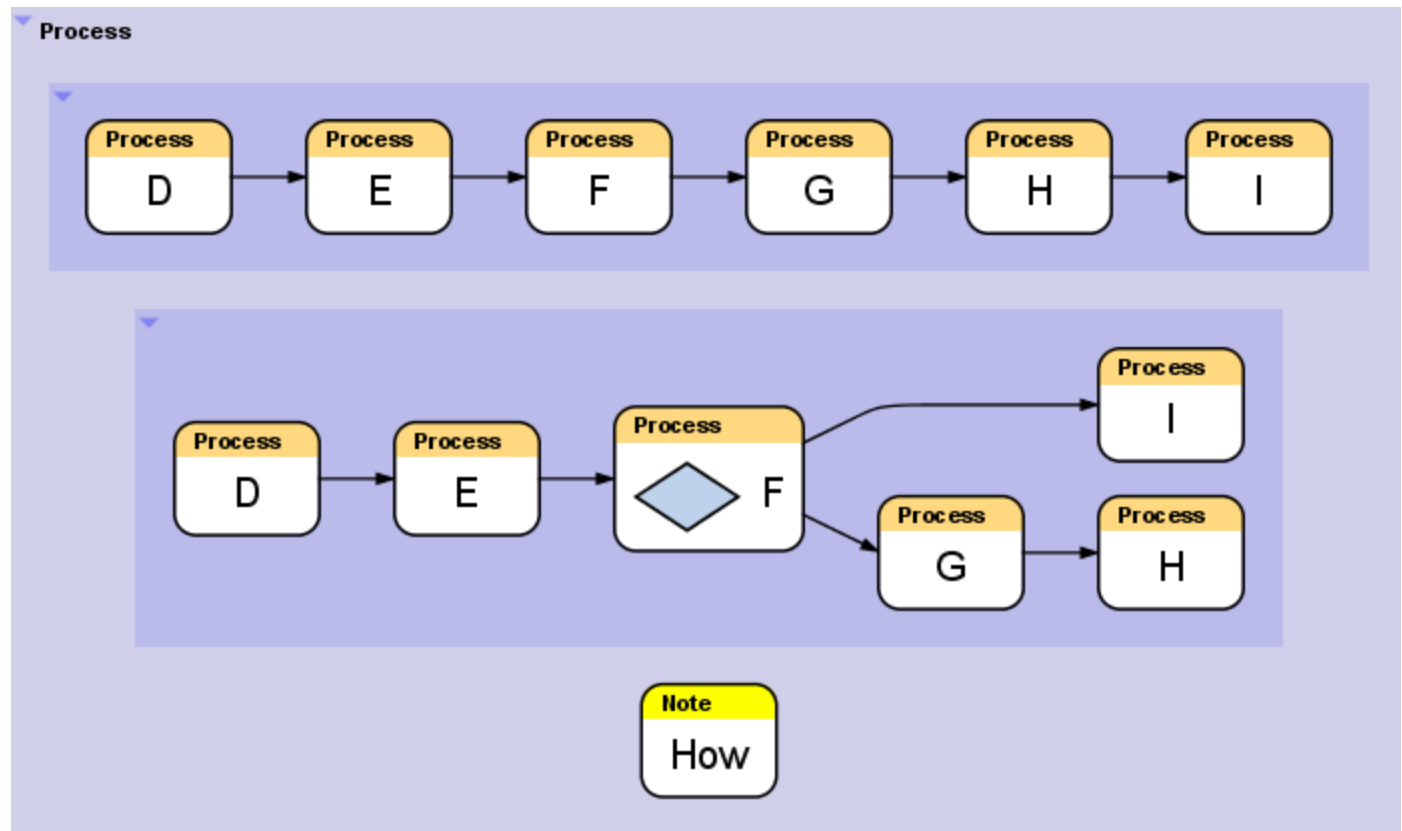
Data / What

- Things
- Inventory sets



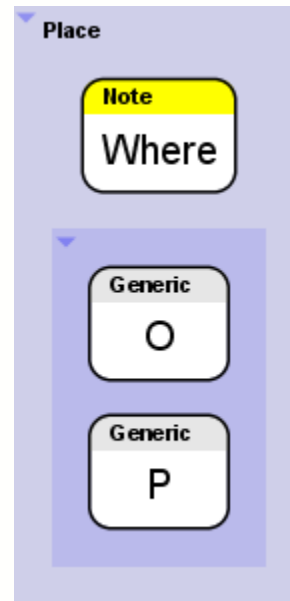
Process / How

- Process transformations



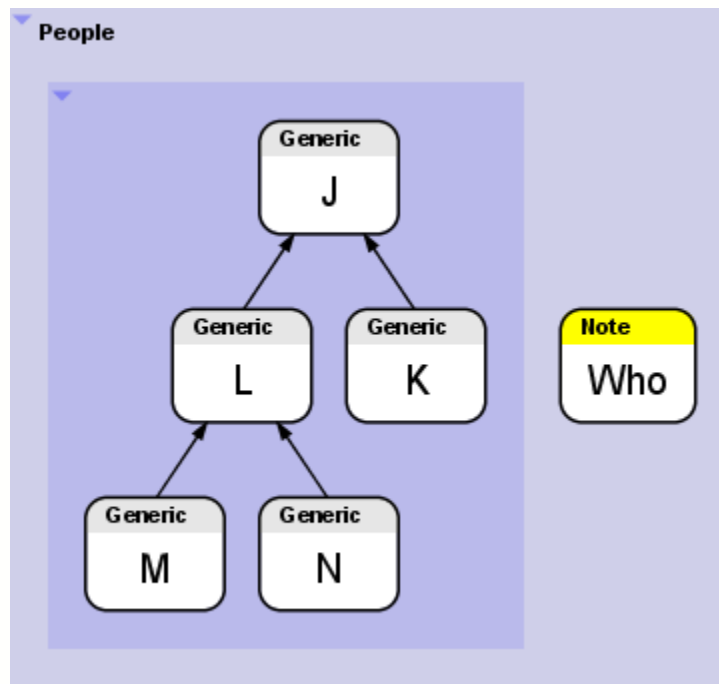
Place / Where

- Transportations
- Locations
- Network nodes



People / Who

- Organization Groups



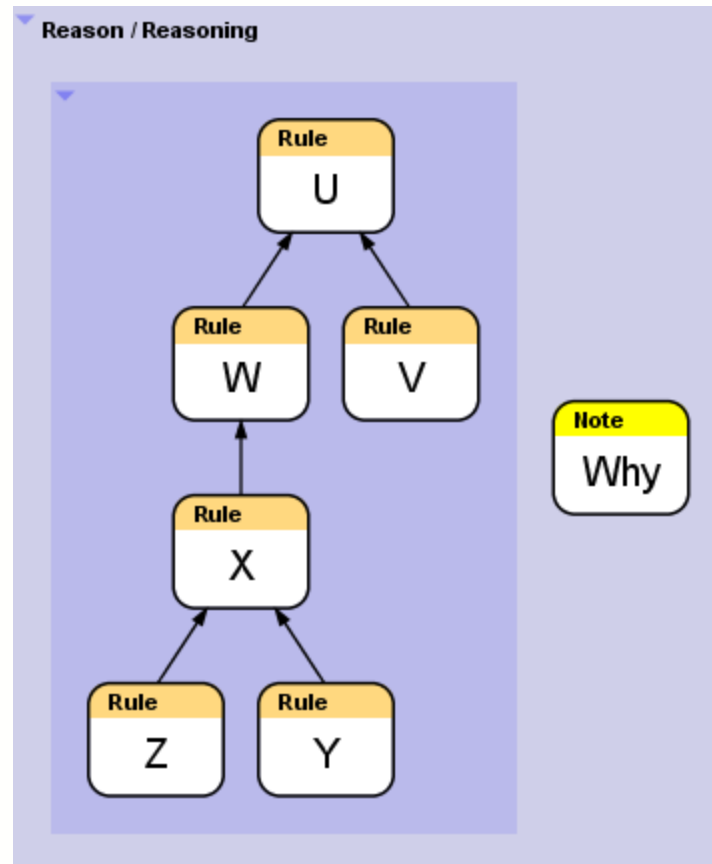
Event / When

- Timing periods
- Master schedules
- Deadlines
- Due dates

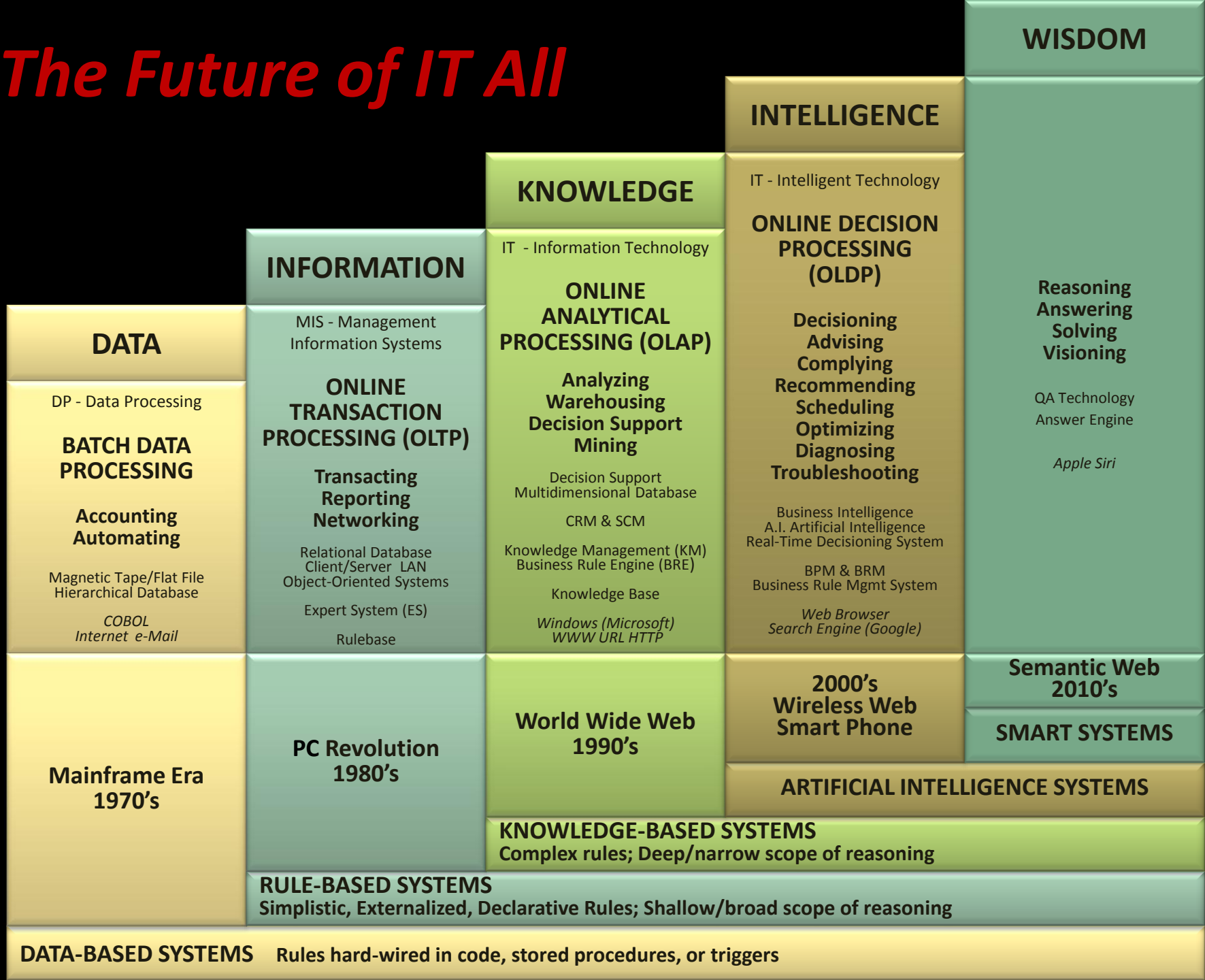


Reasons / Why

- Motivation reasons
- Reasoning
- Strategy
- Mission
- Goals
- Objectives



The Future of IT All



What is the difference between data-based, rule-based, and knowledge-based systems?

	Data-Based System	Rule-Based System	Knowledge-Based System
Can process	Data	Data Rules	Data Rules Knowledge
Can output	Information	Information Decisions Real-Time Decisions	Information Decisions Answers Expert Advice Recommendations
Commonly implemented using	"Hard-coded rules" Procedural languages	"Rule-based" Declarative languages Deterministic	Fuzzy Logic, CBR, Probabilistic reasoning, other AI/ES techniques
Ideal for	IT/System rules Application rules	Simplistic business rules	Complex business rules
Best for these types of applications	Transacting Reporting (Traditional information systems)	Decisioning Compliance	Advising Product selection Recommending Troubleshooting
Intelligence Capability	Not intelligent	Shallow logic Broad domains	Deep Logic Narrow domain

***What are the
Big Three Problems
that the knowledge engineer
must solve?***

PROBLEM #1: Rules and knowledge in people's heads

KNOWLEDGE

- **EXPLICIT KNOWLEDGE**
i.e. **INFORMATION**
 - Tangible
 - Visible knowledge
 - Public
 - Can be accessed by third persons
 - Once shared, it belongs to everybody
 - Can be seen “above the water”
- **TACIT KNOWLEDGE**
 - Intangible
 - Invisible knowledge
 - Private
 - Can be accessed on the first-person basis only
 - Hidden “underwater”



Source:
[Understanding Knowledge Societies In twenty questions and answers with the Index of Knowledge Societies](#),
Department of Economic and Social Affairs Division for Public Administration and Development Management, United Nations, New York, c2005

SOLUTION: A process to transform knowledge and expert rules into models so you can retain, share, and automate it

Knowledge Acquisition

Knowledge Representation

Knowledge Modeling

Knowledge Automation

(K.A.R.M.A)

PROBLEM #2: Duplication & Redundancy of rules in code is a huge expense

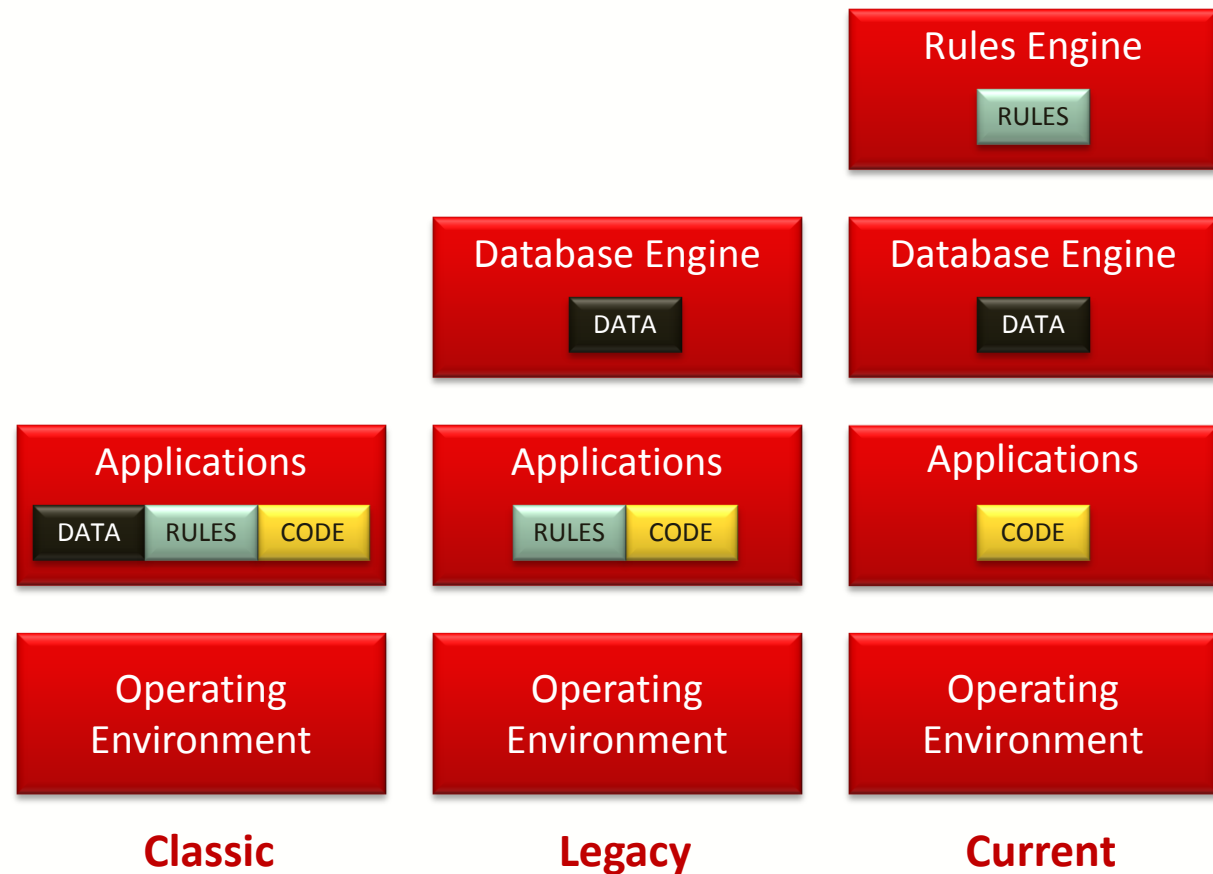
Blue Shield of California **spending over \$200 Million** reprogramming new and old systems at the same time to reflect the new Health Care rules.

“About 250 employees are leading teams responsible for reprogramming computer systems.”

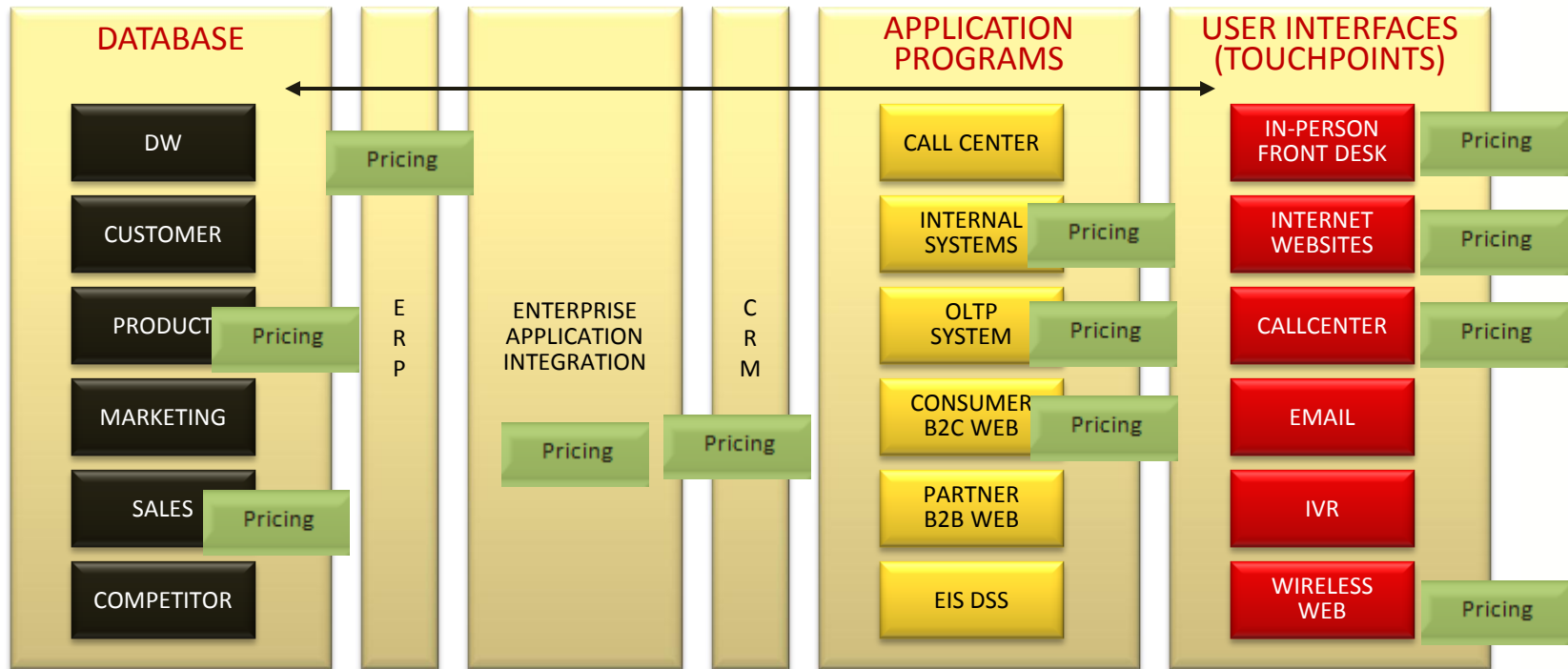
Source: Insurers Scramble to Comply With New Rules, NYT.com, 9/22/2010

Law: Patient Protection and Affordable Care Act of 2010

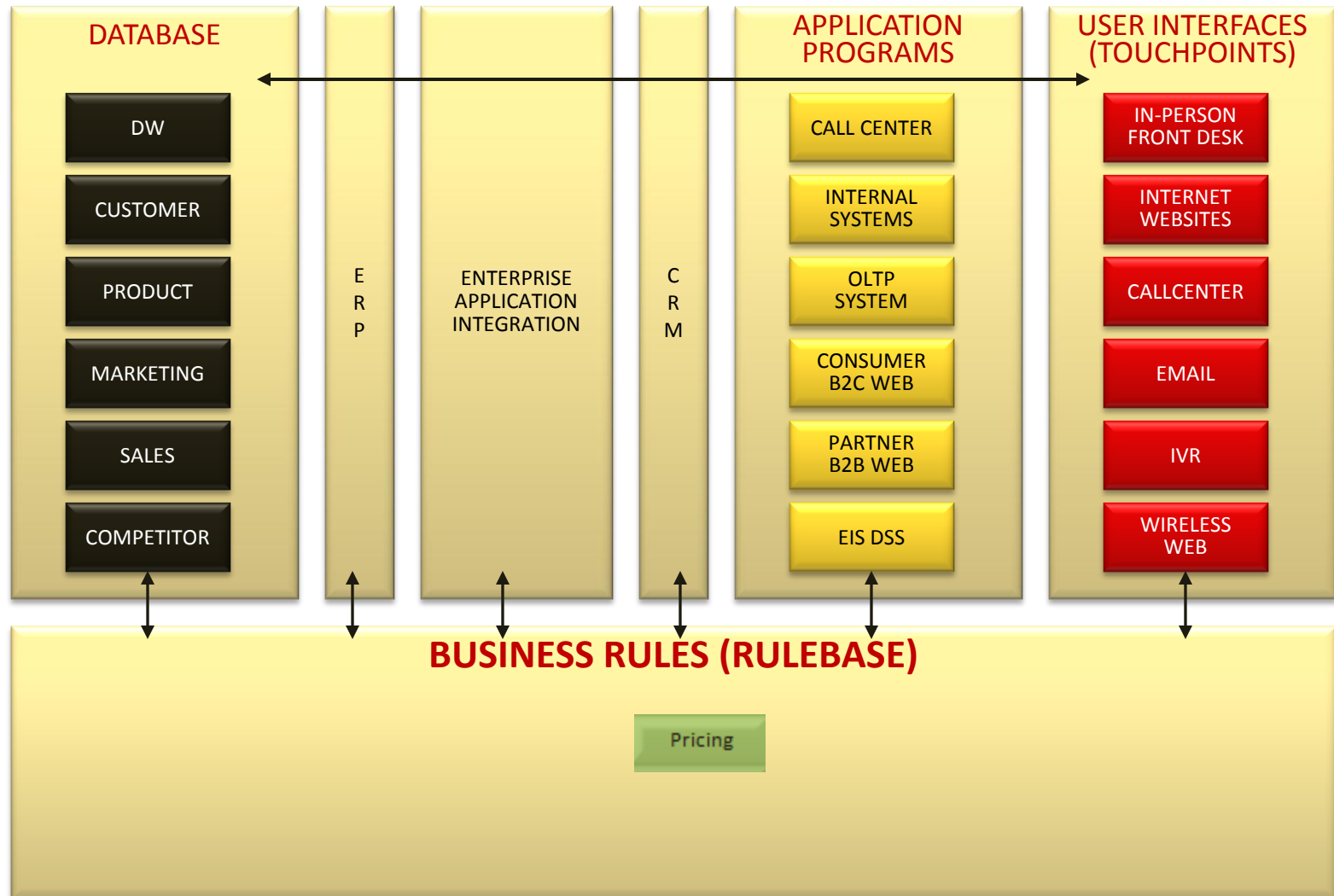
SOLUTION: Transform your Rules into Corporate Assets



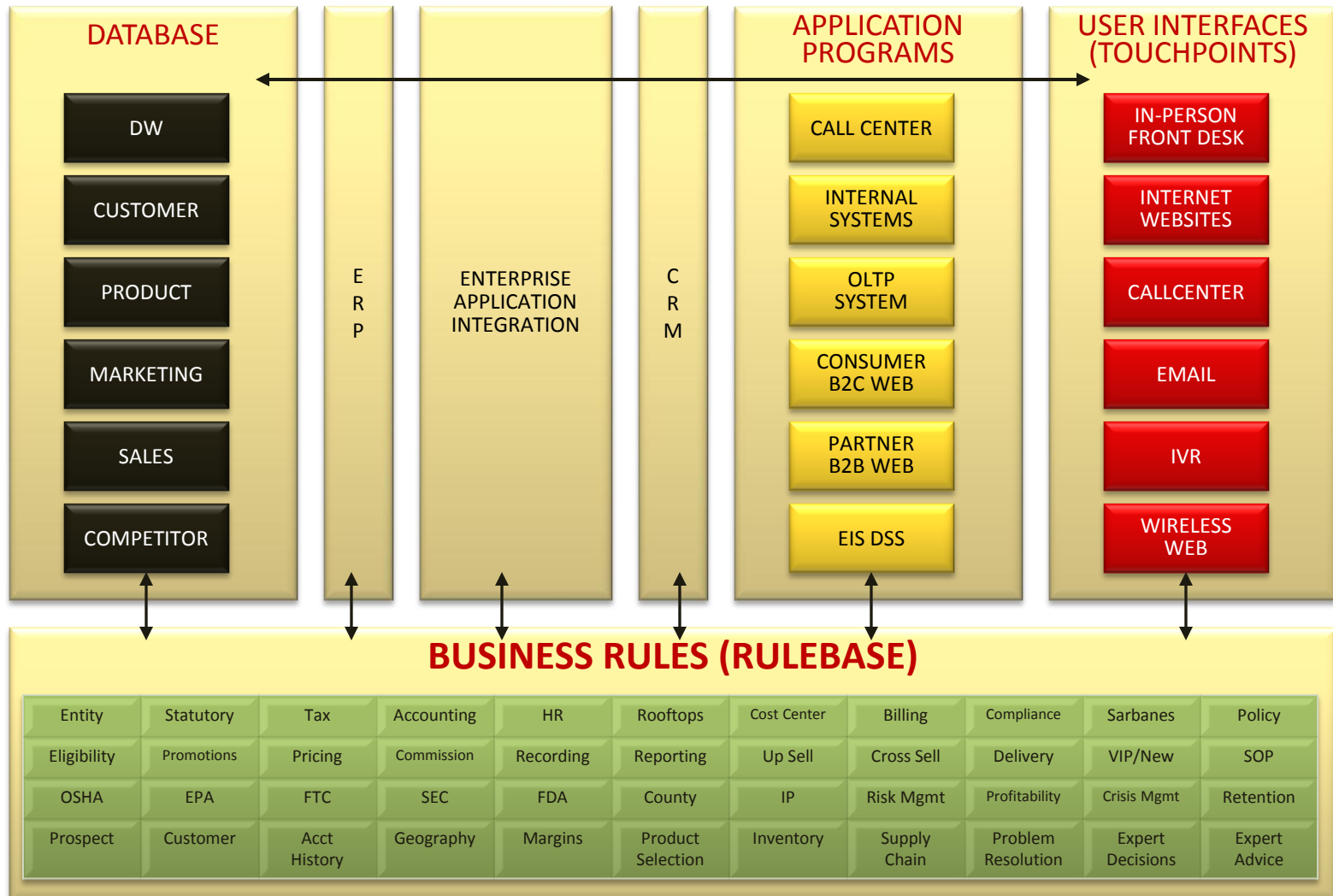
PROBLEM #3: Rules everywhere



SOLUTION: Centralize Rules in the Rulebase



GOAL: Change Rules one time... one place



VISION: Ruling the CloudsSM



Benefits of centralizing rules in one rulebase

- Can take a **broader** view of the customer

- If you just cancelled my policy...
- If you just raised my premium...
- If you just lost my luggage...

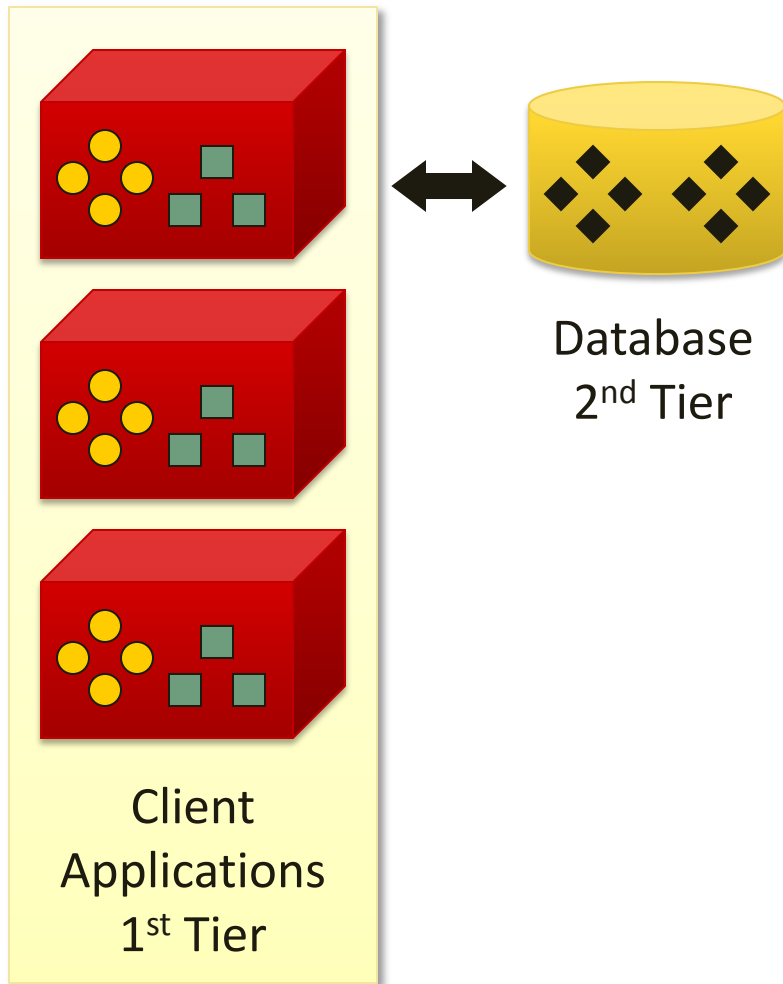
...stop sending me email or text messages with special offers for a while → I'm not happy with you right now

- Less code
- Easier maintenance (\$6/\$1)
- Faster time to market
- ... etc...

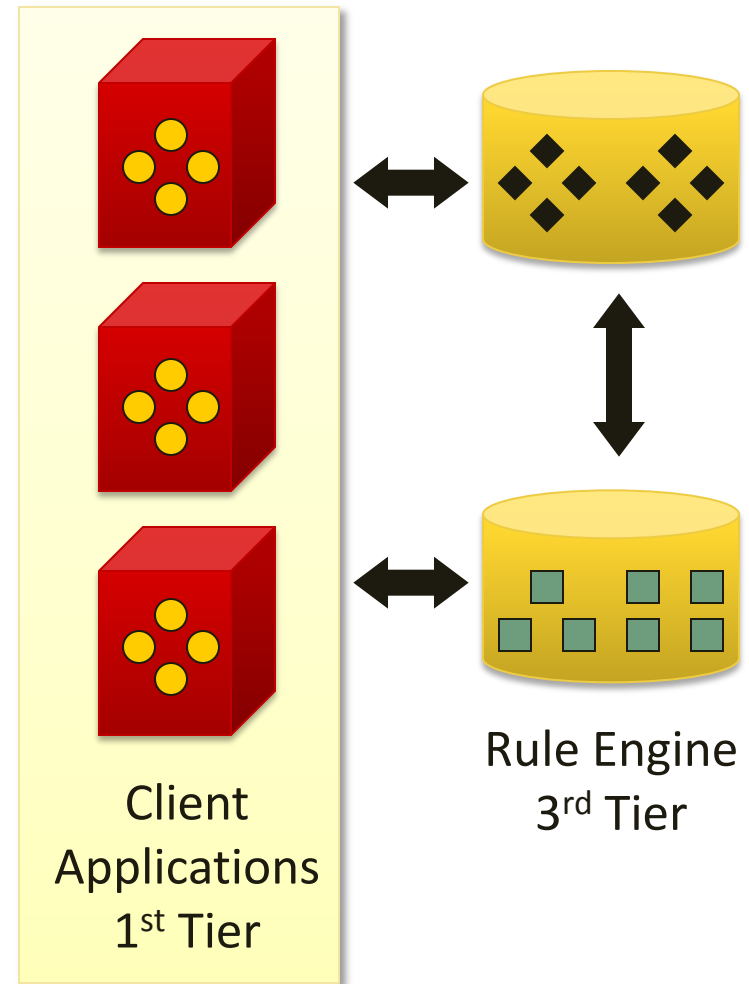
One Rule One Time One Place

Understand Rules vs. Hard-Code

Traditional approach using hard-coded rules

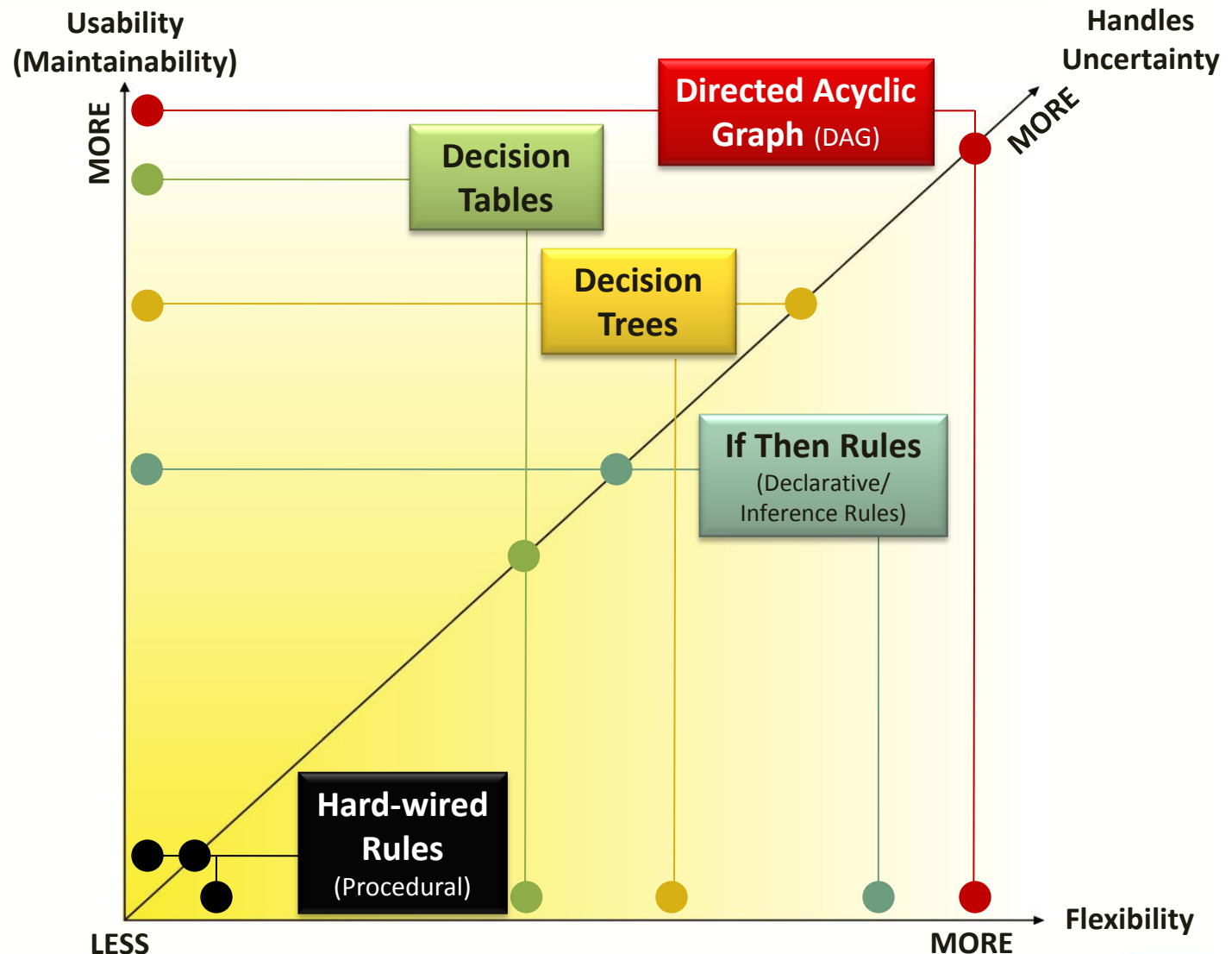


Modern approach using business rules



● Code ■ Business Rules ◆ Data

Attributes of various business rule approaches



What Not How

Understand Declarative vs. Procedural

See RETE slides.. Explain it at a higher level

Traditional Procedural Language

DATA:
X is TRUE

Loop #1

Ran 10,000 rules
1 rule fired
(R100)

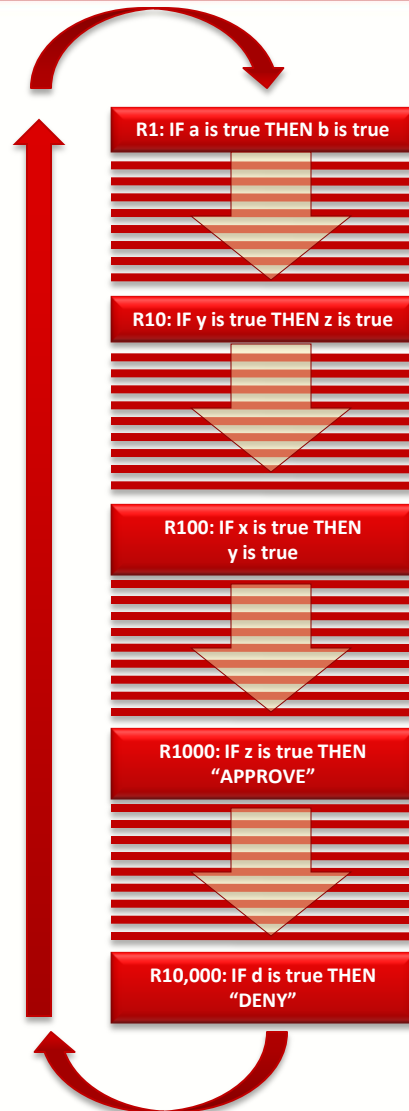
Loop #2

Ran 10,000 rules
2 rules fired
(R10, R1000)

CONCLUSION:
Approve

Results

Ran 20,000 rules
Only 3 rules fired



Traditional Procedural language is sequential, forward only

Suppose your rules are out of order?

- Problems arise if sequence is incorrect

What if you have to add a new rule?

- Developer has to figure out what order to put it in
- Adding a new rule could break existing rules

Once you get an answer, the rest of the rules fire anyway

You have to loop a few times to get around sequence problem

Declarative (Rule-based) Language

Cycle #1

Ran 2 rules
Fired 1 rule
(R100)

Cycle #2

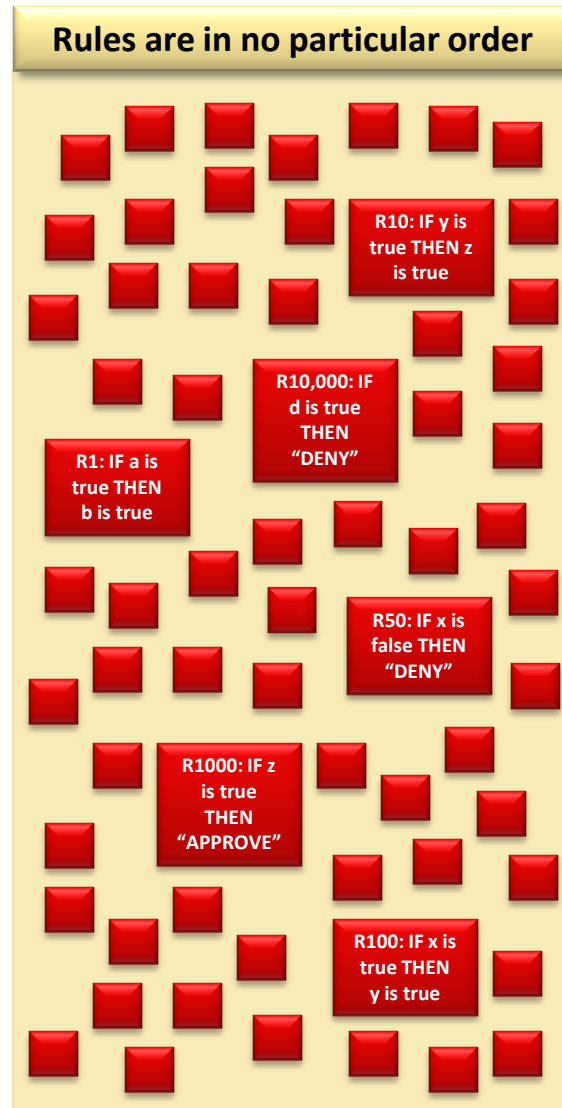
Ran 1 rule
Fired 1 rule
(R10)

Cycle #3

Ran 1 rule
Fired 1 rule
(R1000)

Results

Search found
4 matching rules
Only 3 rules fired



DATA: X is TRUE

Search for rules that match the data

R50: IF x is false THEN "Deny"

R100: IF x is true THEN y is True

Execute those rules

R50 does not fire

R100 fires because x is true

DATA: X is TRUE

Y is TRUE

Search for rules that match the data

R10: IF y is true THEN z is True

Execute those rules

R10 fires because y is true

DATA: X is TRUE

Y is TRUE

Z is true

Search for rules that match the data

R1000: IF z is true THEN "APPROVE"

Execute those rules

R1000 fires because z is true

CONCLUSION: APPROVE

Learn the Domain Language

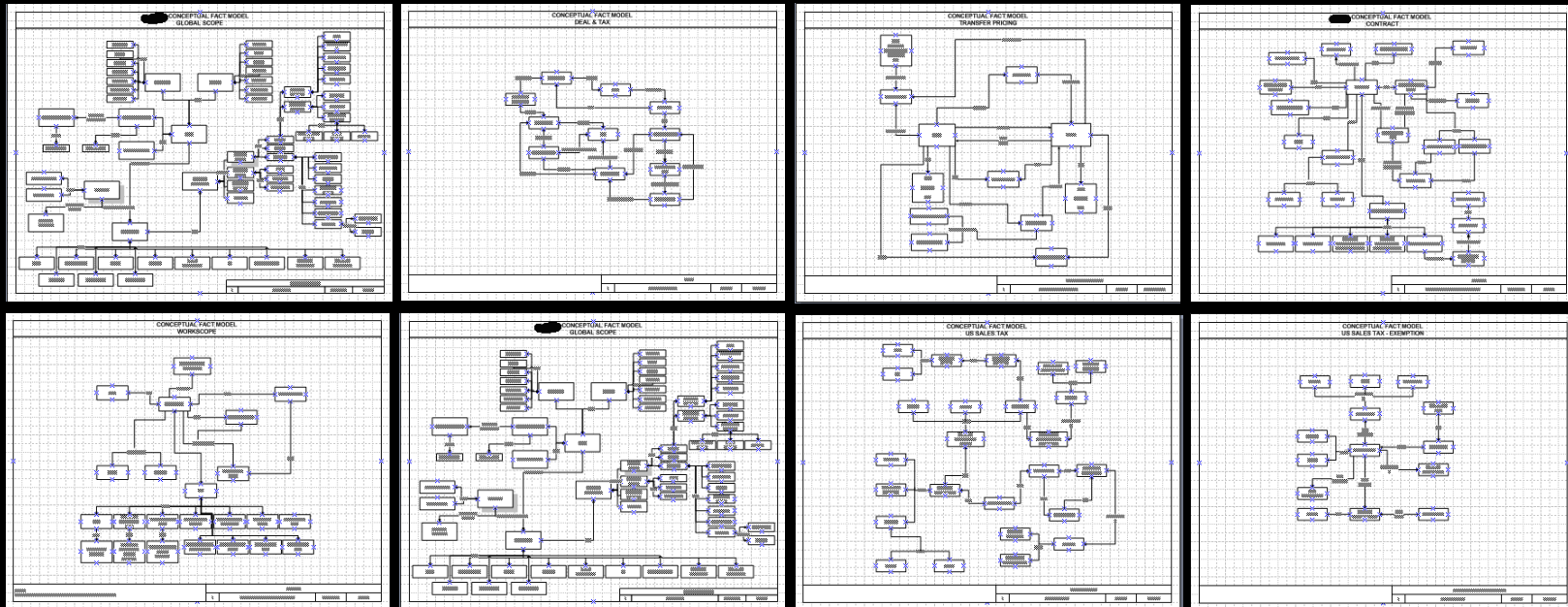
Define the Terms

[illegible]

Fact Models last forever. How “The Business works” rarely changes

Learn the Domain Facts and Concepts

Create the Fact Models and Semantic Maps



Fact Models last forever. How “The Business works” rarely changes

Meeting with Experts

Detailed rules specs are for

- (1) building the systems**
- (2) guiding/training users**
- (3) auditors & regulators**

This is probably the first time the expert sees their thinking stream. See Tom's photo.

Meeting with Experts

**Experts use higher-level
heuristic rules... shortcut
rules that bypass the
reasoning chain**

Experts make leaps and bounds inferences; jump to expert conclusions.

Meeting with Experts

**Three reviews is just about
right**

By the 3rd review, expert sees new patterns, sees how they've been doing it in their heads, and sees new methods and approaches that simplify and clarify. # of rules drops.

Set the Standards



Ask is this *data* or *info*? Anybody *know* where I took this photo?

1-800-Call-SME

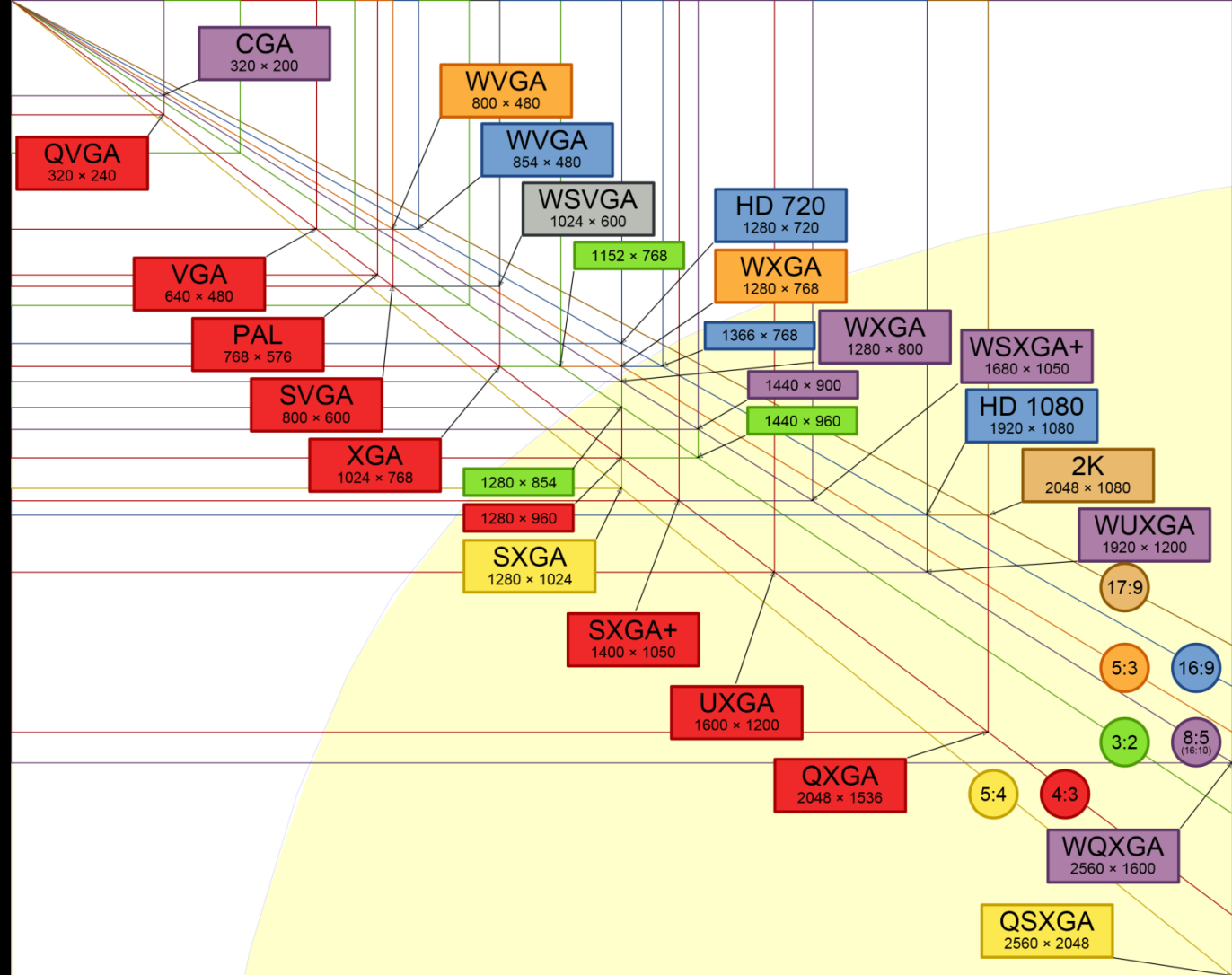
**Experts spend the day
solving the same problems.**

**The KE's goal is to build
systems to handle 80%(?)
of the routine/simple calls.**

1-800-Call-SME

**The expert's goal is to stop
the routine/simple calls...
let the system handle it...
so they can focus on bigger
problems.**

You Need a Big Monitor



rules/process/knowledge diagrams take a lot of screen space.

Source: <http://en.wikipedia.org/wiki/640%C3%97480> (Display Resolution)

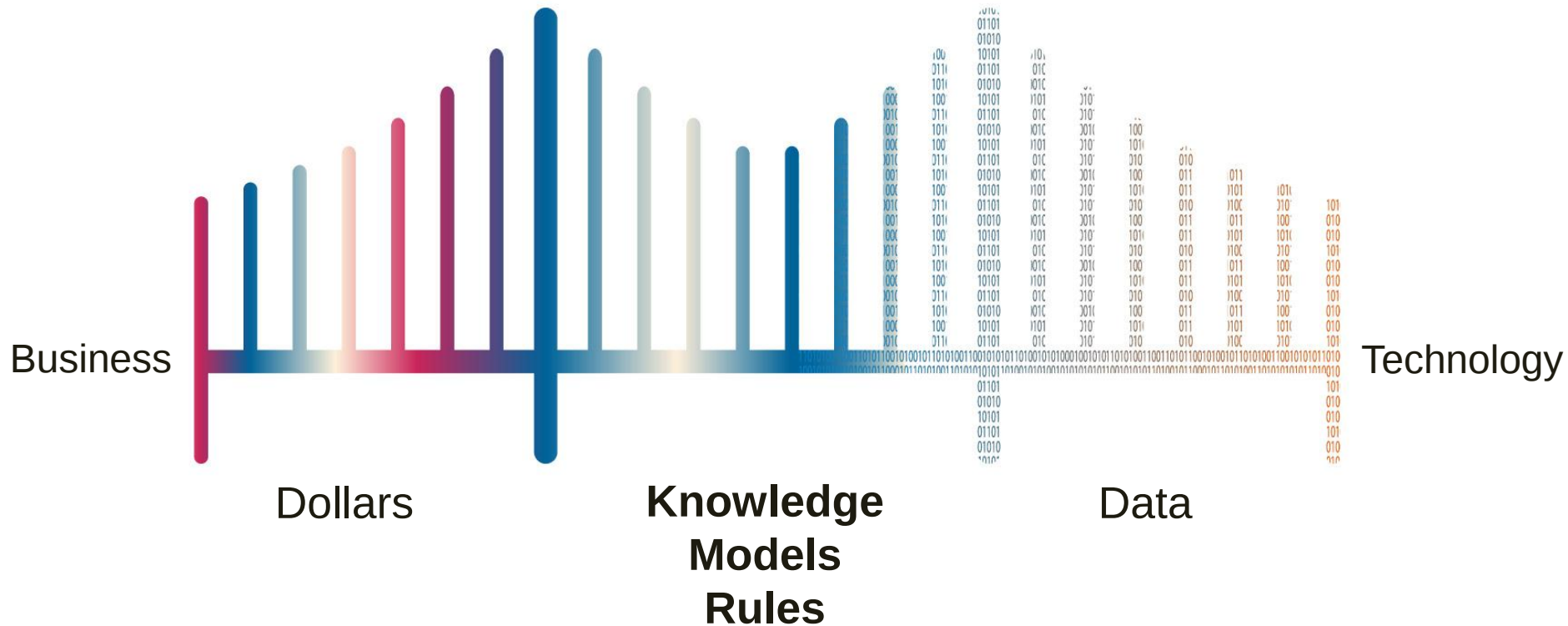
Use Big Paper for Blueprints

13"x19" is a good starting point for rules/process/knowledge diagrams.

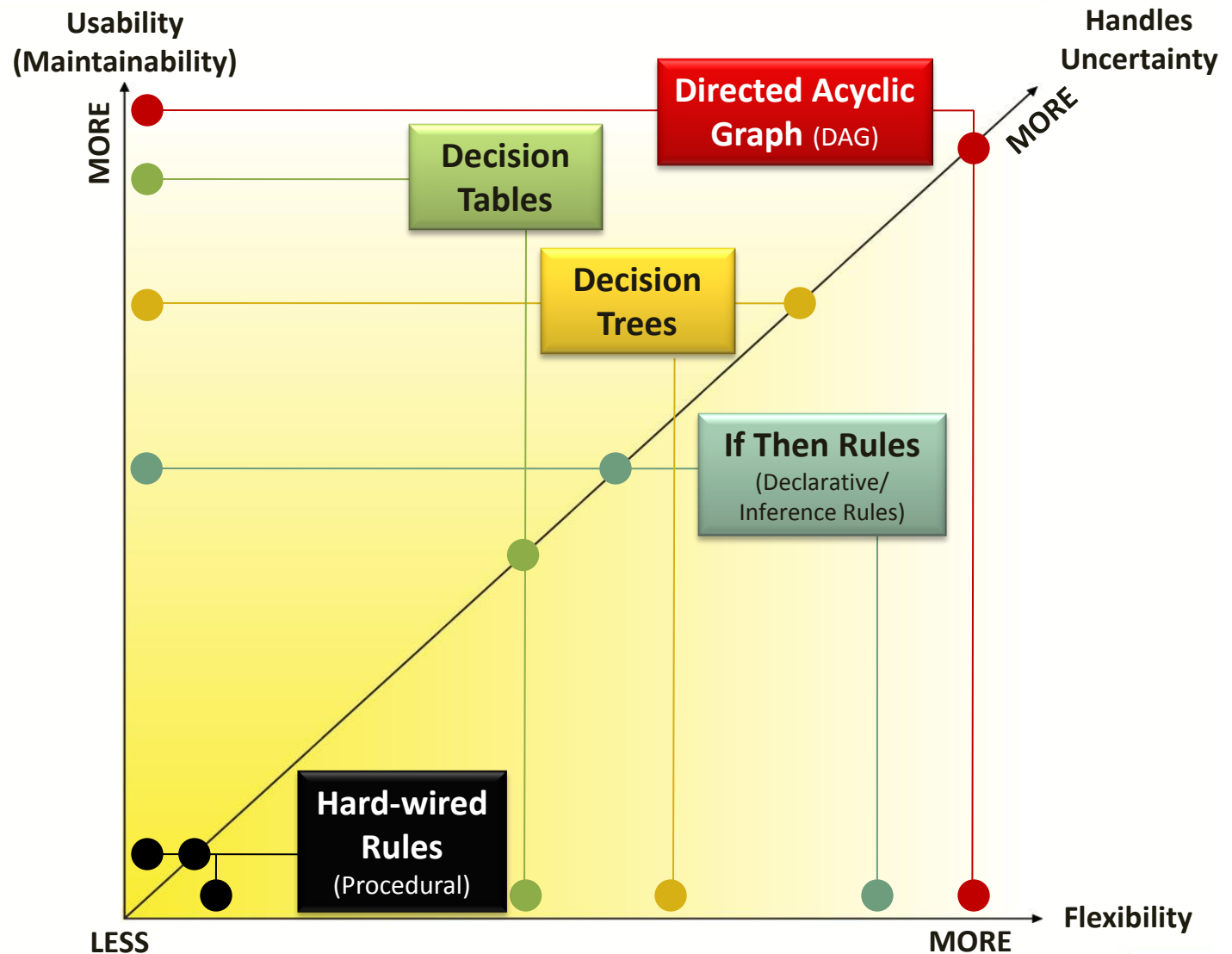


Use rule modeling and simulation tools

Models help us build a bridge to connect Business and Technology



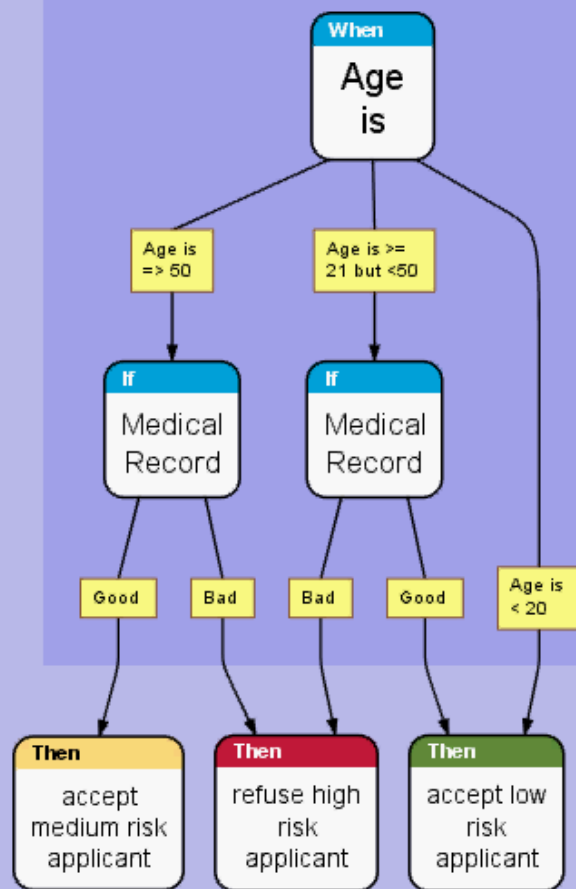
Don't hard-code rules



DAG and Decision Tree

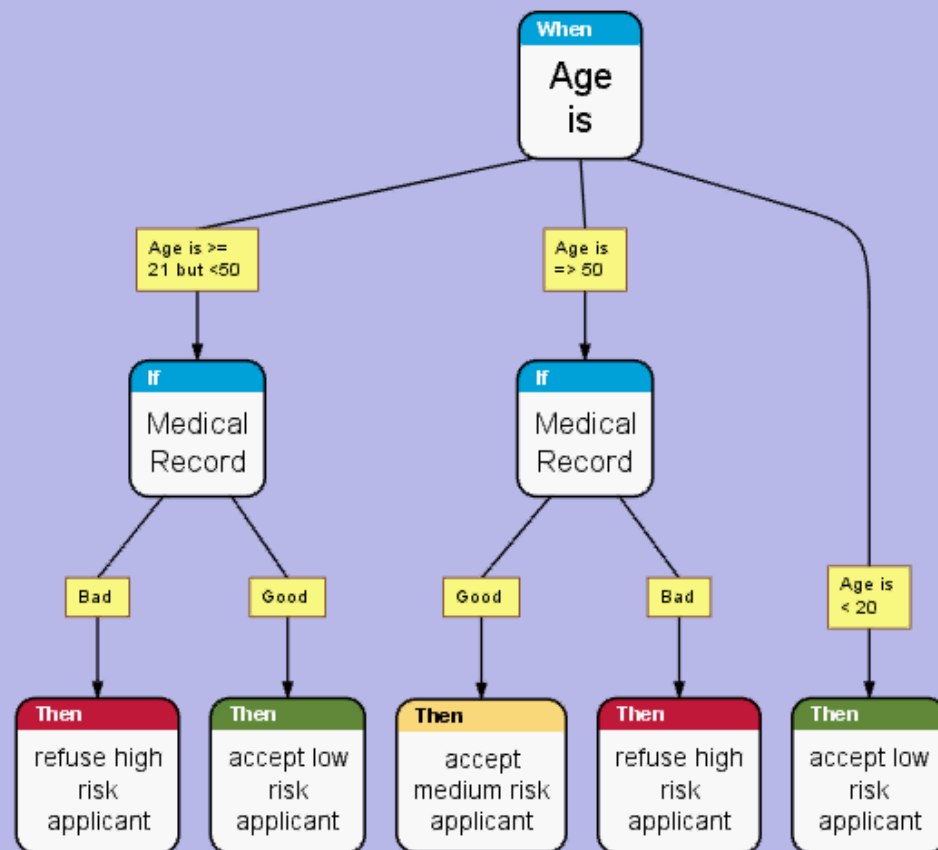
Version 4 DAG

Risk Ruleset (DIRECTED ACYCLIC GRAPH)



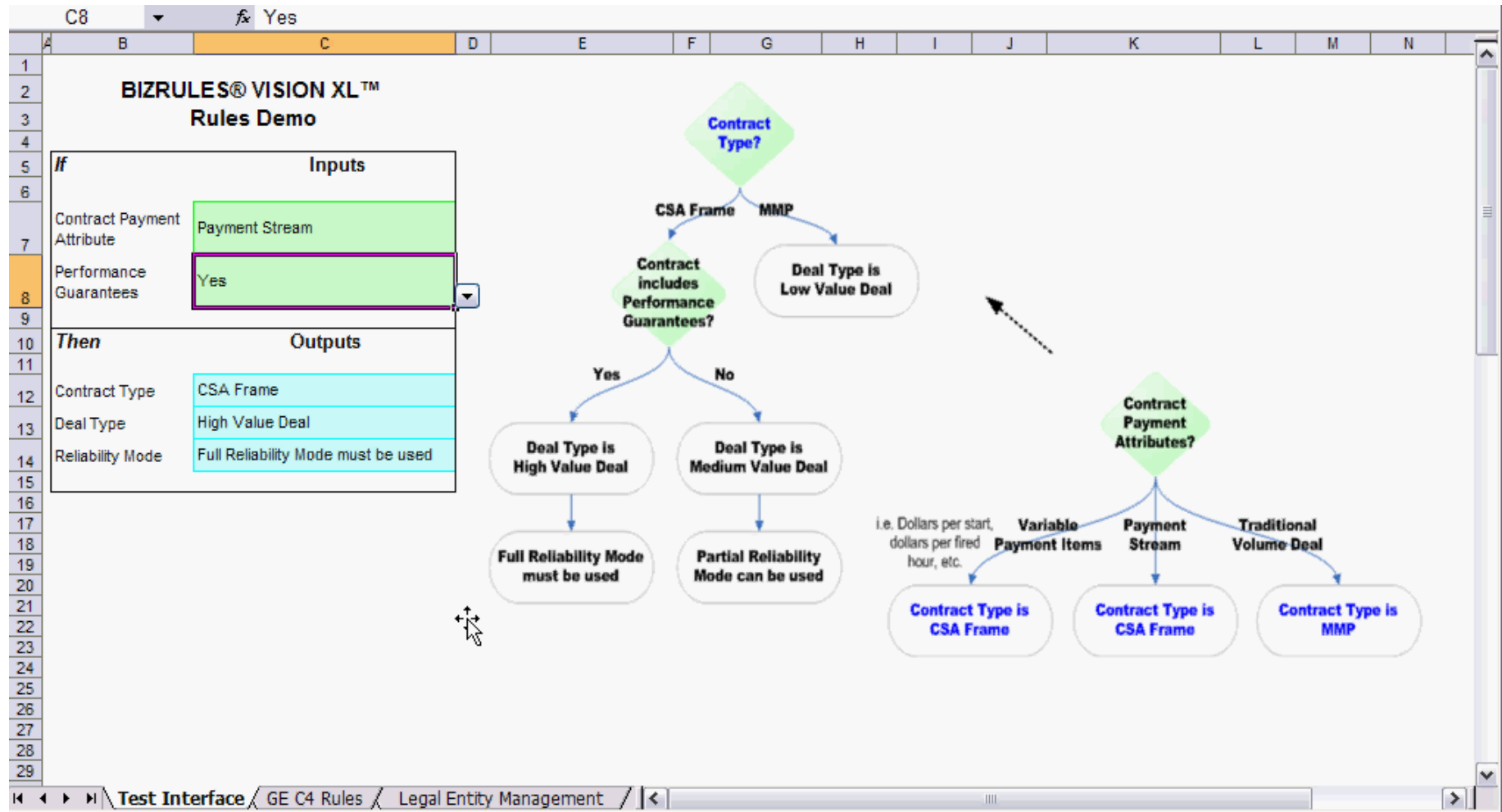
Version 3 - Simplify & redesign AGE condition into a DECISION TREE

Risk Ruleset (Strict DECISION TREE hierarchy)



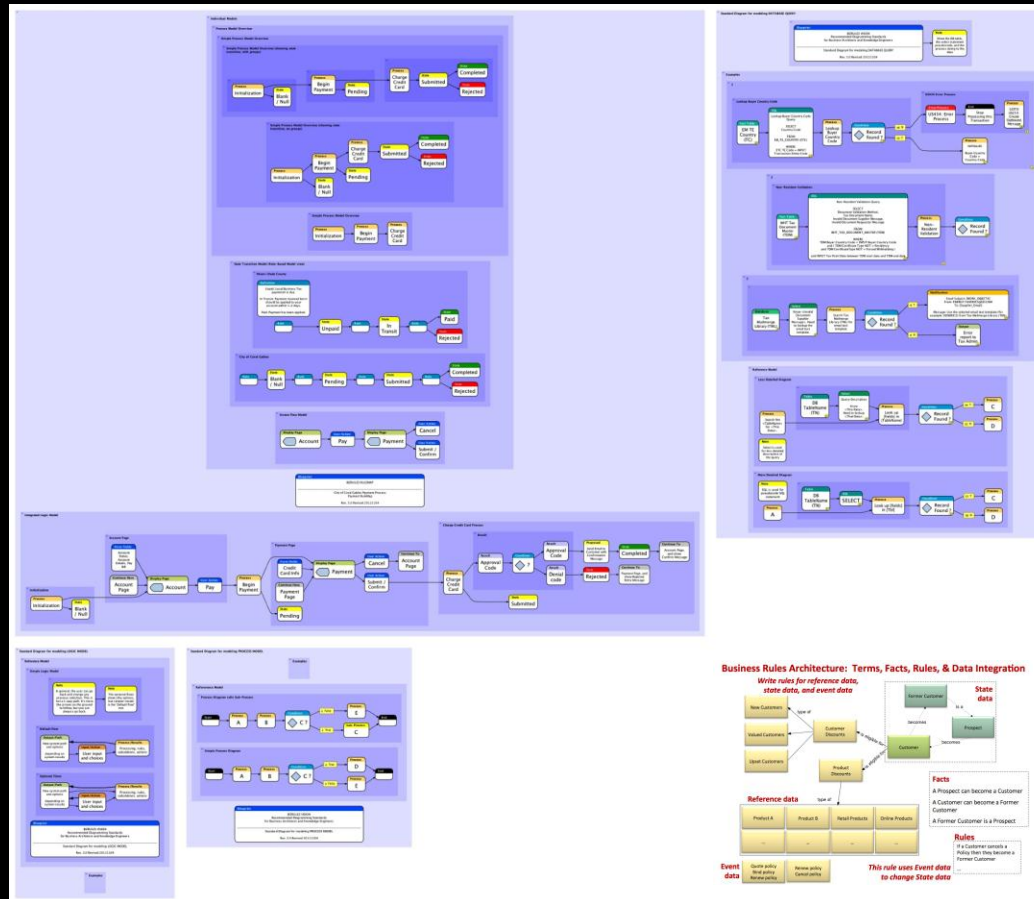
To see a Flash video of the "Decision Tree vs. DAG RuleMap", visit www.RuleMap.com

Rule modeling

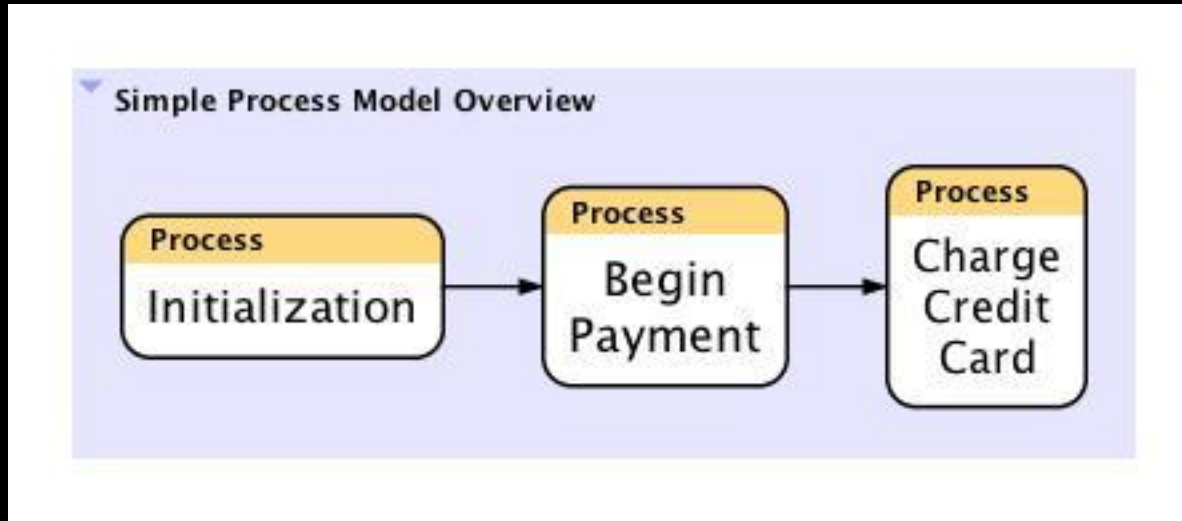


To see a Flash video of the "Business Rules in Excel demo", visit www.RuleMap.com

Use Different Approaches to Get Rules

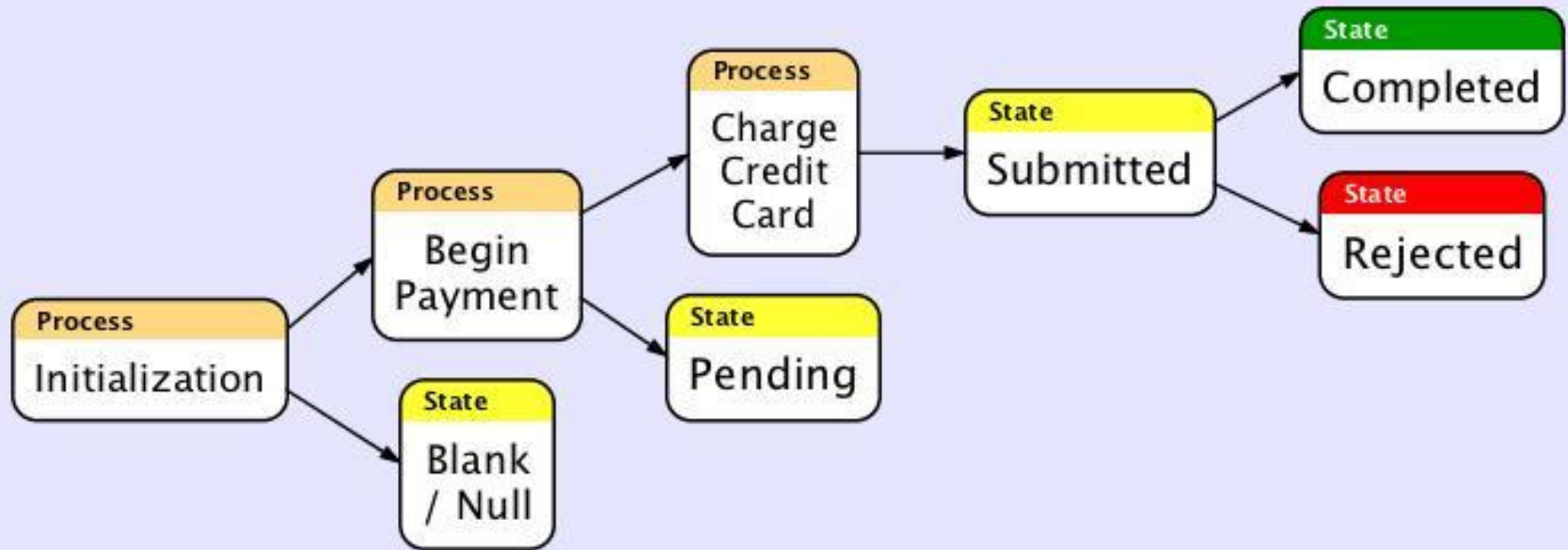


1. Get Rules for Each Process



2. Get Rules for Each Process and State

Simple Process Model Overview (showing state transition, no groups)



3. Get Rules for Each State Transition

State Transition Model (Rule-Based Model view)

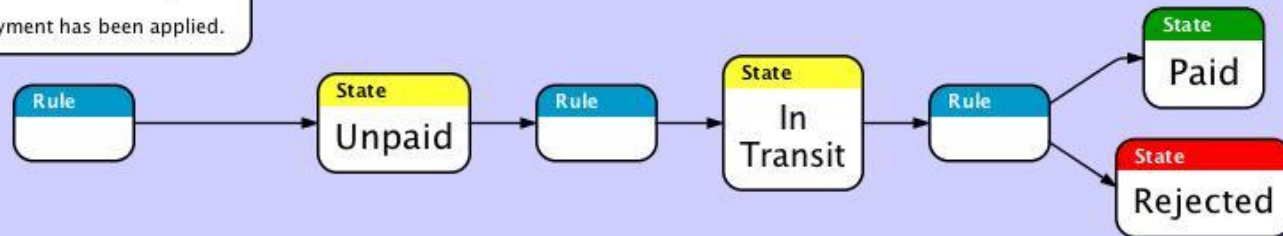
Miami-Dade County

Definition

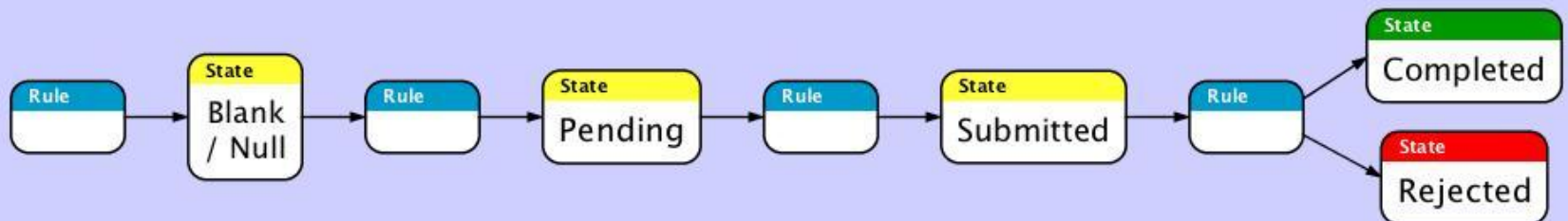
Unpaid: Local Business Tax payment is due.

In Transit: Payment received but it should be applied to your account within 1-2 days.

Paid: Payment has been applied.



City of Coral Gables



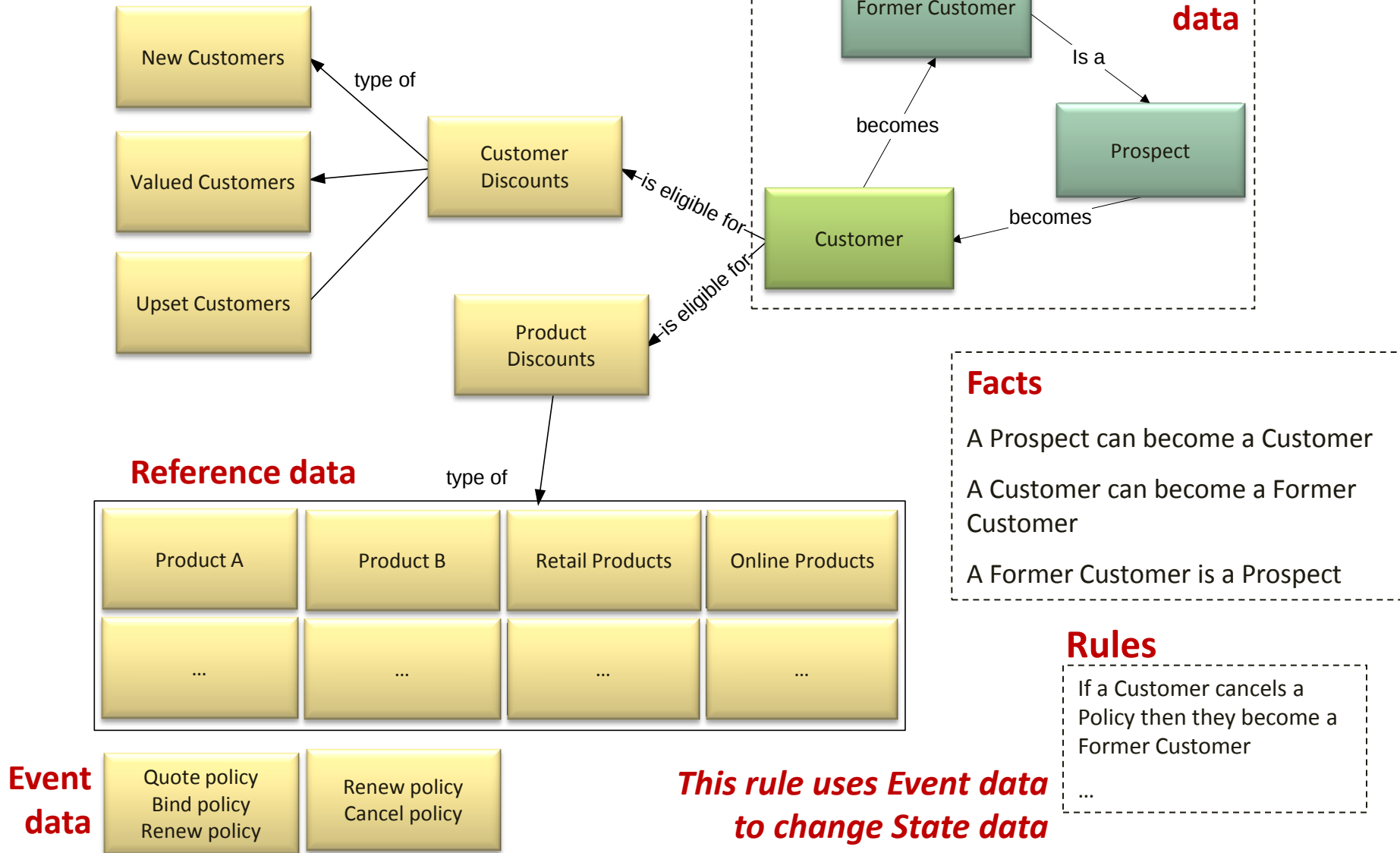
4. Get Rules for Each THEN (Action/RHS)

5. Get Rules for Each IF (Condition/LHS)

6. Write rules for reference data, state data, and event data

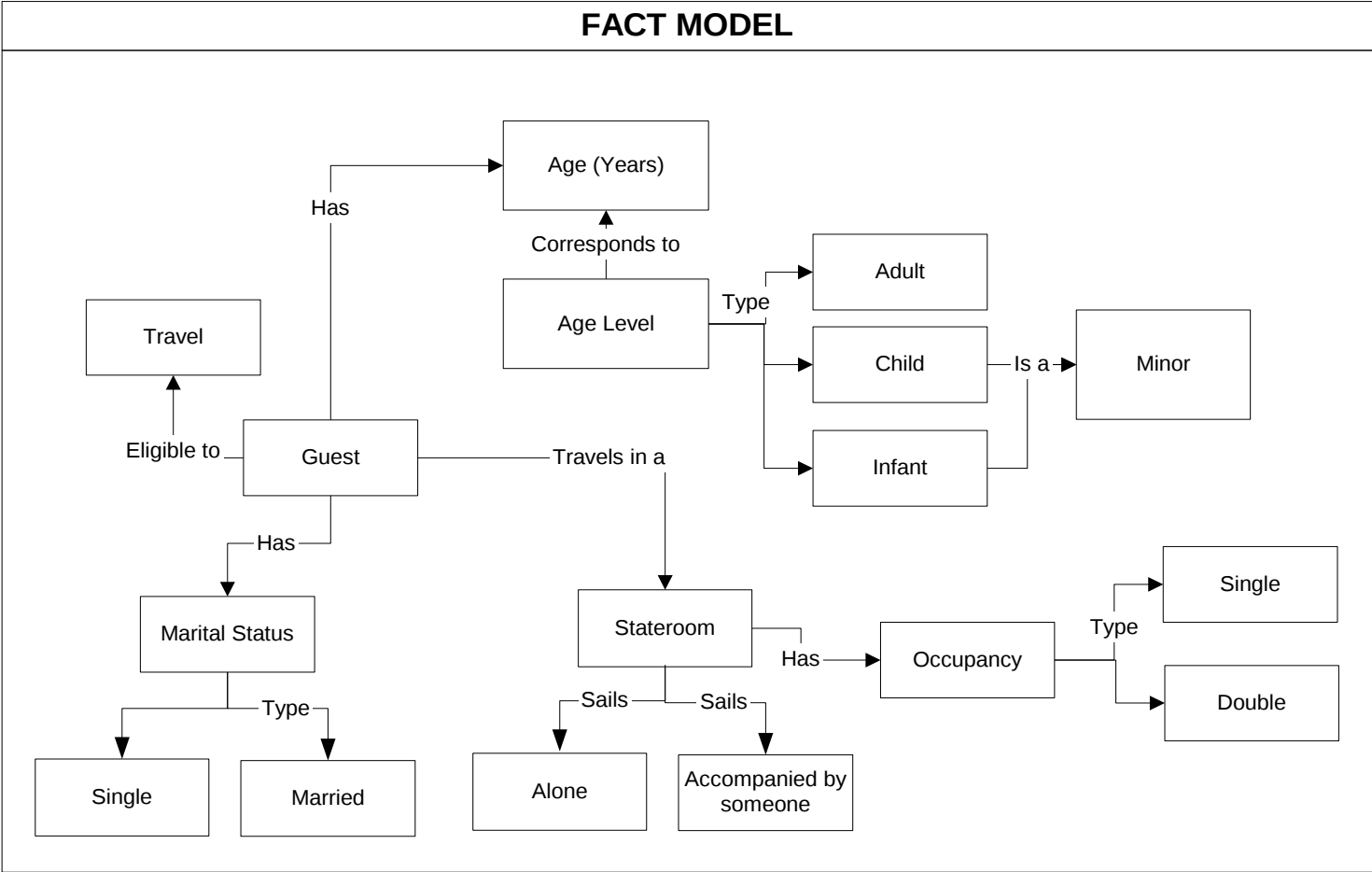
Business Rules Architecture: Terms, Facts, Rules, & Data Integration

*Write rules for reference data,
state data, and event data*



*Show me examples
of business rules*

Semantic Model



Governing Rule (Row 1 Col 6)

Federal law prohibits minors from sailing alone.

Conceptual Business Rule Model (Row 2 Col 6)

Minor guests are not allowed to sail alone.

The only exception to this policy will be in the case of married guests.

Logical Business Rule Model (Row 3 Col 6)

A Minor must be accompanied by a parent, grandparent or guardian 25 years of age or older in the same stateroom.

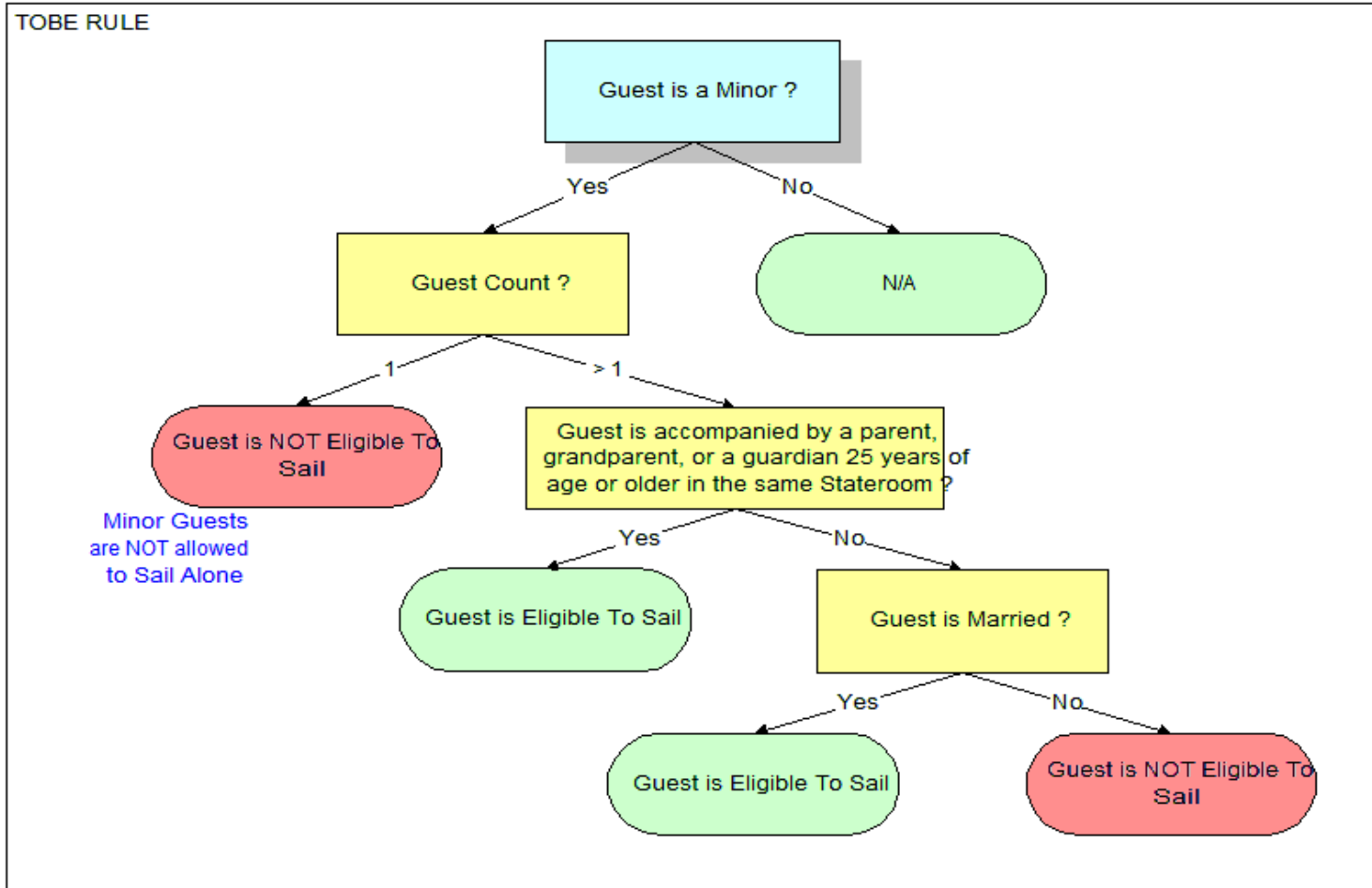
Infants must be at least four months old to be eligible to travel.

Married guests traveling together will be allowed to sail even if they are Minors. Proof of marriage will be required at the time of embarkation.

Fact

A Guest under the Age of 21 years is a Minor.

Ruleset (Decision Tree format)



Insurance Company – Claims Processing Governing Rule (Row 2 Col 6)

EMERGENCY CARE DETERMINATION

SH4BBC5

A condition qualifies for emergency care if services are required to provide an immediate diagnosis and treatment for a condition of unpredictable onset which has the capability, or is perceived to have the capability, to produce severe pain, loss of consciousness, excessive bleeding or becomes a threat to life or limb if medical care is not received immediately.

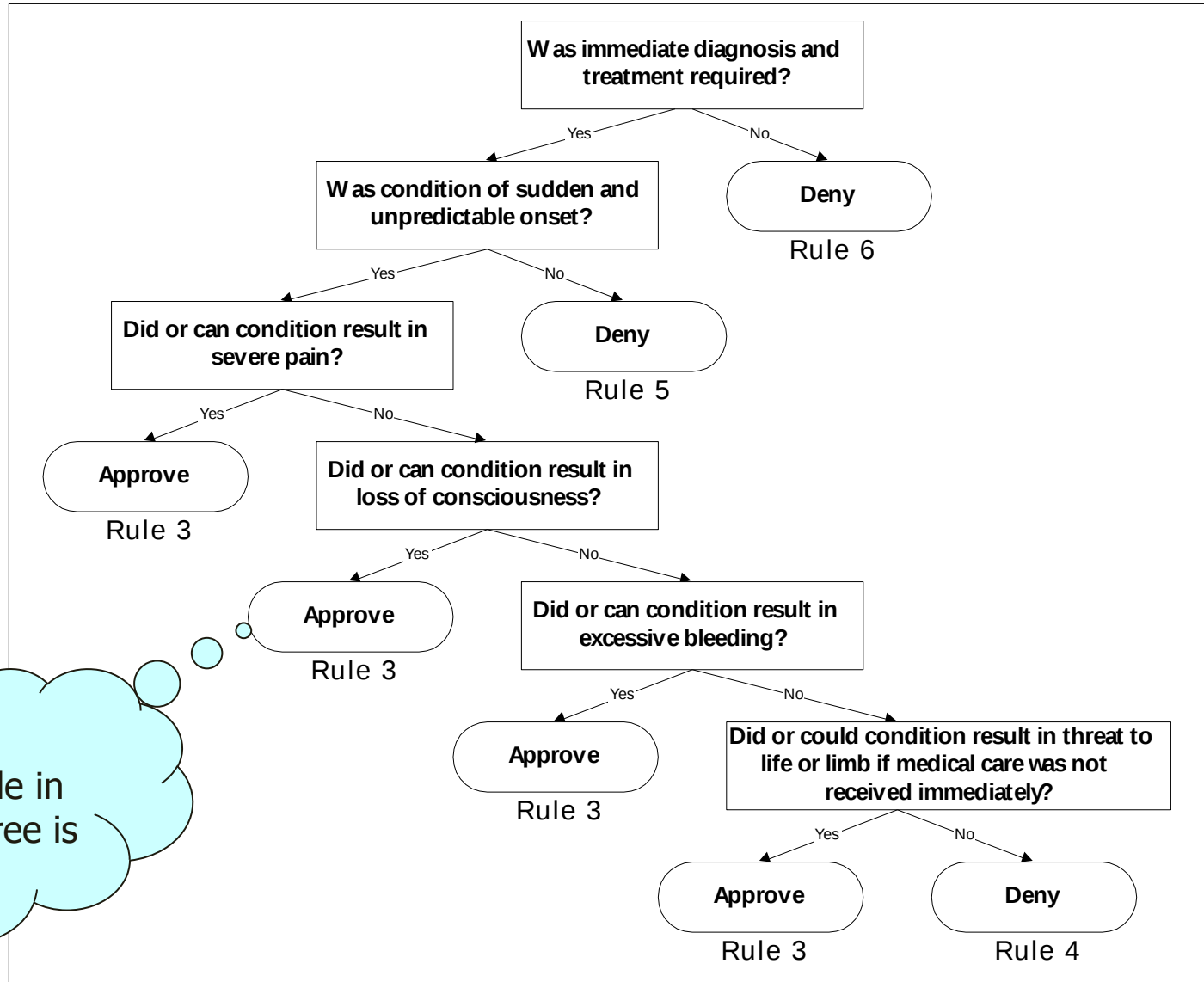
Qualified emergency care would include, but is not limited to; penetrating wound such as a knife or gunshot wound; foreign body in the throat; burns involving blisters over a large area of the skin; displaced limbs; head injuries accompanied by drowsiness, vomiting, confusion, blurred vision or bleeding from the ears or throat; sudden or severe continuous chest pain; sudden breathing difficulty; sudden loss of vision or hearing; persistent or sudden bleeding from the nose, mouth or vomiting of blood; seizure occurring for the first time or recurrent frequent seizures unresponsive to current medication; suspected or confirmed overdose of drugs accidentally or intentionally; suspected or confirmed swallowing or breathing of poisonous substance; or unconsciousness.

Qualified emergency care does not include; colds, sore throat or flu; arthritis that is recurrent; chronic less severe pain such as earache, headache, sore "pulled muscles" or indigestion; small bruises or scrapes of the skin; insect bites; or wounds not requiring stitches.

HP4-541 (53) 85-8 (GK)C

Insurance Company – Claims Processing

Logical Business Rule Model (Row 3 Col 6)



Every
branch/node in
a decision tree is
a rule

Insurance Company – Claims Processing Logical Business Rule Model (Row 3 Col 6)

HMO RULE BOOK	R6	R5	R3	R3	R3	R3	R4
EMERGENCY CARE DETERMINATION RULES							
IF							
Was immediate diagnosis and treatment required?	N	Y	Y	Y	Y	Y	Y
Was condition of sudden and unpredictable onset?	-	N	Y	Y	Y	Y	Y
Did or can condition result in severe pain?	-	-	Y	N	N	N	N
Did or can condition result in loss of consciousness?	-	-	-	Y	N	N	N
Did or can condition result in excessive bleeding?	-	-	-	-	Y	N	N
Did or could condition result in threat to life or limb if medical care was not received immediately?	-	-	-	-	-	Y	N
THEN							
Emergency Care Determination Decision is	DENY	DENY	APPROVE	APPROVE	APPROVE	APPROVE	DENY

Insurance Company – Claims Processing Physical Rule Model (Row 4 Col 6)

Rule 5

**If Immediate Diagnosis and treatment was required
And Condition was not of Sudden and Unpredictable Onset
Then
Emergency Care Determination Decision is Deny**

Rule 6

**If Immediate Diagnosis and treatment was not required
Then
Emergency Care Determination Decision is Deny**

Rule 3

**If Immediate Diagnosis and treatment was required = Yes
And Condition was of Sudden and Unpredictable Onset = Yes
And (Condition Did or Can Result in Severe Pain = Yes
Or Condition Did or Can Result in Loss of Consciousness = Yes
Or Condition Did or Can Result in Excessive Bleeding = Yes
Or Condition Did or Can Result in Threat to life or limb if medical
care was not received immediately = Yes)
Then
Emergency Care Determination Decision is Approve**

Rule 4

**If Immediate Diagnosis and treatment was required
And Condition was of Sudden and Unpredictable Onset
And Condition Did or Can Result in Severe Pain = No
And Condition Did or Can Result in Loss of Consciousness = No
And Condition Did or Can Result in Excessive Bleeding = No
And Condition Did or Can Result in Threat to life or limb if medical
care was not received immediately = No
Then
Emergency Care Determination Decision is Deny**

***How can business
rules methodology
help compliance?***

What is Compliance?

- **An Expert is someone who has made every mistake in his domain of expertise**

- **Business Rules are the decisions, actions, or events that a company or an expert either wants to allow or to prevent**

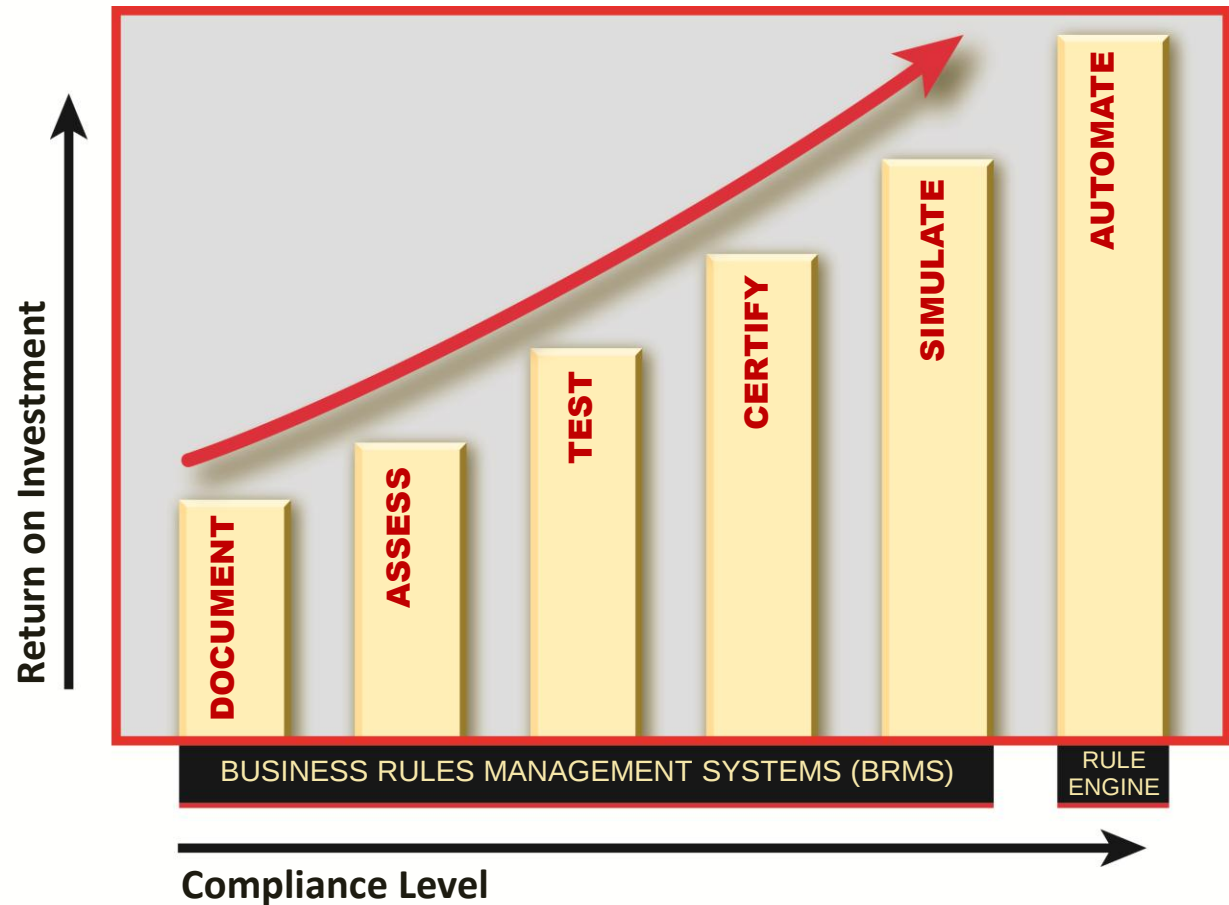
- **Rule Harvesting is figuring out what the rules are**

- Writing down the rules
- Redesigning the rules
- Architecting & Engineering the rules

- **Compliance is following the rules**

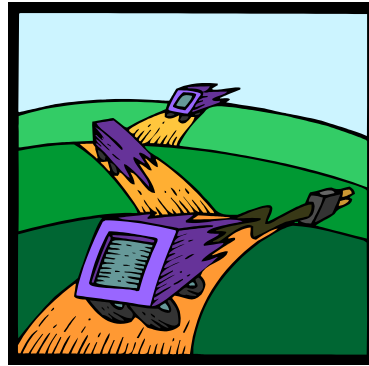
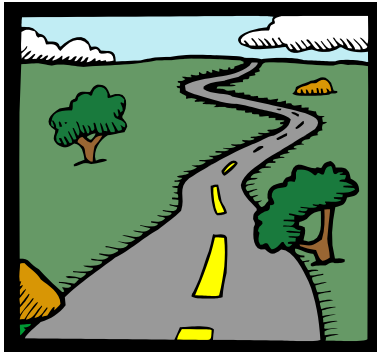
- Not breaking the rules
- Making the right decisions
- Making legal decisions
- Making profitable decisions
- Preventing business mistakes

Business rules enables you to get to the next level of compliance...and greater ROI



How Business Rules Ease the Pain of Compliance:

Rule Engines are like Radar Detectors for Compliance



How can you go as fast as you can...
without speeding...
without crossing the line...
without breaking the laws...
and without breaking the rules?`

What questions do we ask SME's to extract knowledge and rules?

1. Knowledge Preservation Questions

2. Initial Meeting Questions

3. Subsequent Meeting Questions

Knowledge Preservation Questions

Ask these questions to get the big picture quickly, and to understand the impact of losing tacit knowledge, expert knowledge, and critical knowledge:

What?

So What?

Now What?

Initial Survey of Processes, Roles, Tasks:

What do you need to do? (what)

Decisions

Actions

Steps

Inputs / Outputs / Outcomes

Why do you do it that way?

How do you reach conclusions?

Initial Survey of Processes, Roles, Tasks:

What do you need to know? (why)

References

Knowledge

Principles

Laws / Regulations (external)

Policies and Procedures (internal)

What information do you need to look-up?

Initial Survey of Processes, Roles, Tasks:

What do you need to record? (what /
where / when)

Reports

Forms / Fields

Memos / Emails

Submissions

Initial Survey of Processes, Roles, Tasks:

How do you need to do it? (how)

Processes

Workflow

*Which tasks are manual vs. automated
processes?*

Initial Survey of Processes, Roles, Tasks:

Who do you need to talk to? (who)

*Who do you call for more information or
with questions?*

*Who calls you for information or
answers?*

Initial Survey of Processes, Roles, Tasks:

When do you need to do things? (when)

Timing

Sequence

Events (i.e. notify the policyholder 30 days before cancellation)

Initial Survey of Processes, Roles, Tasks:

Where do you need to do the
work/have to go? (where)

Locations

Stores

Offices

Agency

Branches

Initial Survey of Processes, Roles, Tasks:

**Those are just a few of the questions
you can ask experts during Knowledge
Acquisition meetings.**

**KA meetings are just one step in your
KM and BRM methodology.**

Everything connects to everything else

“Principles for the development of a Complete Mind: Study the science of art. Study the art of science. Develop your senses - especially learn how to see. Realise that everything connects to everything else.”

Leonardo da Vinci

Start Defining and modeling first.... Not coding!

*“If I had 20 days to solve a problem,
I would take 19 days to define it.*

Albert Einstein

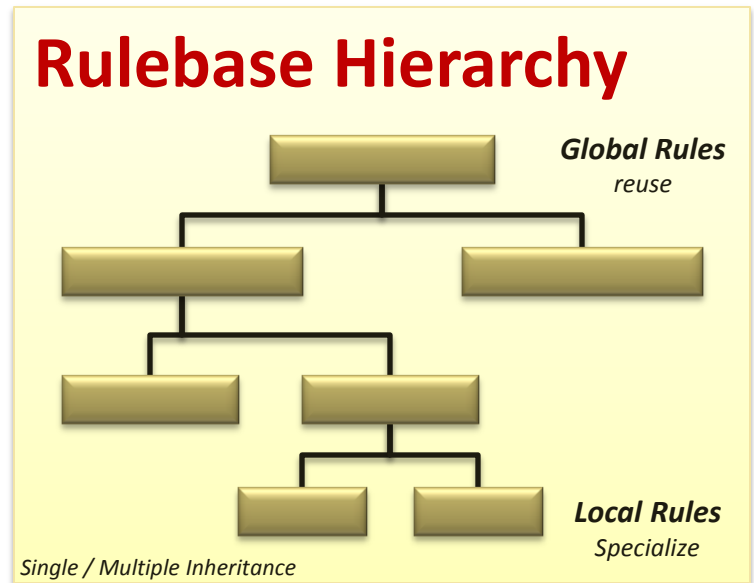
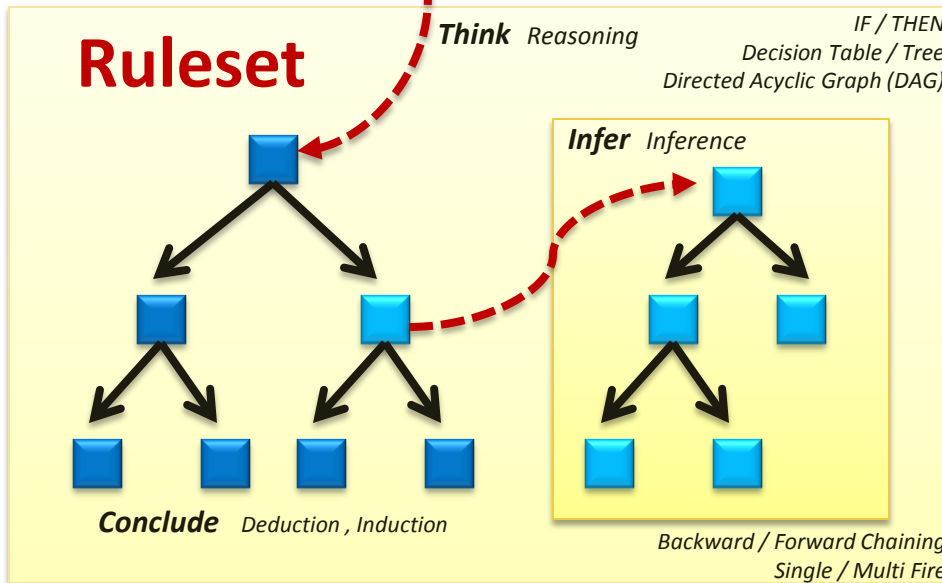
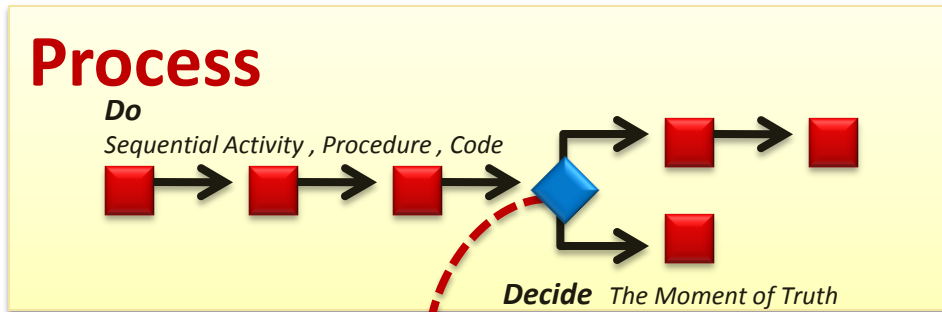
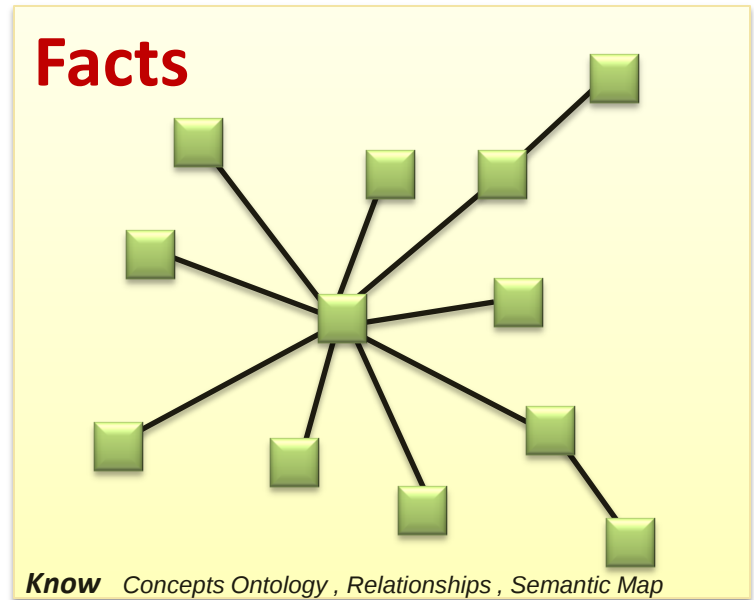
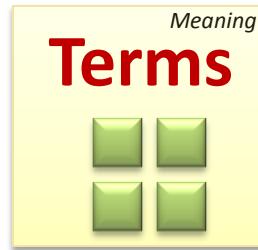
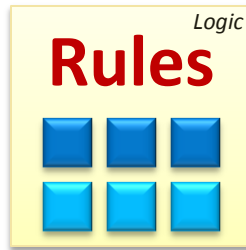
Design and draw the business rule models

Anyone can draw a model... the hard part is
knowing what to draw

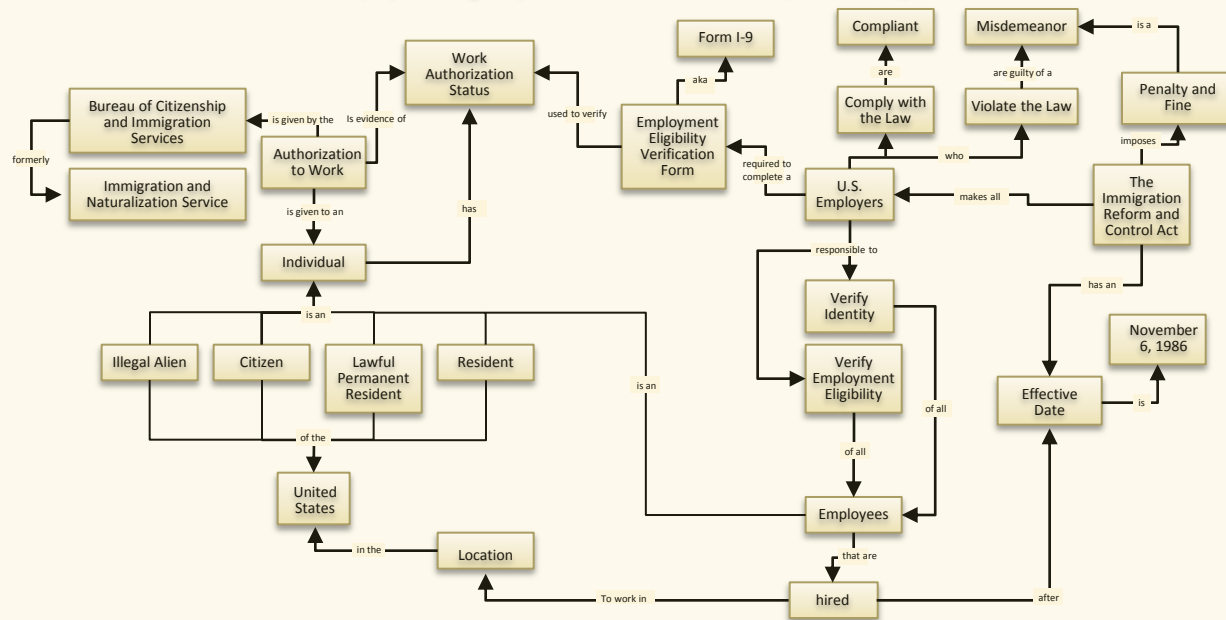
simplicity

A picture is worth a million bucks

Fred Simkin, BIZRULES



Employment Eligibility Verification BUSINESS MAP (FACT MODEL)



TERMS

Authorization To Work
 Illegal Alien
 Individual
 U.S. Citizen
 Lawful Permanent Resident
 Bureau of Citizenship and Immigration Services
 U.S. Employers
 Employing
 Employment Eligibility
 Identify
 Employees
 Hired to Work
 Employment Eligibility Verification Form (Form I-9)
 Work Authorization Status
 Guilty
 Misdemeanor

FACTS

An Illegal Alien is an individual, who is not a Citizen or a Lawful Permanent Resident and who has not been given Authorization To Work by the Bureau of Citizenship and Immigration Services (formerly, the Immigration and Naturalization Service).

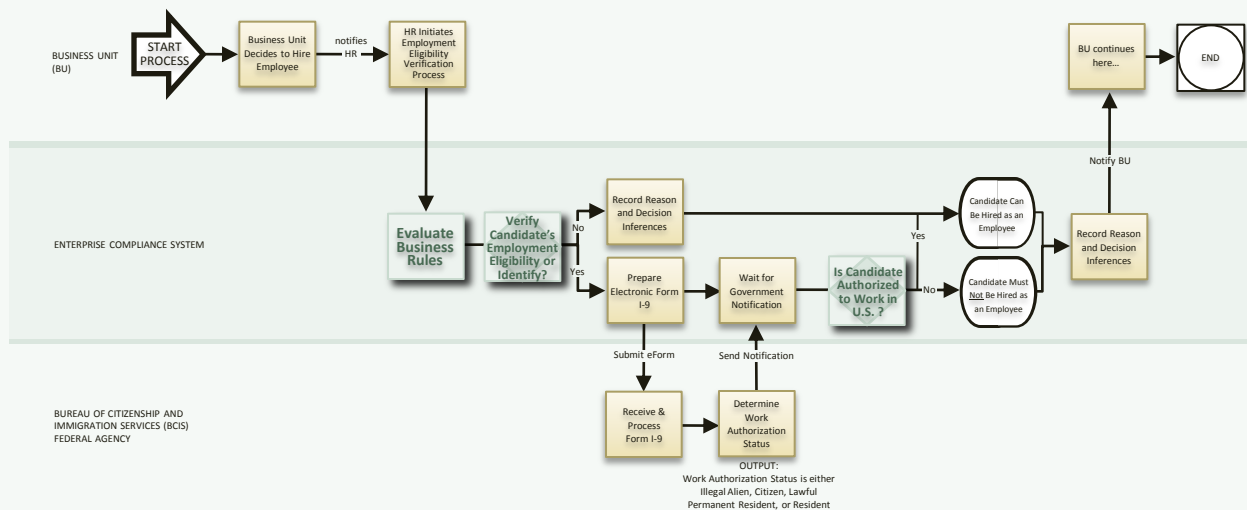
GOVERNING RULES

U.S. Employers must verify the Employment Eligibility and Identify of all Employees Hired to Work in the United States after November 6, 1986.

Employers are required to complete Employment Eligibility Verification Forms (Form I-9) for all Employees, including U.S. Citizens.

Anyone Employing an Illegal Alien without Verifying his or her Work Authorization Status is Guilty of a Misdemeanor.

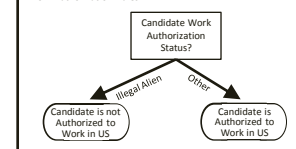
DIGITIZED PROCESS (BUSINESS PROCESS MODEL)



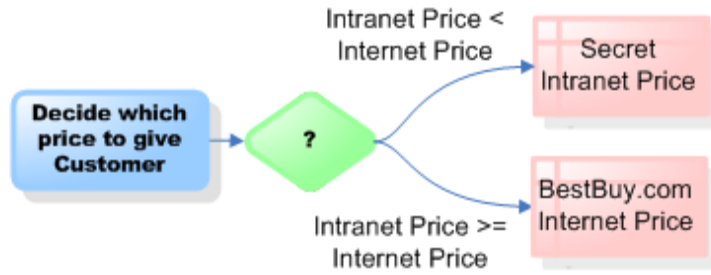
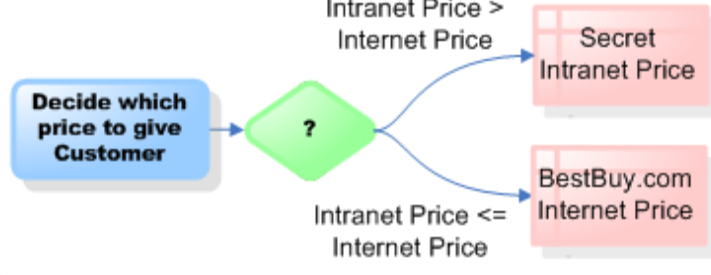
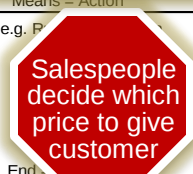
BUSINESS RULES

Corporate / External / Compliance Rules Business Rules for Employment Eligibility		RULE NO.				
		1	2	3	4	5
NOTES	Company is _____	a US Employer	not a US Employer	-	-	-
	Company wants to hire an _____	Employee	-	Contractor	-	-
	Candidate Work Location is _____	In the US	-	-	Outside the US	-
	Candidate Hire Date is _____	After	-	-	-	On or before
	Nov. 6, 1986	-	-	-	-	-
THEN	Submit I-9 form	Yes	No	No	No	No
	Company must verify Candidate's Employment Eligibility	Yes	No	No	No	No
	Company must verify Candidate's Identity	Yes	No	No	No	No

Work Authorization Rules



Align execution to intention... IT Systems to Business Strategy

	DATA <i>What</i>	FUNCTION <i>How</i>	NETWORK <i>Where</i>	PEOPLE <i>Who</i>	TIME <i>When</i>	MOTIVATION <i>Why</i>	
SCOPE (CONTEXTUAL)	List of th	BEST BUY® Mission, Goals, and Strategy Pricing Policy Business Rule #1 "Best Buy's policy is to always honor the lowest advertised price, whether from its Internet site or from a competitor."			List of Events Significant	List of Goals/Strat	SCOPE (CONTEXTUAL)
Planner	ENT Busi				Event	 Ends/M... Goal/ Critical Success Factor	Planner
ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model	e.g. Business Process Model	e.g. Business Logic	e.g. Work Flow Model	e.g. Master Schedule	e.g. P...	ENTERPRISE MODEL (CONCEPTUAL)
Owner	En Rel	Business Rule #2 Always give customer the lowest advertised price 				 End = ... Active Means = Business Strategy	Owner
SYSTEM MODEL (LOGICAL)	e.g.				e.g. Processing Structure	e.g., Business Model	SYSTEM MODEL (LOGICAL)
Designer	En Re					 Means = Action Assertion	Designer
TECHNOLOGY MODEL (PHYSICAL)	e.g.	Business Rule #3 Mislead Customer into paying higher price 				 Means = Action	Builder
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g.					 End Means = Step	Sub-Contractor
FUNCTIONING ENTERPRISE	e.g. DATA						FUNCTIONING ENTERPRISE

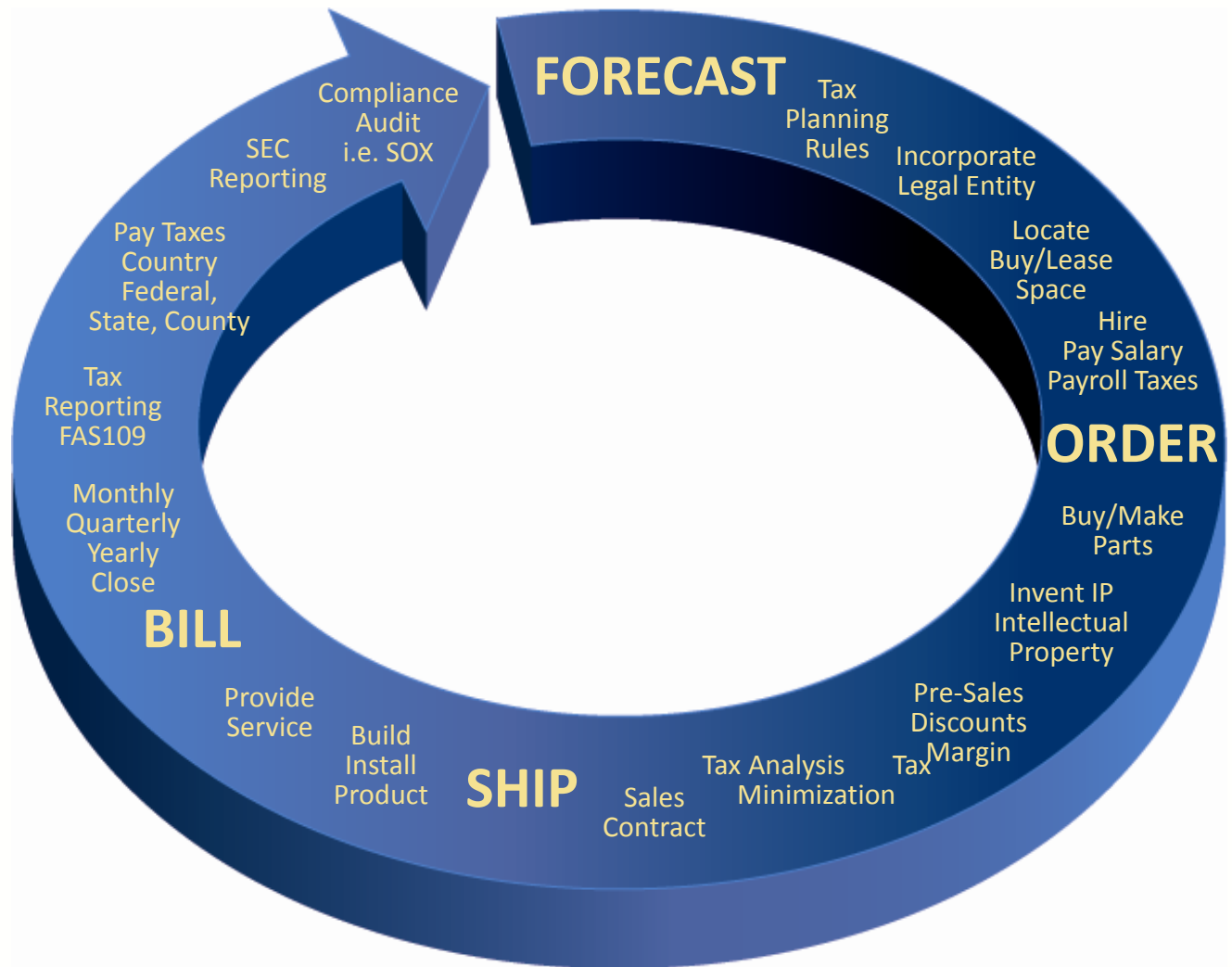
Enterprise Architecture – A Framework™

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***Top 6 FAQ that
customers and new users
like to ask***

#6. Where should we use rules technology in the corporation? Everywhere!



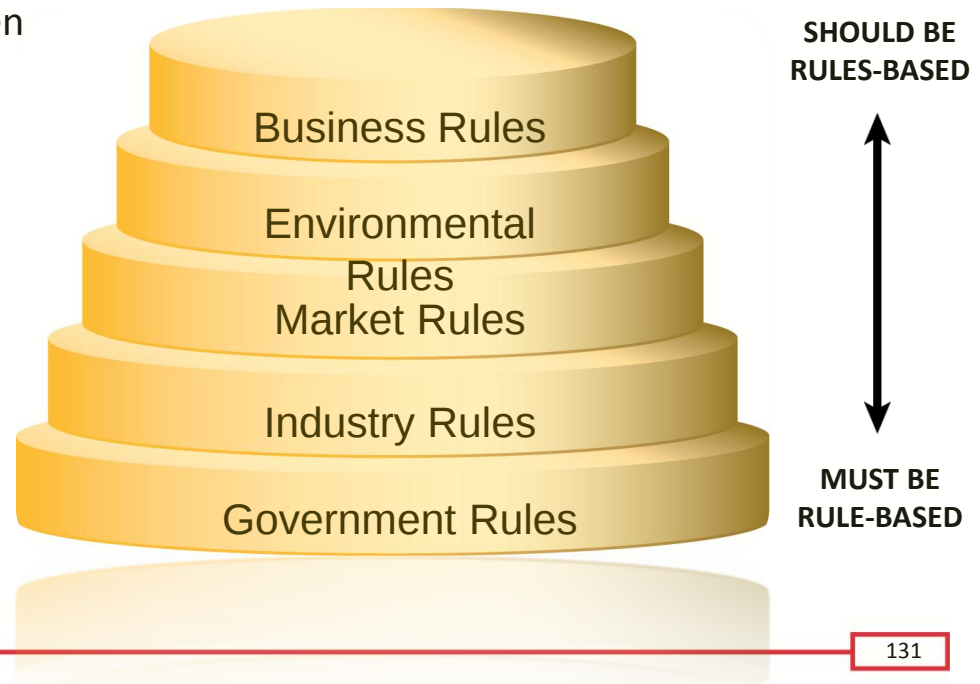
#5. So many rules...where do they belong?

Rules that should be in the BRE:

- Internal business rules
- External rules
 - Governing rules
 - Regulatory rules
 - Legislative rules
 - Compliance rules
- Rules that you do not control
- Rules that change often
- Industry rules
- Market rules
 - Competitor rules
 - Pricing rules
 - Promotion rules
- Environmental rules
 - Economy rules
 - Seasonality rules
 - Weather rules

Rules that could be hard-coded:

- UI rules
- Code or system rules
- Computer program rules
- Rules that you control
- Rules that never change

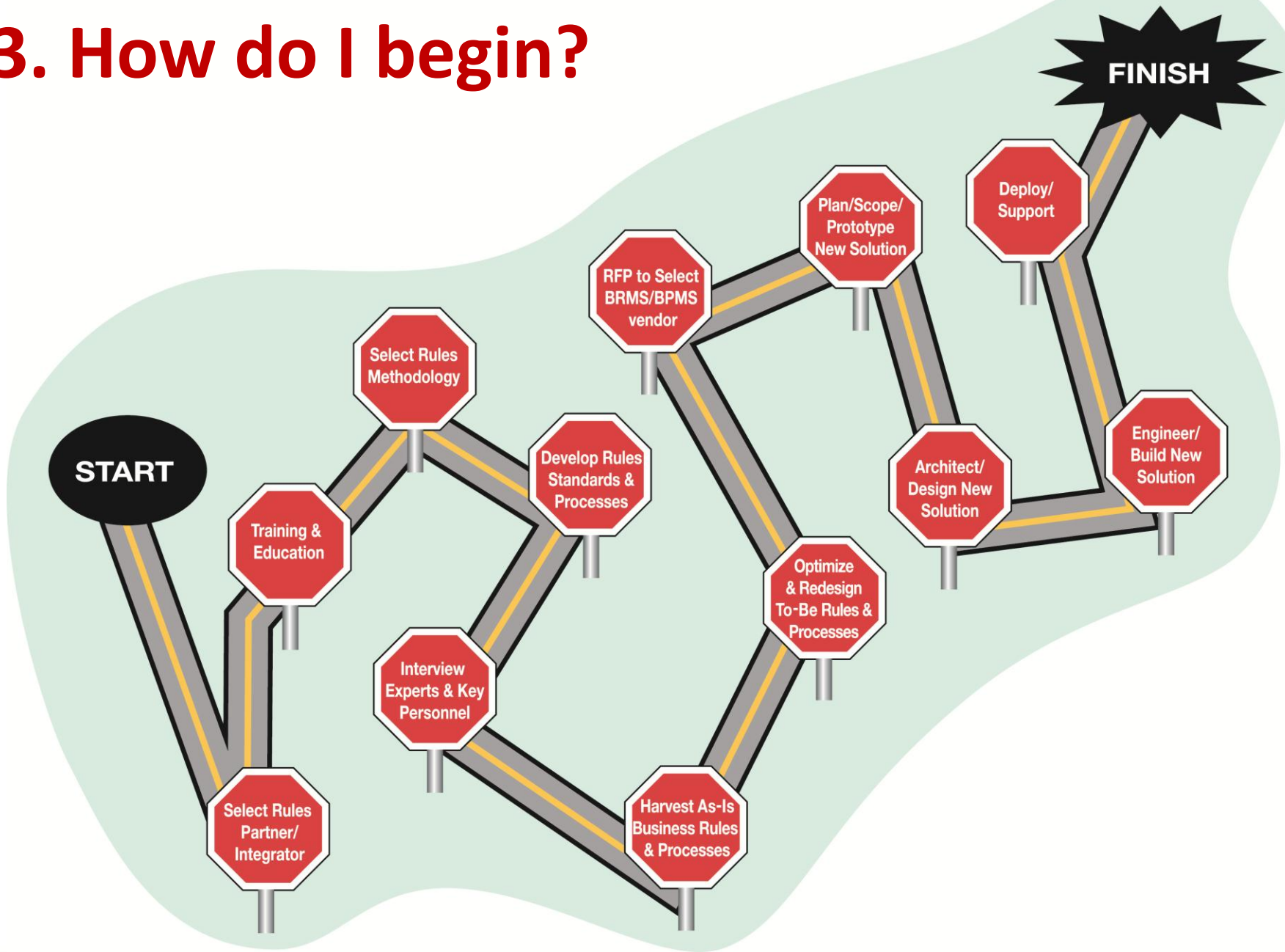


#4. When am I done?

How do you know when you're done harvesting?
How do you know when you have all the rules?

	WHAT Data	HOW Process	WHERE Network	WHO People	WHEN Time	WHY Rules
BUSINESS AREA 1	✓	✓	✓	✓	✓	✓
BUSINESS AREA 2	✓					
BUSINESS AREA 3		✓		✓		✓
BUSINESS AREA 4					✓	
BUSINESS AREA 5		✓		✓	✓	
BUSINESS AREA N	✓	✓				✓
INTERNAL BUSINESS RULES						
ENVIRONMENTAL RULES						
MARKET RULES						
INDUSTRY RULES						
GOVERNMENT RULES						

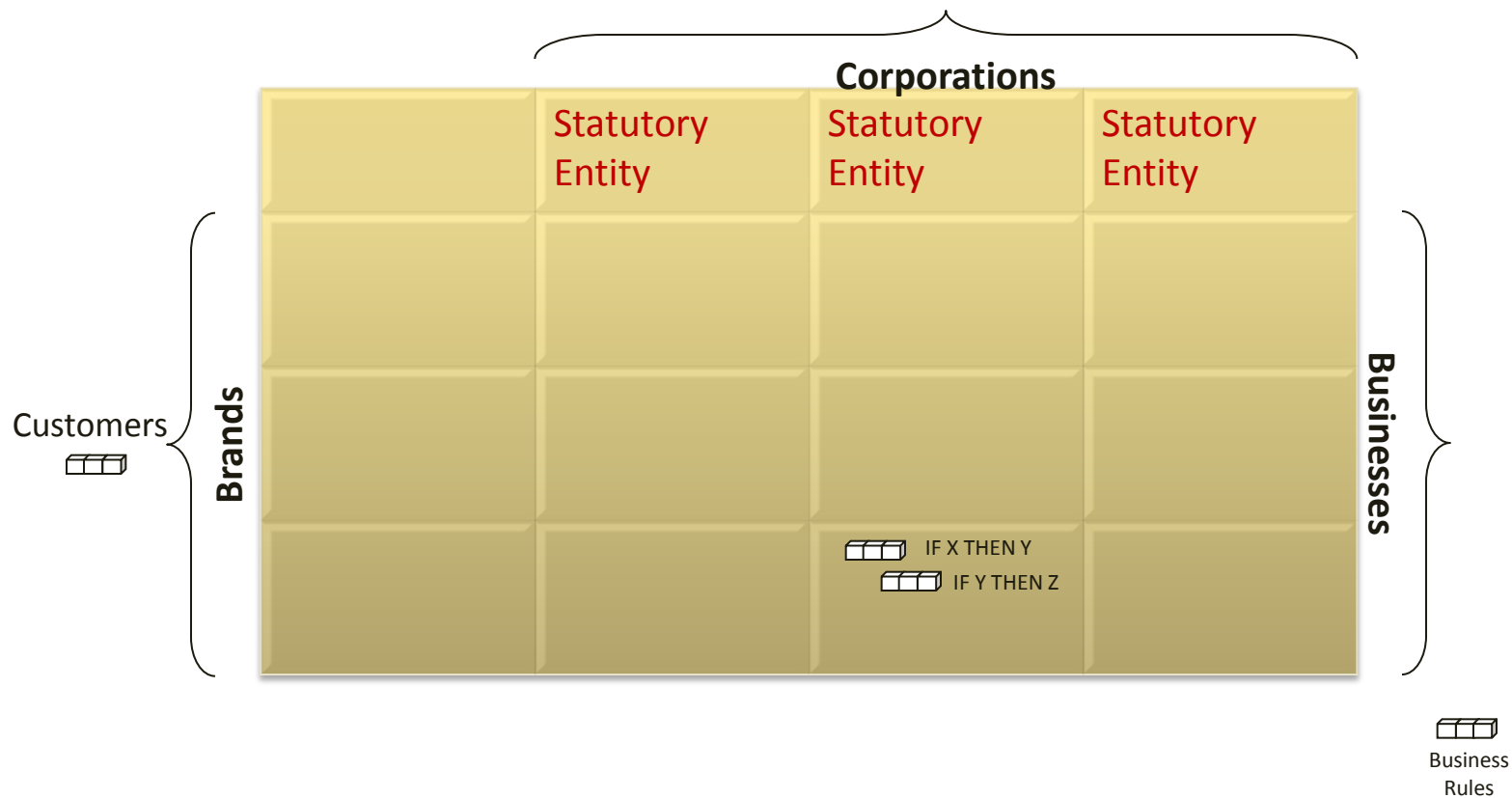
#3. How do I begin?



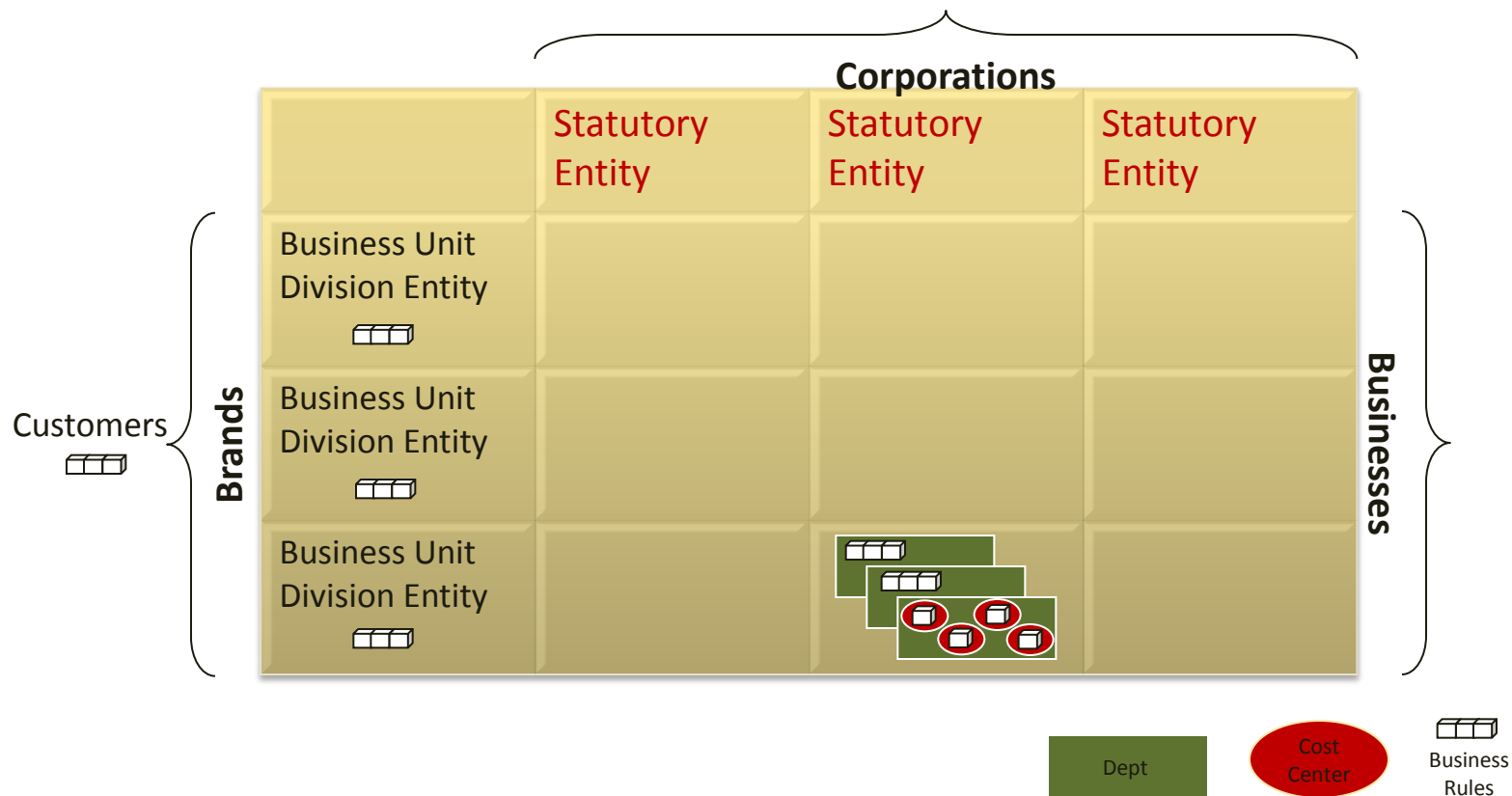
#2. Why are business rules so critical, complex, and confusing?

It's just
IF X THEN Y ...
... IF Y THEN Z
right?

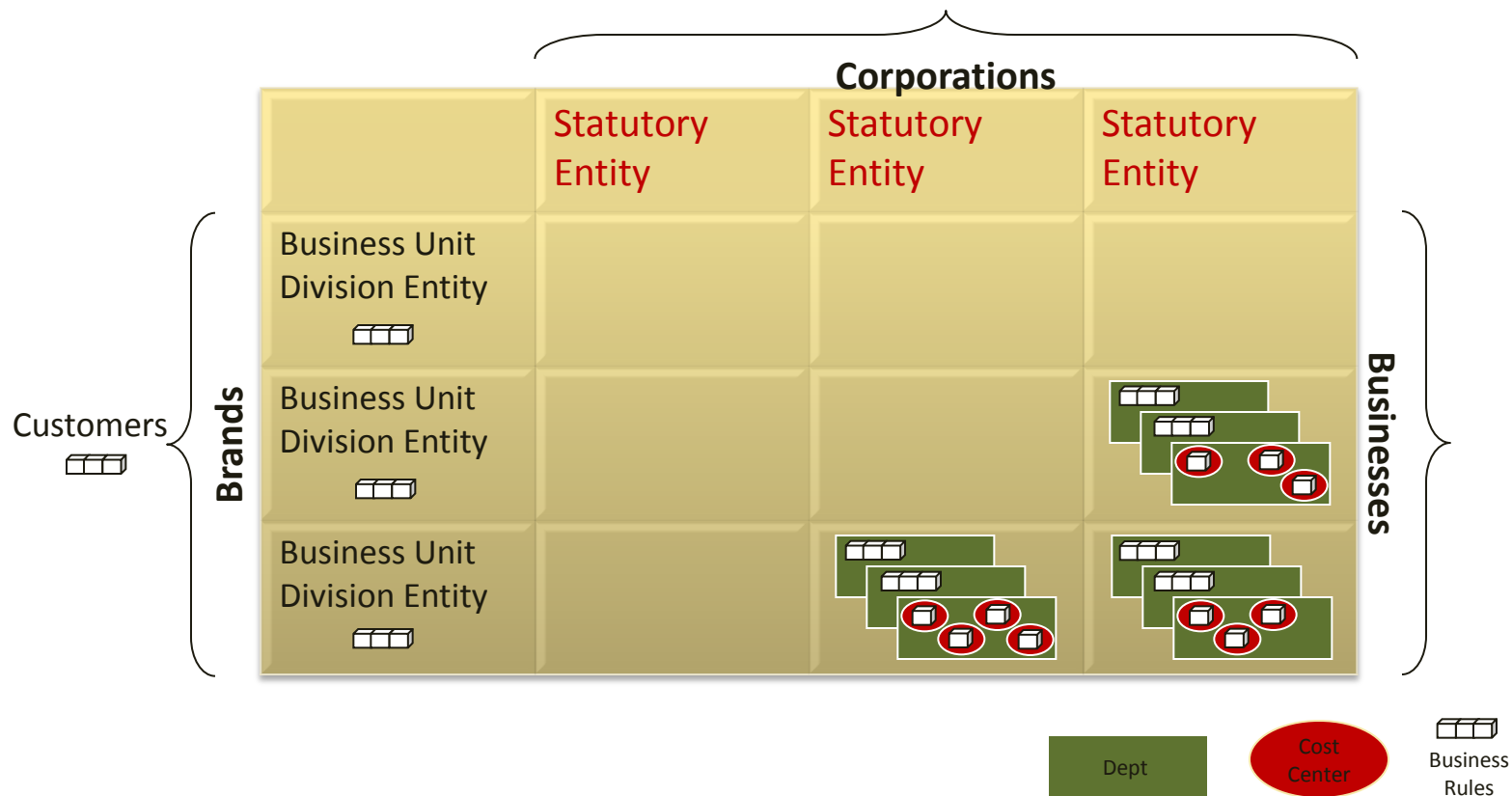
Why are business rules so critical, complex, and confusing?



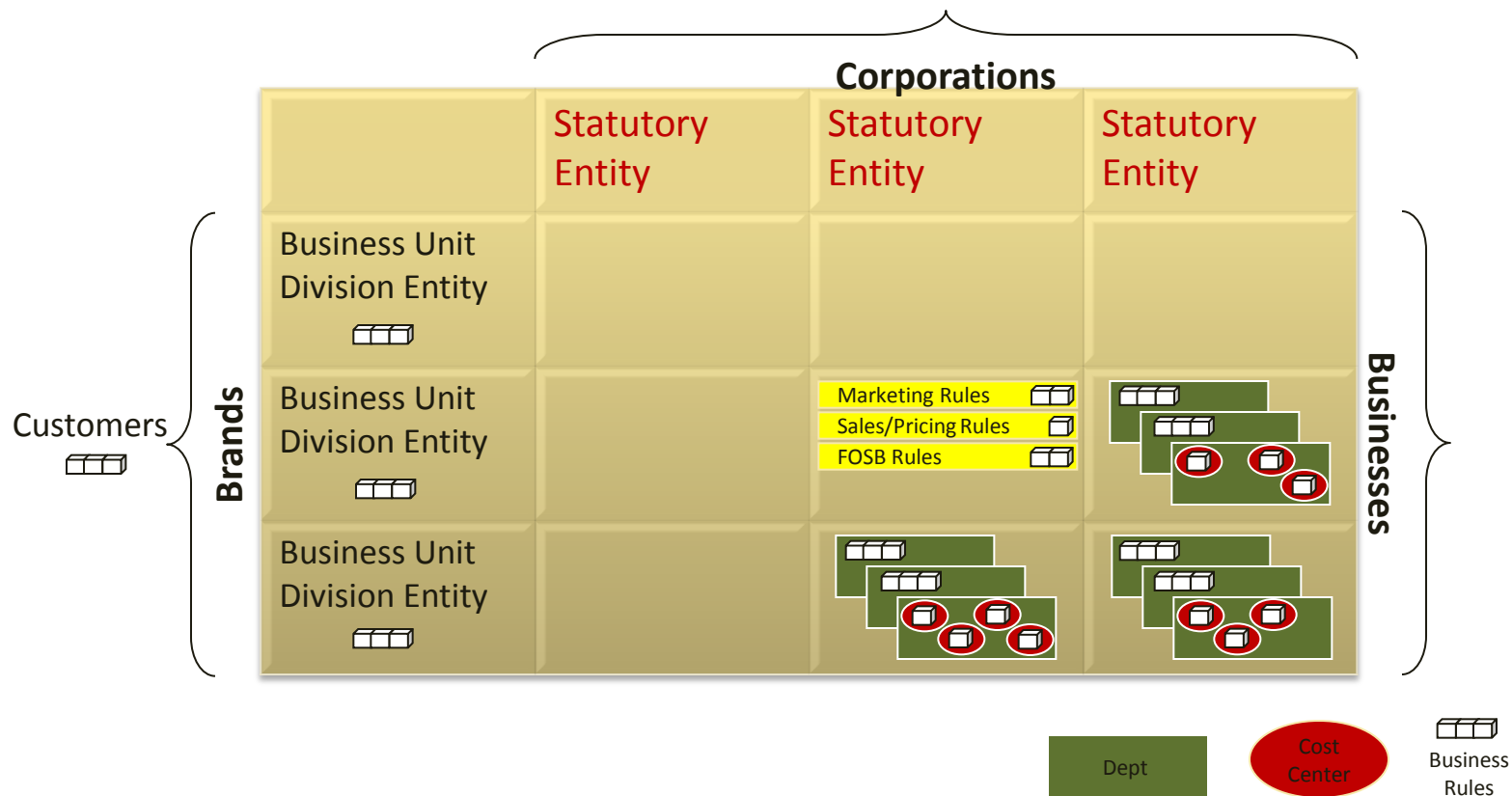
Why are business rules so critical, complex, and confusing?



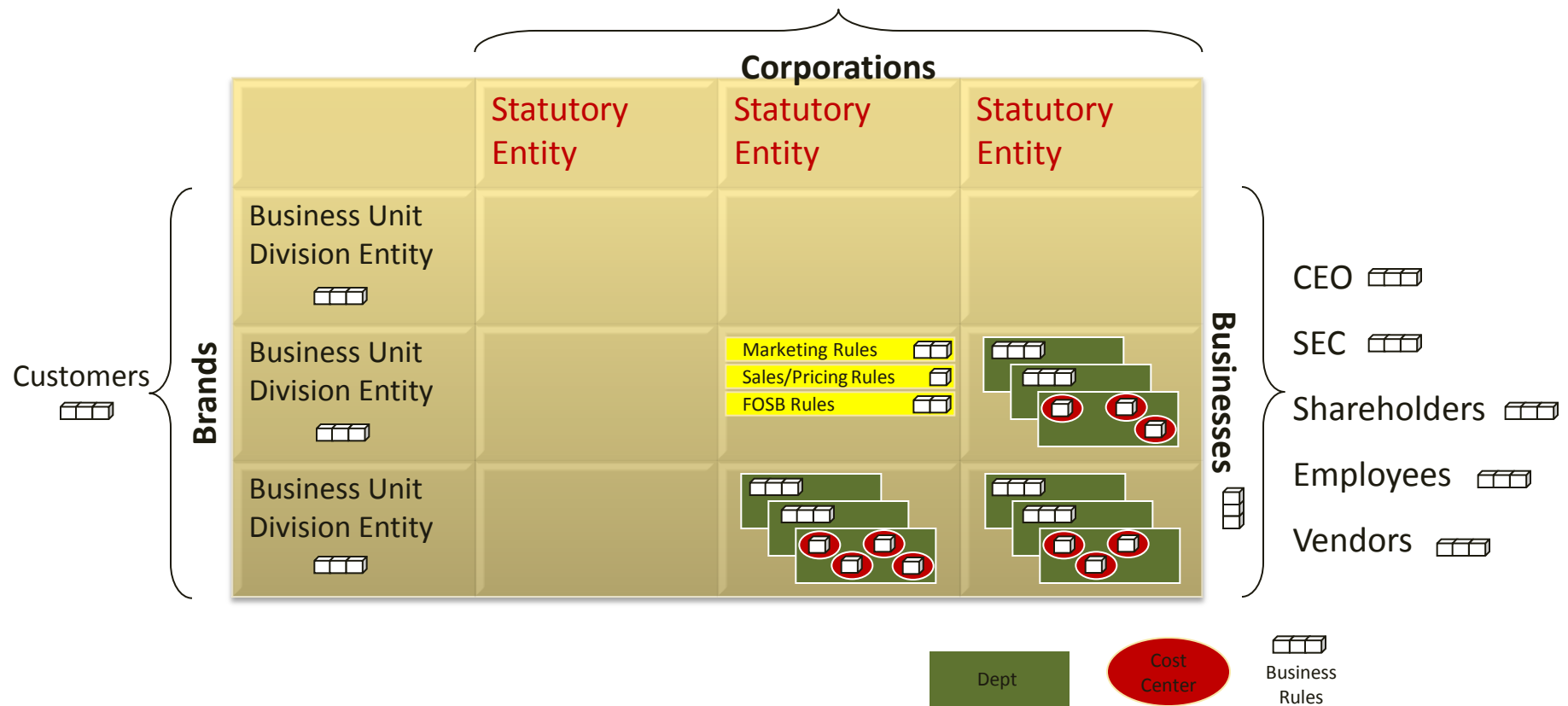
Why are business rules so critical, complex, and confusing?



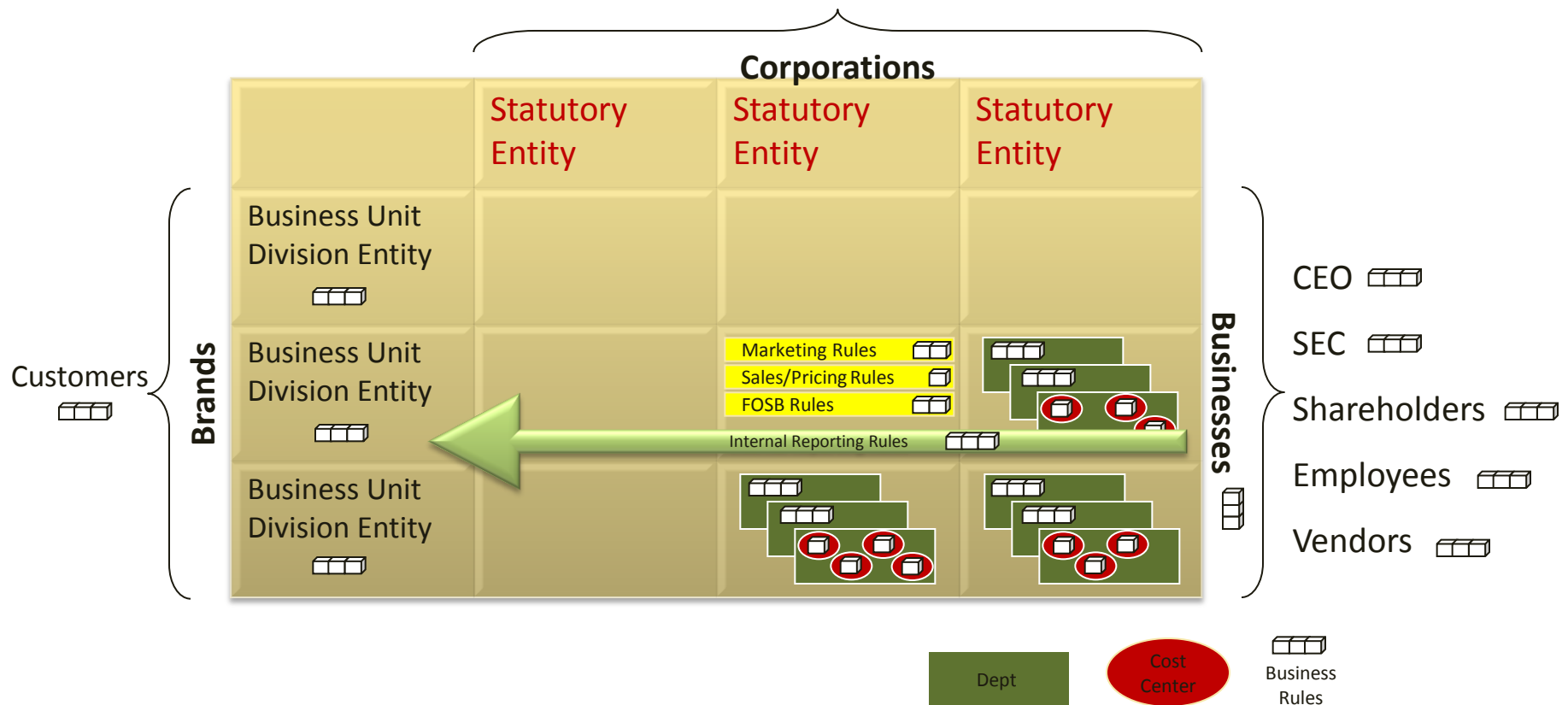
Why are business rules so critical, complex, and confusing?



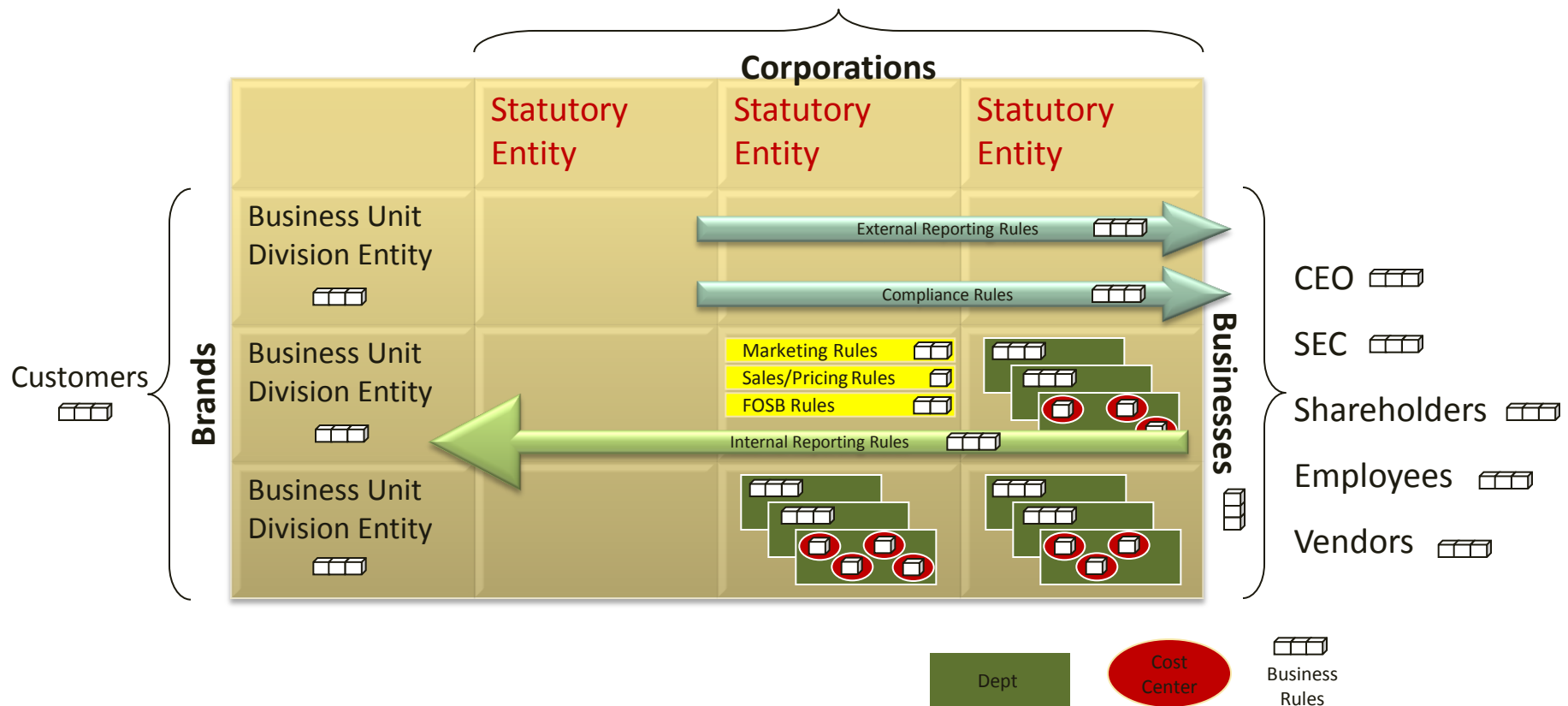
Why are business rules so critical, complex, and confusing?



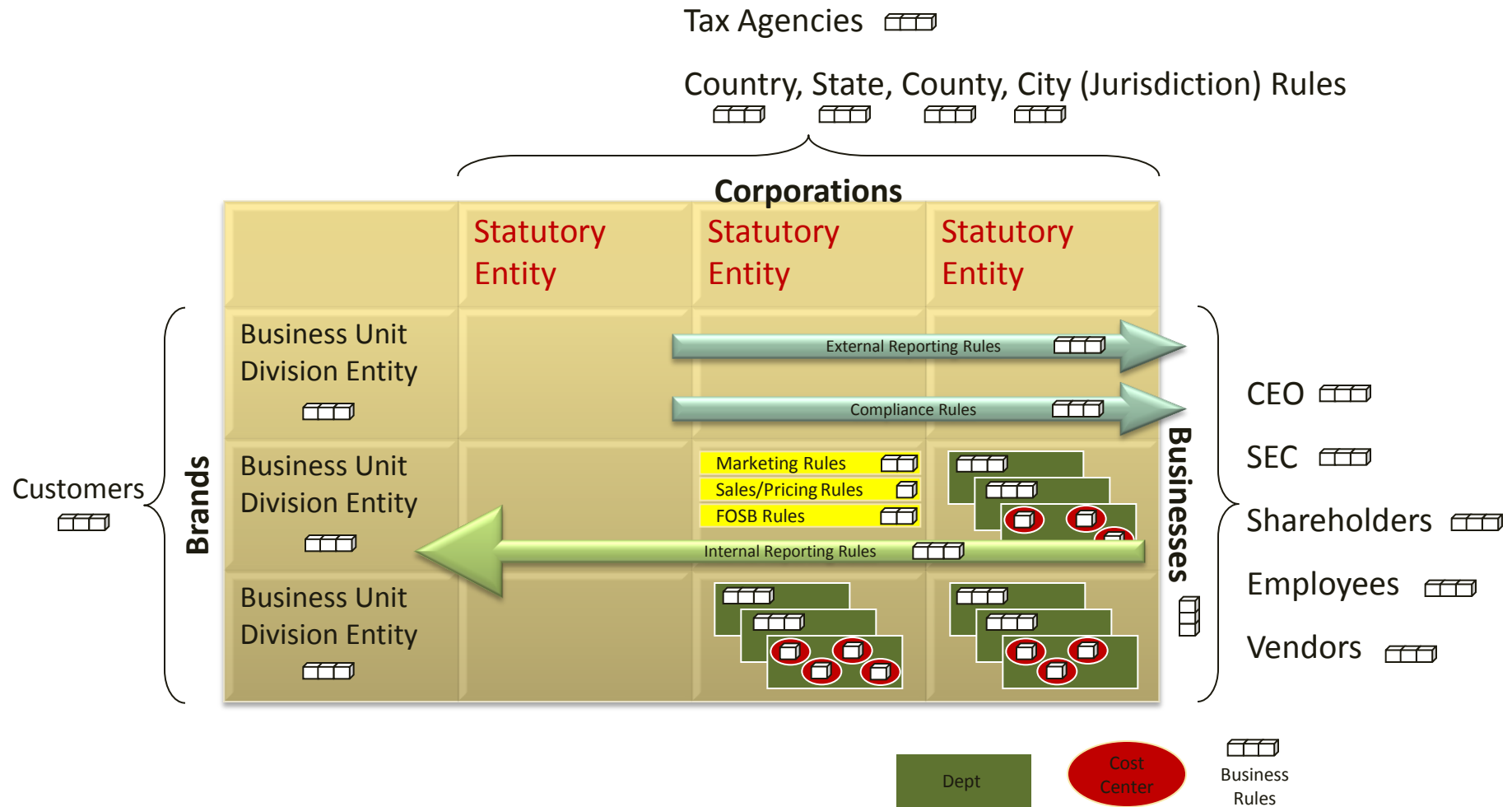
Why are business rules so critical, complex, and confusing?



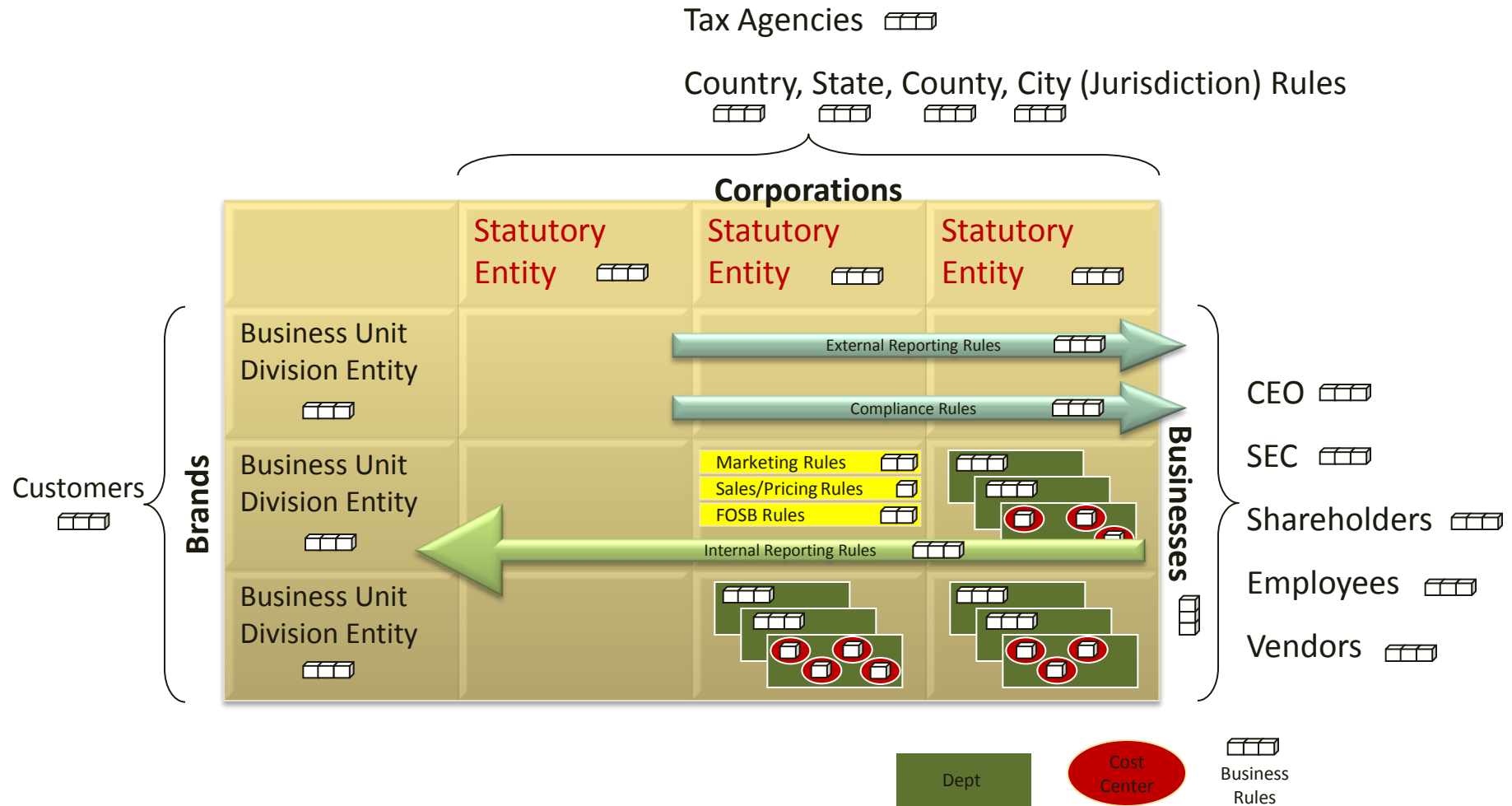
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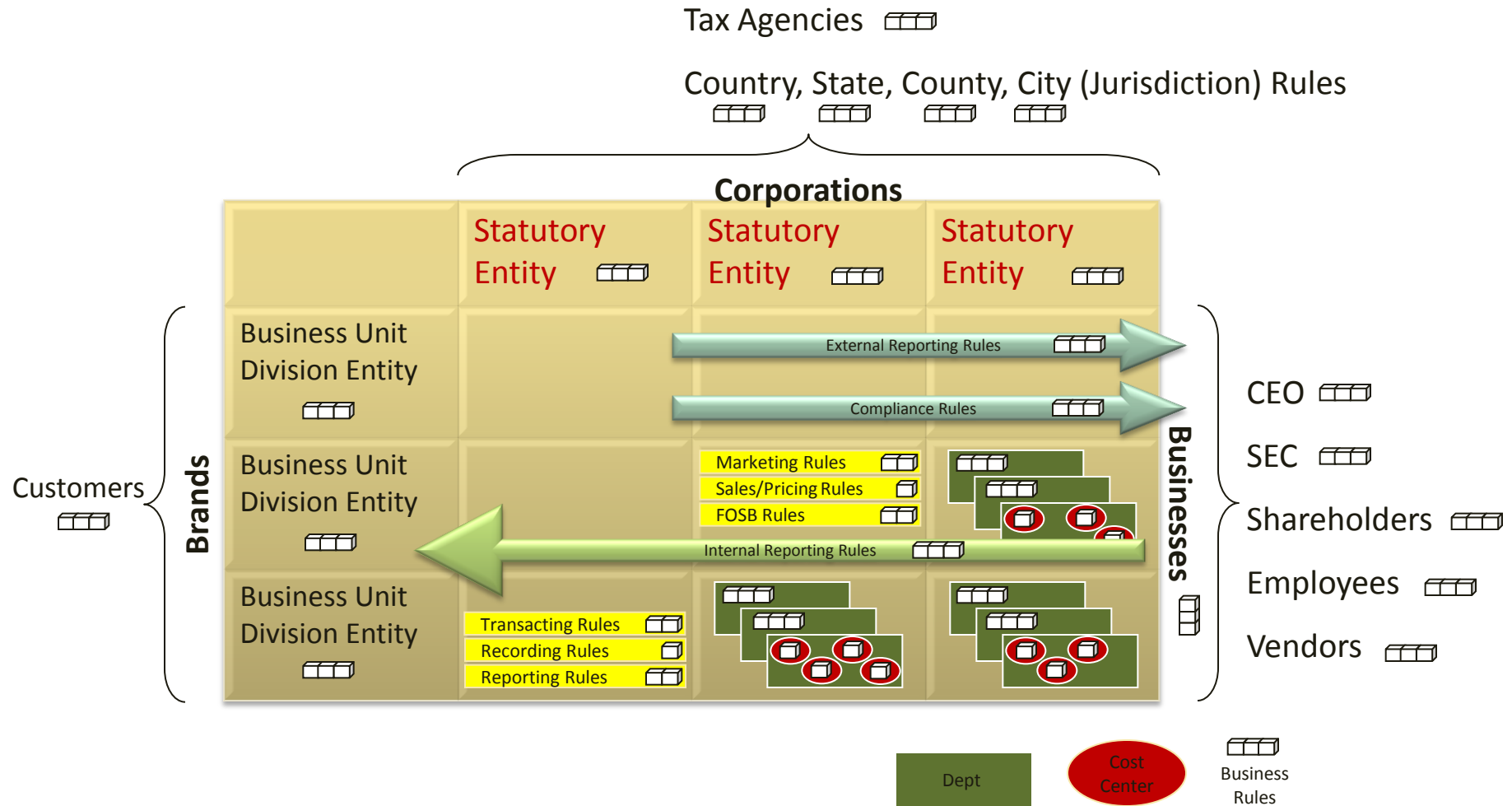
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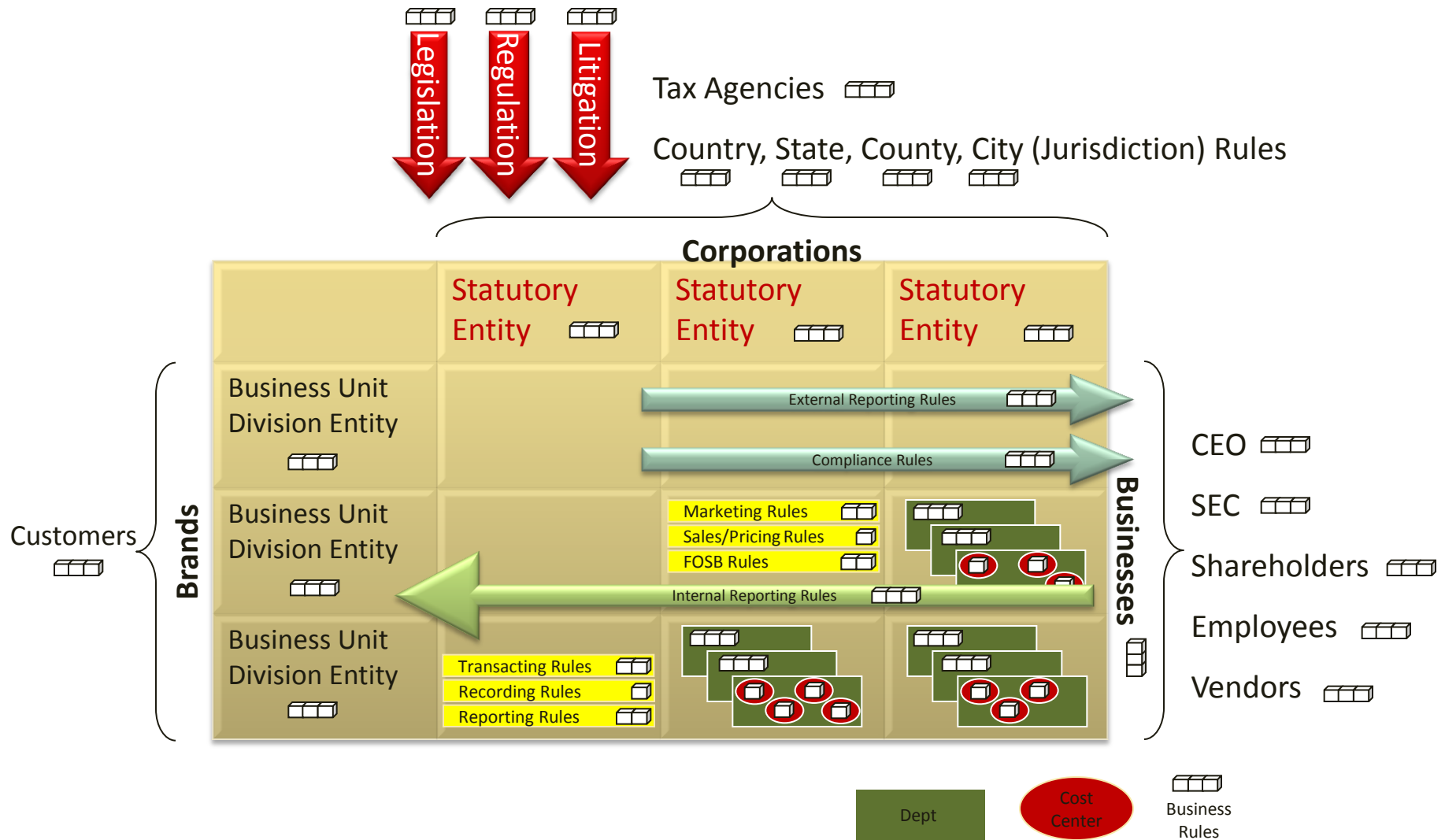
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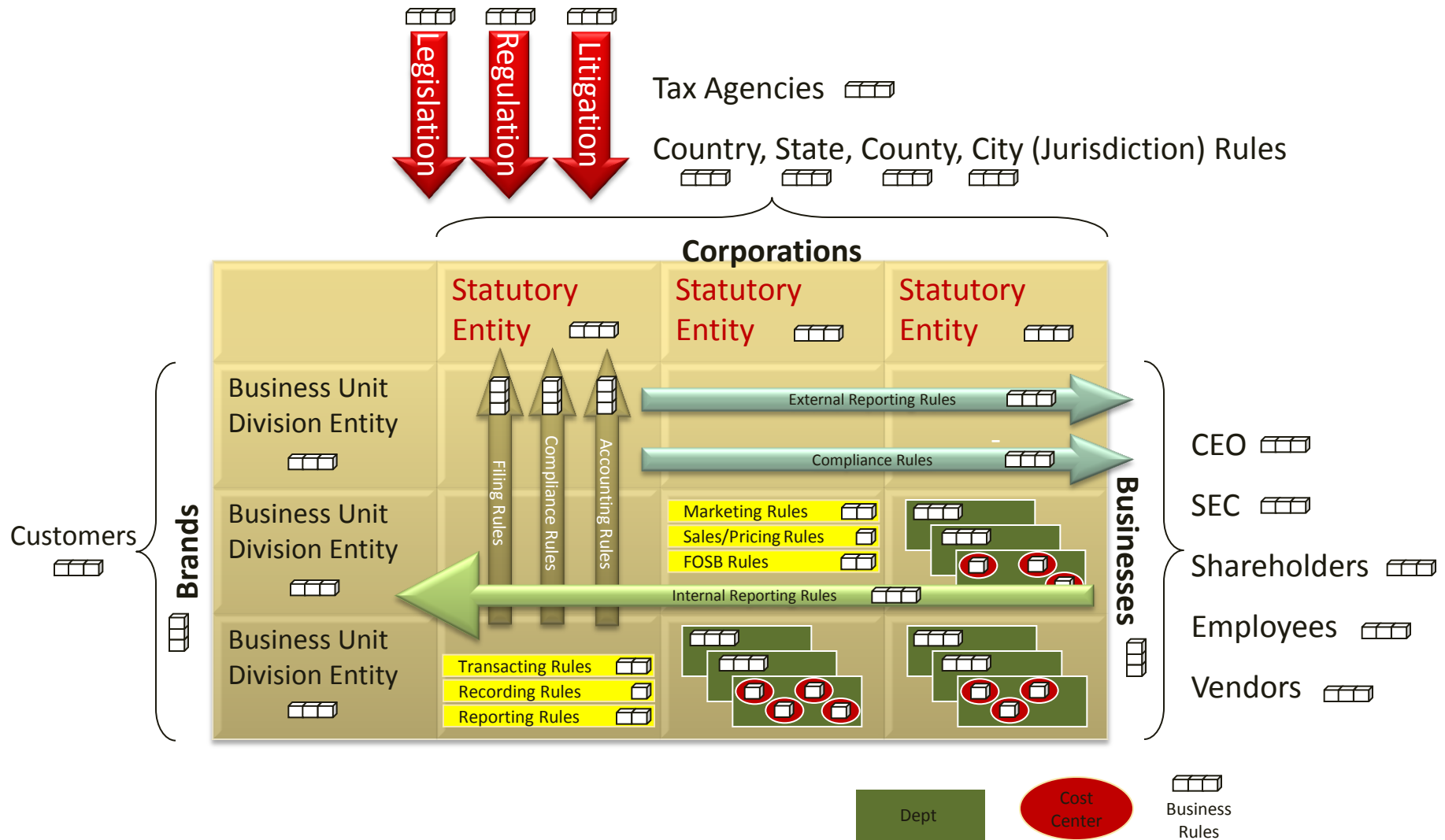
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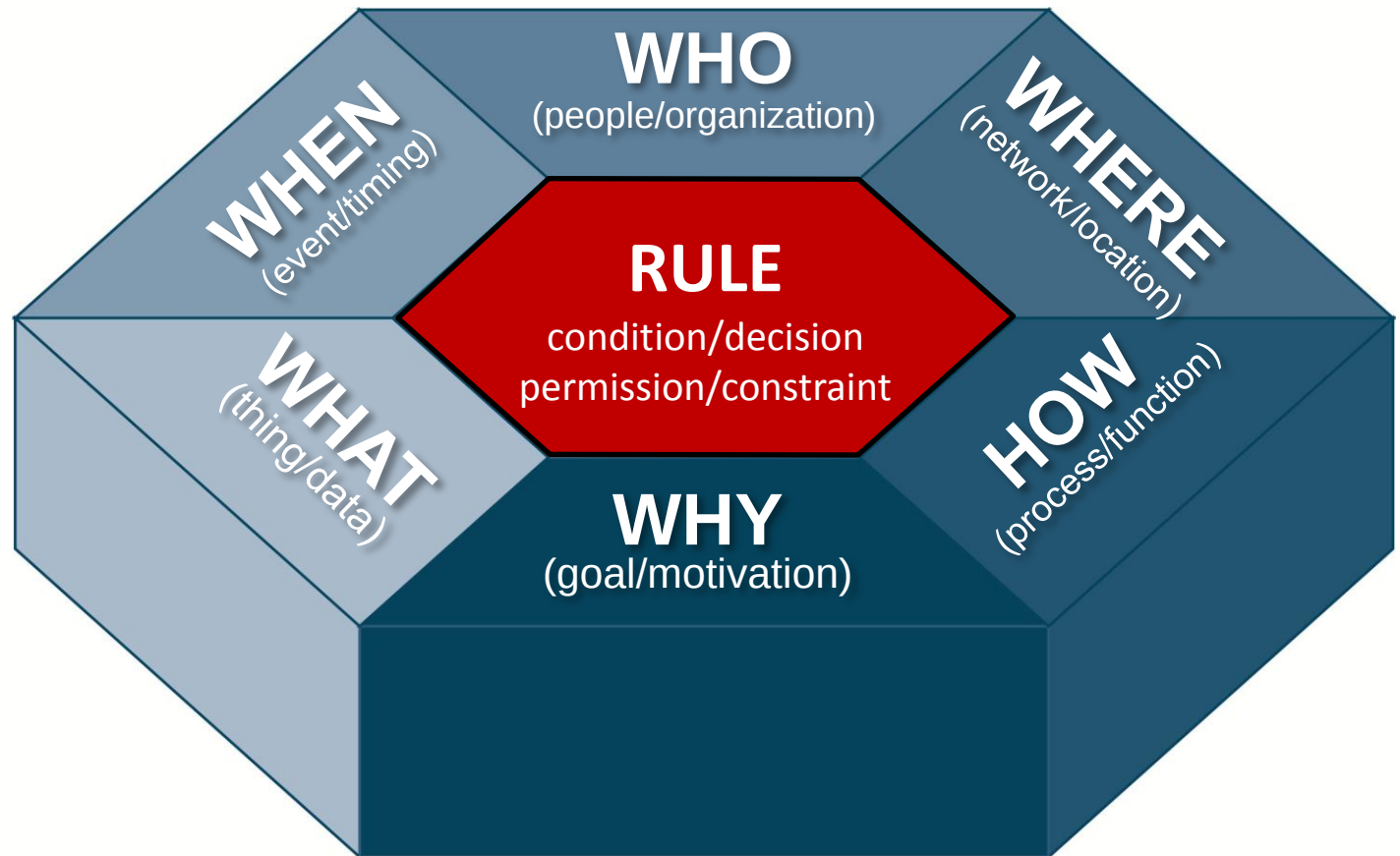
Why are business rules so critical, complex, and confusing?



Why are business rules so critical, complex, and confusing?



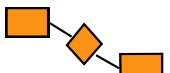
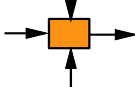
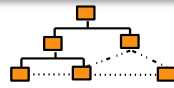
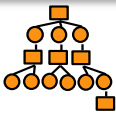
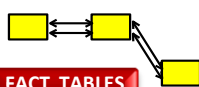
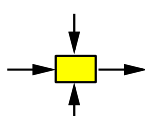
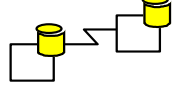
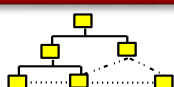
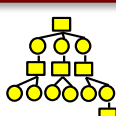
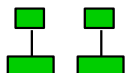
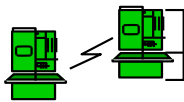
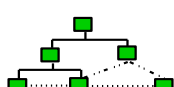
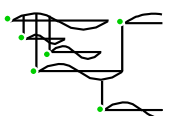
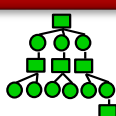
#1. How do we fit rules into the Enterprise Architecture?



Create the Business Rules Architecture

This ensures that all the parts of the business system
connect, fit, work, change, last, and survive

How does the BIZRULES approach fit into our Enterprise Architecture?

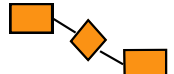
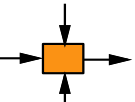
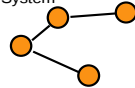
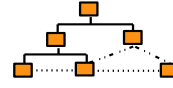
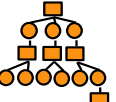
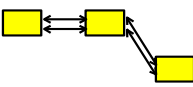
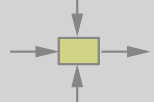
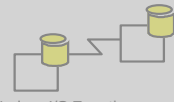
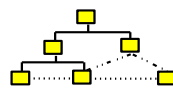
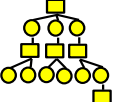
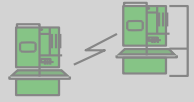
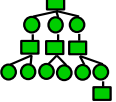
	DATA <i>What</i>	FUNCTION <i>How</i>	NETWORK <i>Where</i>	PEOPLE <i>Who</i>	TIME <i>When</i>	MOTIVATION <i>Why</i>	
SCOPE (CONTEXTUAL)	TERMS 	List of Processes the Business Performs 	List of Locations in which the Business Operates 	List of Organizations Important to the Business 	List of Events Significant to the Business 	MISSION & GOALS 	SCOPE (CONTEXTUAL)
<i>Planner</i>	ENTITY = Class of Business Thing	Function = Class of Business Process	Node = Major Business Location	People = Major Organizations	Time = Major Business Event	Ends/Mean=Major Bus. Goal/ Critical Success Factor	<i>Planner</i>
ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model  FACT MODELS Ent = Business Entity ReIn = Business Relationship	BUSINESS PROCESS MODELS  Proc. = Business Process I/O = Business Resources	e.g. Business Logistics System  Node = Business Location Link = Business Linkage	WORK FLOW MODELS  People = Organization Unit Work = Work Product	e.g. Master Schedule  Time = Business Event Cycle = Business Cycle	GOVERNING RULES  End = Business Objective Means = Business Strategy	ENTERPRISE MODEL (CONCEPTUAL)
<i>Owner</i>							<i>Owner</i>
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model  FACT TABLES Ent = Data Entity ReIn = Data Relationship	e.g. Application Architecture  Proc. = Application Function I/O = User Views	e.g. Distributed System Architecture  Node = I/S Function (Processor, Storage, etc) Link = Line Characteristics	USER INTERFACE ARCHITECTURE  People = Role Work = Deliverable	e.g. Processing Structure  Time = System Event Cycle = Processing Cycle	BUSINESS RULE MODELS  End = Structural Assertion Means = Action Assertion	SYSTEM MODEL (LOGICAL)
<i>Designer</i>							<i>Designer</i>
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model  Ent = Segment/Table/etc. ReIn = Pointer/Key/etc.	e.g. System Design  Proc. = Computer Function I/O = Data Elements/Sets	e.g. Technology Architecture  Node = Hardware/System Software Link = Line Specifications	e.g. Presentation Architecture  People = User Work = Screen Format	e.g. Control Structure  Time = Execute Cycle = Component Cycle	RULE DESIGNS  End = Condition Means = Action	TECHNOLOGY MODEL (PHYSICAL)
<i>Builder</i>							<i>Builder</i>
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g. Data Definition 	e.g. Program 	e.g. Network Architecture 	e.g. Security Architecture 	e.g. Timing Definition 	RULE SPECIFICATIONS 	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)
<i>Sub-Contractor</i>	Ent = Field ReIn = Address	Proc. = Language Stmt I/O = Control Block	Node = Addresses Link = Protocols	People = Identity Work = Job	Time = Interrupt Cycle = Machine Cycle	End = Sub-condition Means = Step	<i>Sub-Contractor</i>
FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	e.g. ORGANIZATION	e.g. SCHEDULE	e.g. STRATEGY	FUNCTIONING ENTERPRISE

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BIZRULES® Enterprise Rules Architecture™

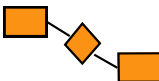
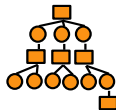
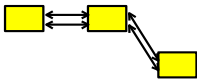
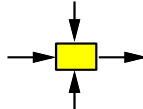
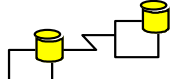
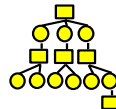
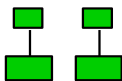
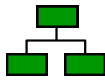
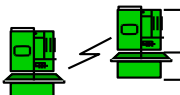
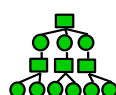
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ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model 	e.g. Business Process Model 	e.g. Business Logistics System 	e.g. Work Flow Model 	e.g. Master Schedule 	e.g. Business Plan 	ENTERPRISE MODEL (CONCEPTUAL)
<i>Owner</i>	Ent = Business Entity ReIn = Business Relationship	Proc. = Business Process I/O = Business Resources	Node = Business Location Link = Business Linkage	People = Organization Unit Work = Work Product	Time = Business Event Cycle = Business Cycle	End = Business Objective Means = Business Strategy	<i>Owner</i>
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model 	e.g. Application Architecture 	e.g. Distributed System Architecture 	e.g. Human Interface Architecture 	e.g. Processing Structure 	e.g., Business Rule Model 	SYSTEM MODEL (LOGICAL)
<i>Designer</i>	Ent = Data Entity ReIn = Data Relationship	Proc. = Application Function I/O = User Views	Node = I/S Function (Processor, Storage, etc) Link = Line Characteristics	People = Role Work = Deliverable	Time = System Event Cycle = Processing Cycle	End = Structural Assertion Means = Action Assertion	<i>Designer</i>
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model 	e.g. System Design 	e.g. Technology Architecture 	e.g. Presentation Architecture 	e.g. Control Structure 	e.g. Rule Design 	TECHNOLOGY MODEL (PHYSICAL)
<i>Builder</i>	Ent = Segment/Table/etc. ReIn = Pointer/Key/etc.	Proc.= Computer Function I/O = Data Elements/Sets	Node = Hardware/System Software Link = Line Specifications	People = User Work = Screen Format	Time = Execute Cycle = Component Cycle	End = Condition Means = Action	<i>Builder</i>
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g. Data Definition 	e.g. Program 	e.g. Network Architecture 	e.g. Security Architecture 	e.g. Timing Definition 	e.g. Rule Specification 	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)
<i>Sub-Contractor</i>	Ent = Field ReIn = Address	Proc.= Language Stmt I/O = Control Block	Node = Addresses Link = Protocols	People = Identity Work = Job	Time = Interrupt Cycle = Machine Cycle	End = Sub-condition Means = Step	<i>Sub-Contractor</i>
FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	e.g. ORGANIZATION	e.g. SCHEDULE	e.g. STRATEGY	FUNCTIONING ENTERPRISE

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	DATA <i>What</i>	FUNCTION <i>How</i>	NETWORK <i>Where</i>	PEOPLE <i>Who</i>	TIME <i>When</i>	MOTIVATION <i>Why</i>		
SCOPE (CONTEXTUAL)	List of Things Important to the Business 	Terms			Mission & Goals/Objectives Management Intention		List of Business Goals/Strat 	SCOPE (CONTEXTUAL)
Planner	ENTITY = Class of Business Thing	Function = Business Process	Location	People = Business Event	Time = Business Event	Ends/Mean=Major Bus. Goal/Critical Success Factor	Planner	
ENTERPRISE MODEL (CONCEPTUAL)	e.g. Semantic Model 	Facts & Fact Models			Strategy & Policy (Governing Rules) Informal or Detailed Description		e.g. Business Plan 	ENTERPRISE MODEL (CONCEPTUAL)
Owner	Ent = Business Entity ReIn = Business Relationship	Proc. = Business Resources I/O = Business Resources	Link = Business Linkage	Work = Work Product	Cycle = Business Cycle	End = Business Objective Means = Business Strategy	Owner	
SYSTEM MODEL (LOGICAL)	e.g. Logical Data Model 	e.g. Application Architecture 	e.g. Distributed System Architecture 	Rulebase/Rulesets (Textual/Decision Trees/Decision Tables) Detailed Logical Definition		e.g., Business Rule Model 	SYSTEM MODEL (LOGICAL)	
Designer	Ent = Data Entity ReIn = Data Relationship	Proc. = Application Function I/O = User Views	Node = I/S Function (Processor, Storage, etc) Link = Line Characteristics	Work = Deliverable	Cycle = Processing Cycle	End = Structural Assertion Means = Action Assertion	Designer	
TECHNOLOGY MODEL (PHYSICAL)	e.g. Physical Data Model 	e.g. System Design 	e.g. Technology Architecture 	Formal/Detailed Rules (Textual/If...Then) Detailed Technical Specification		e.g. Rule Design 	TECHNOLOGY MODEL (PHYSICAL)	
Builder	Ent = Segment/Table/etc. ReIn = Pointer/Key/etc.	Proc.= Computer Function I/O = Data Elements/Sets	Node = Hardware/System Software Link = Line Specifications	Work = Screen Format	Cycle = Component Cycle	End = Condition Means = Action	Builder	
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	e.g. Data Definition 	e.g. Program 	e.g. Network Architecture 	Source Code (Automated Rules) Implementation		e.g. Rule Specification 	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)	
Sub-Contractor	Ent = Field ReIn = Address	Proc.= Language Stmt I/O = Control Block	Node = Addresses Link = Protocols	Work = Job	Cycle = Machine Cycle	End = Sub-condition Means = Step	Sub-Contractor	
FUNCTIONING ENTERPRISE	e.g. DATA	e.g. FUNCTION	e.g. NETWORK	Enterprise Decision		e.g. STRATEGY	FUNCTIONING ENTERPRISE	

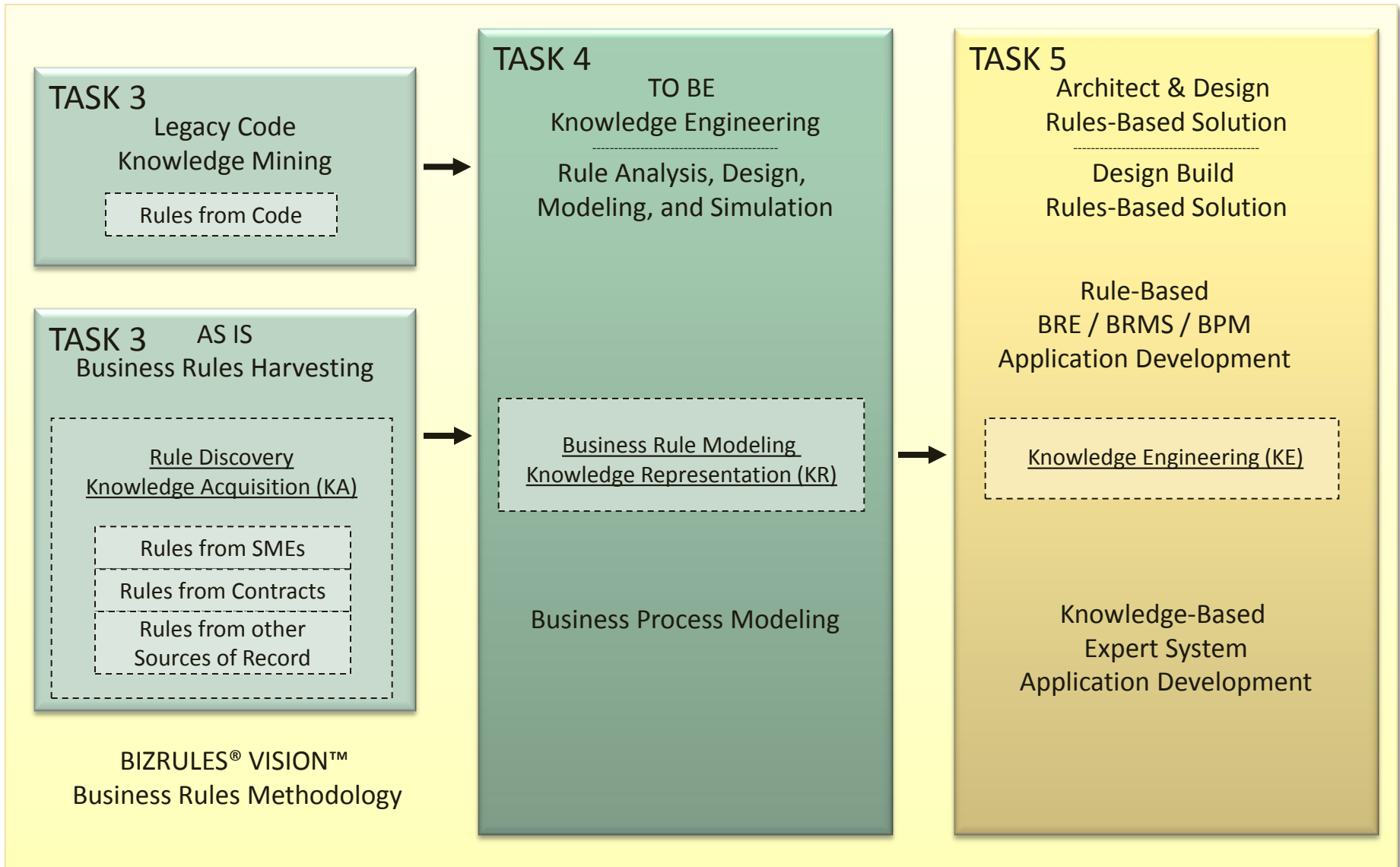
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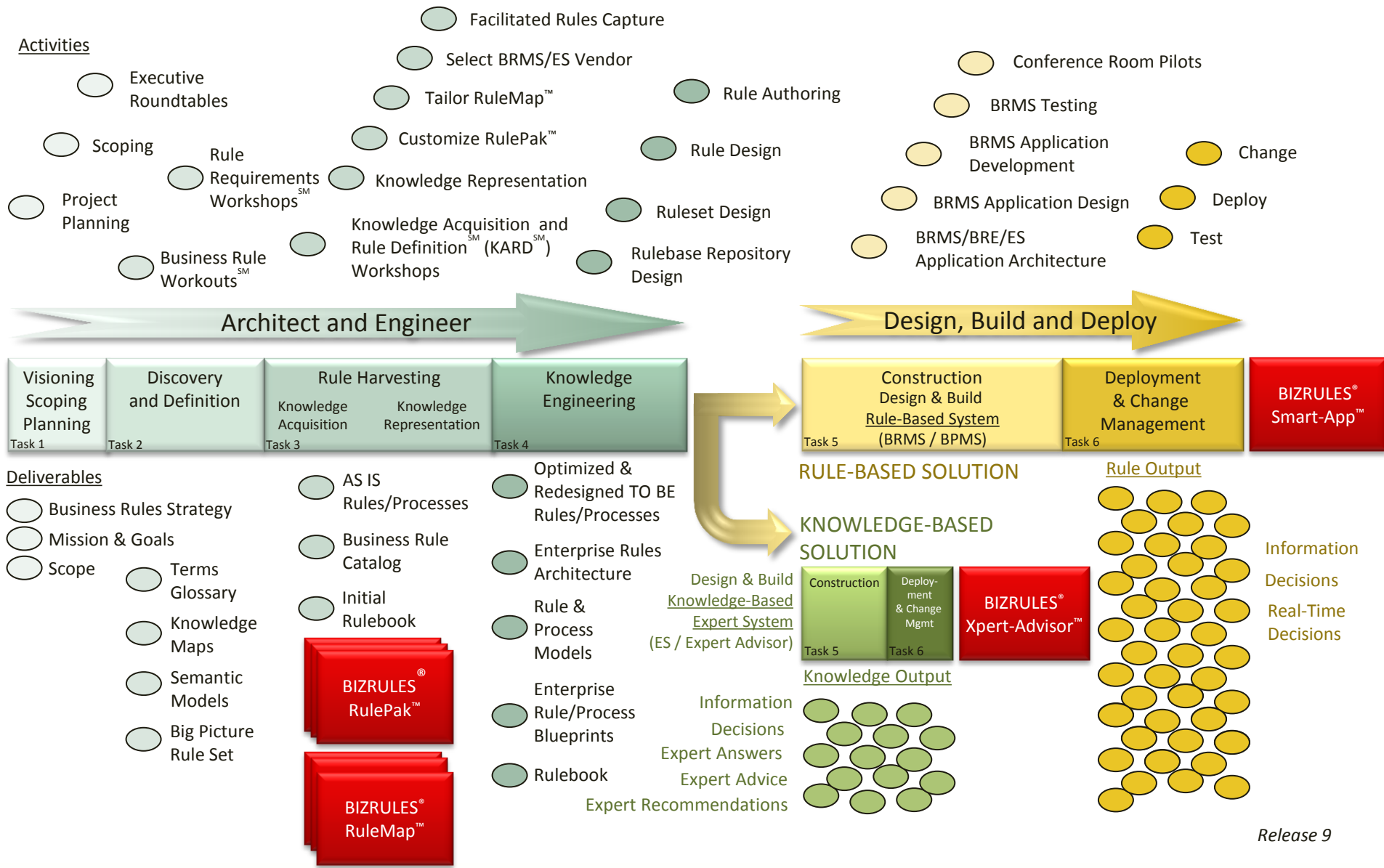
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Follow a Business Rules Methodology

BIZRULES® VISION™ Methodology Overview



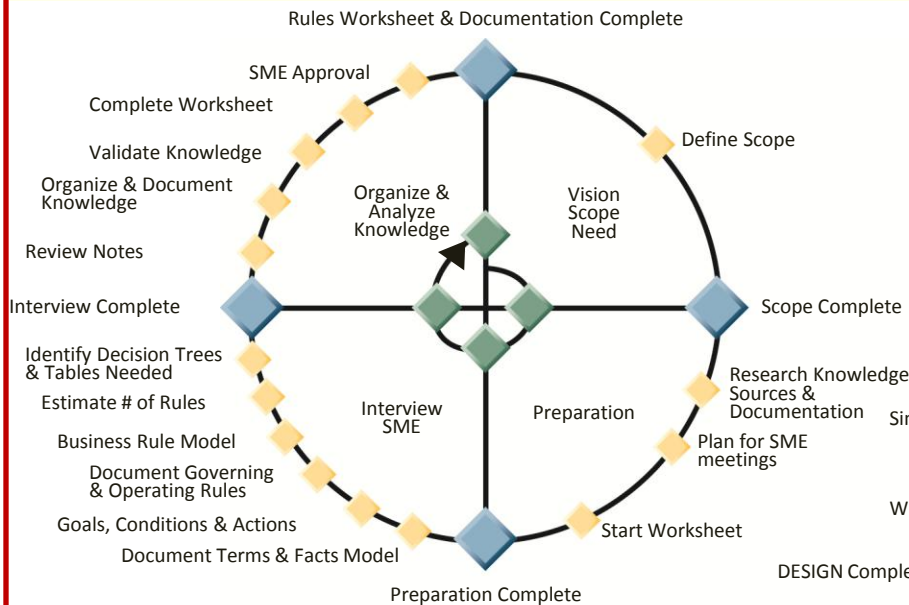
BIZRULES® VISION™ Methodology for building Rule-Based and Knowledge-Based Solutions



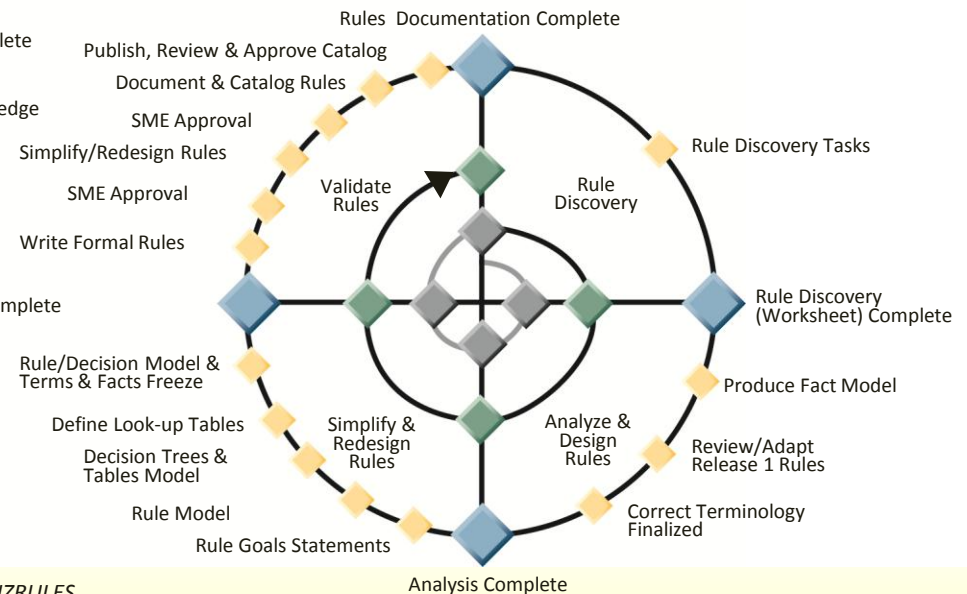
Task 3 – Rule Harvesting

Iterative Rule Discovery and Rule Modeling process

Rule Discovery Overview



Rule Modeling Overview



Note: This slide is from a presentation given by IRS/CSC, showing steps in the BIZRULES Methodology. These schematics are from Release 6 of the methodology.

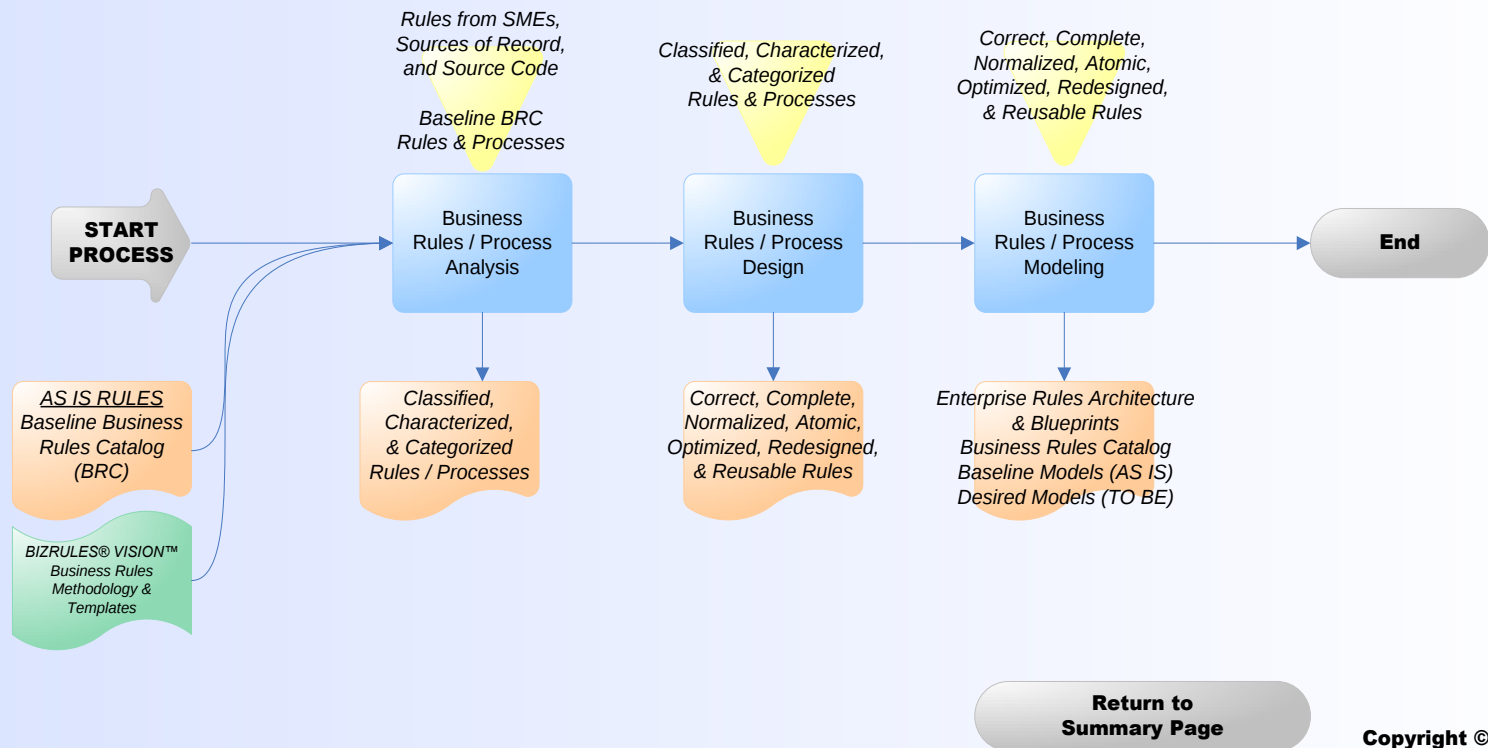
Task 4 – Knowledge Engineering

BIZRULES® VISION™ METHODOLOGY Task 4 Knowledge Engineering: AKA Design Rulebase

BizRules®.com
We Write the Rules of eBusiness®

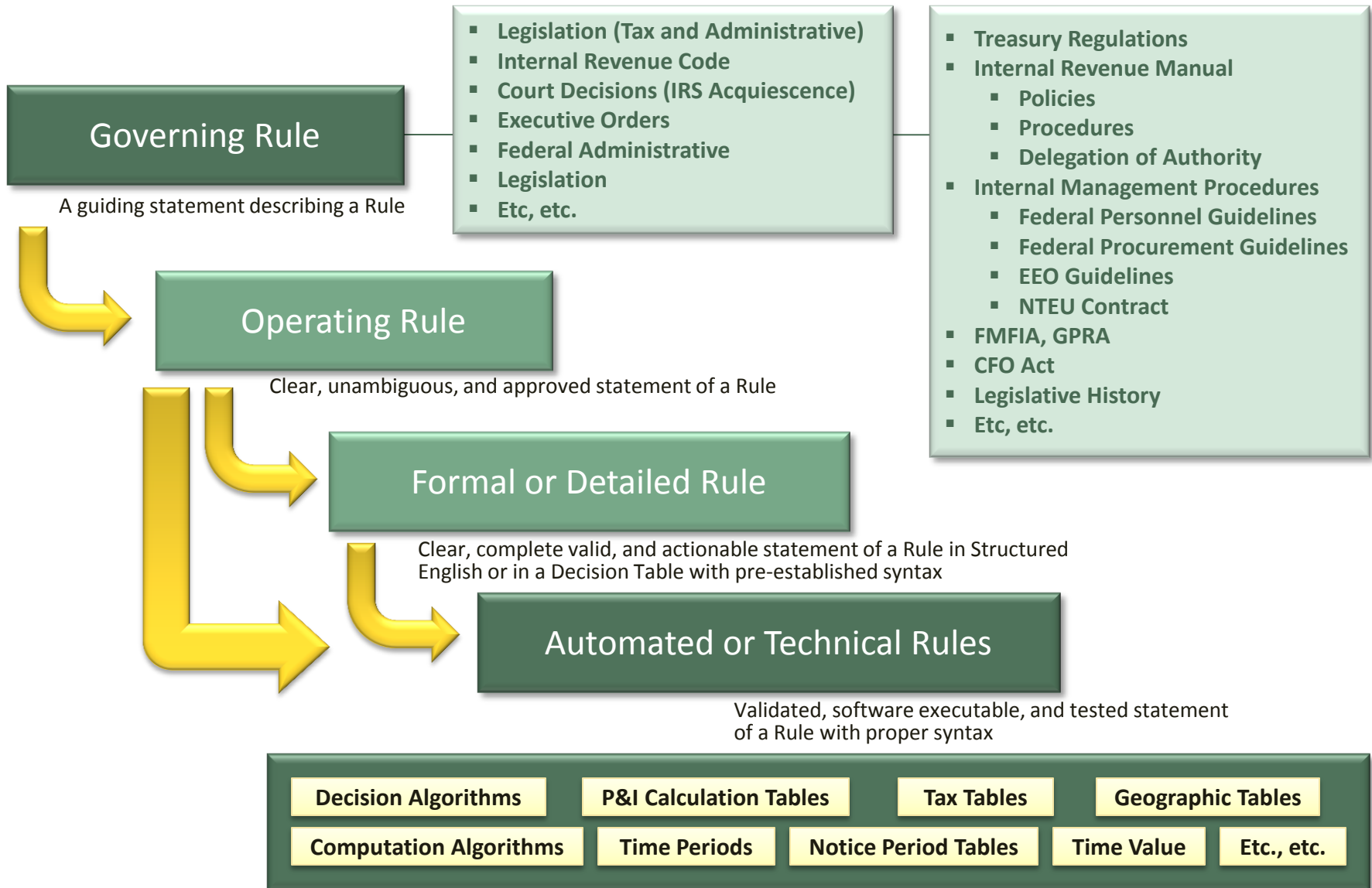
Design

BizRules



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Business Rule Expressions

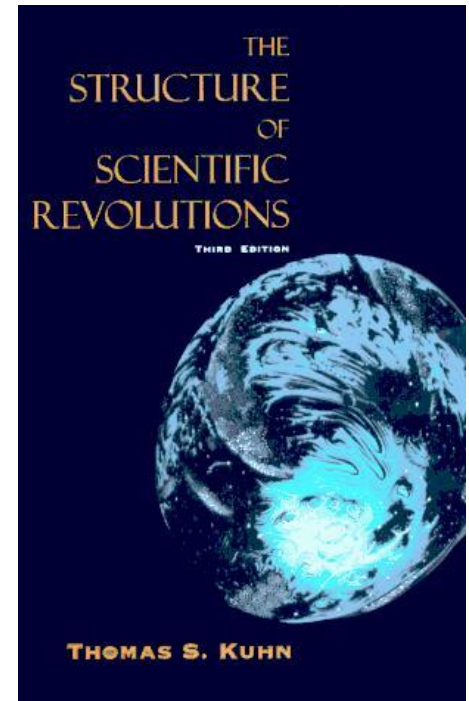


**Why has it taken 30 years for AI, ES,
KM, BRE to get this far?**

History

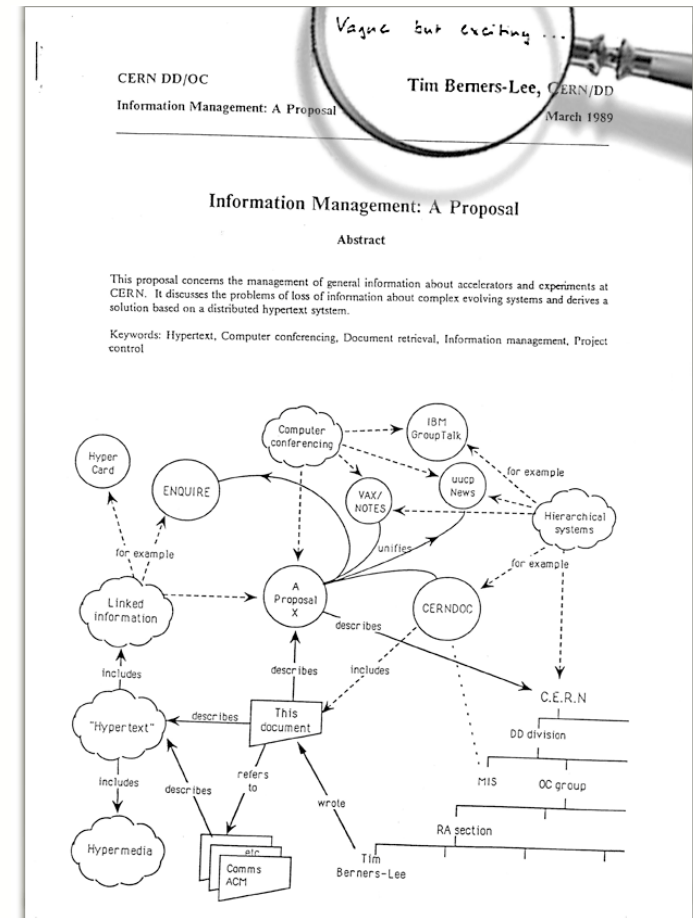
of Scientific Revolutions

- Kuhn quotes Max Planck's observation that sometimes:
“a new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.”
- Paradigm shifts take a generation... 30 years



Revolutionary technologies take 30 years to mature

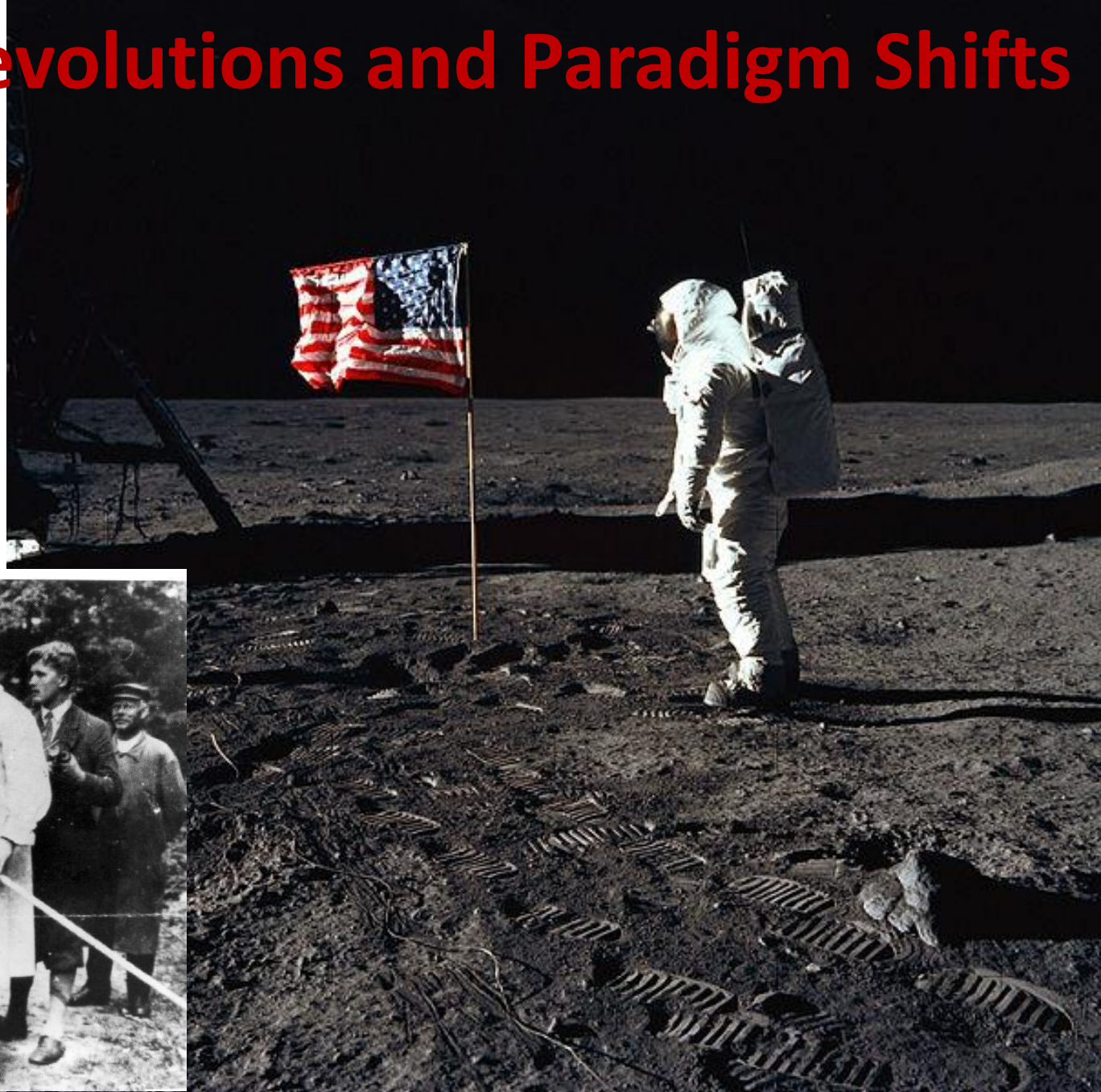
- Electricity: It took **30** years to figure out how to wire factories to leverage electricity
- The first e-mail was sent in **1971** on ARPA Net
 - **30** years later it was a vital form of communication
- ARPA Net Internet **1960s**
 - WWW proposed in **1989**
 - Internet Bubble **1999**



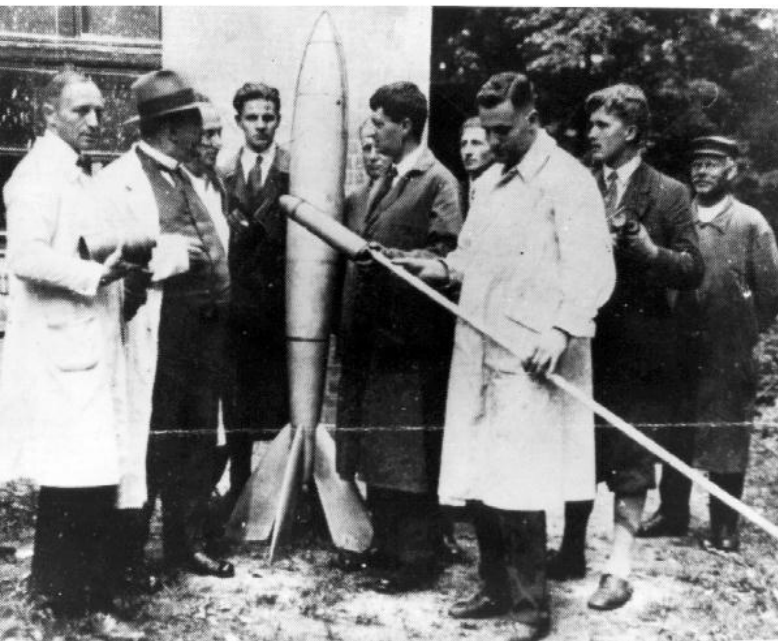
Scientific Revolutions and Paradigm Shifts

1969

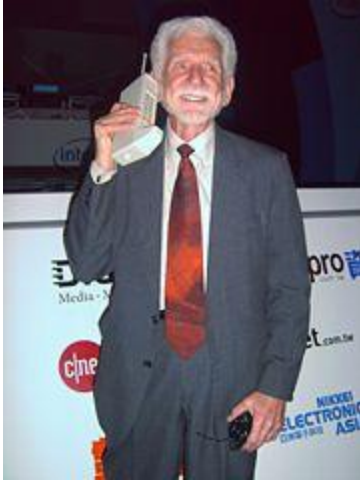
Buzz Aldrin with
U.S. flag on the moon.
Photograph by Neil
Armstrong.



Dr. Von Braun with rocket
experimenters in Germany in
the 1930s. He is shown
second from right in this
photo.



Scientific Revolutions and Paradigm Shifts



In **1973**, Martin Cooper, the inventor of the first portable handset, made the first phone call on a portable cell phone.

BlackBerry 7230
2003



In **1978** AT&T began testing “cellular technology,” a mobile telephone system based on hexagonal geographical regions called “cells.”

iPhone
2008

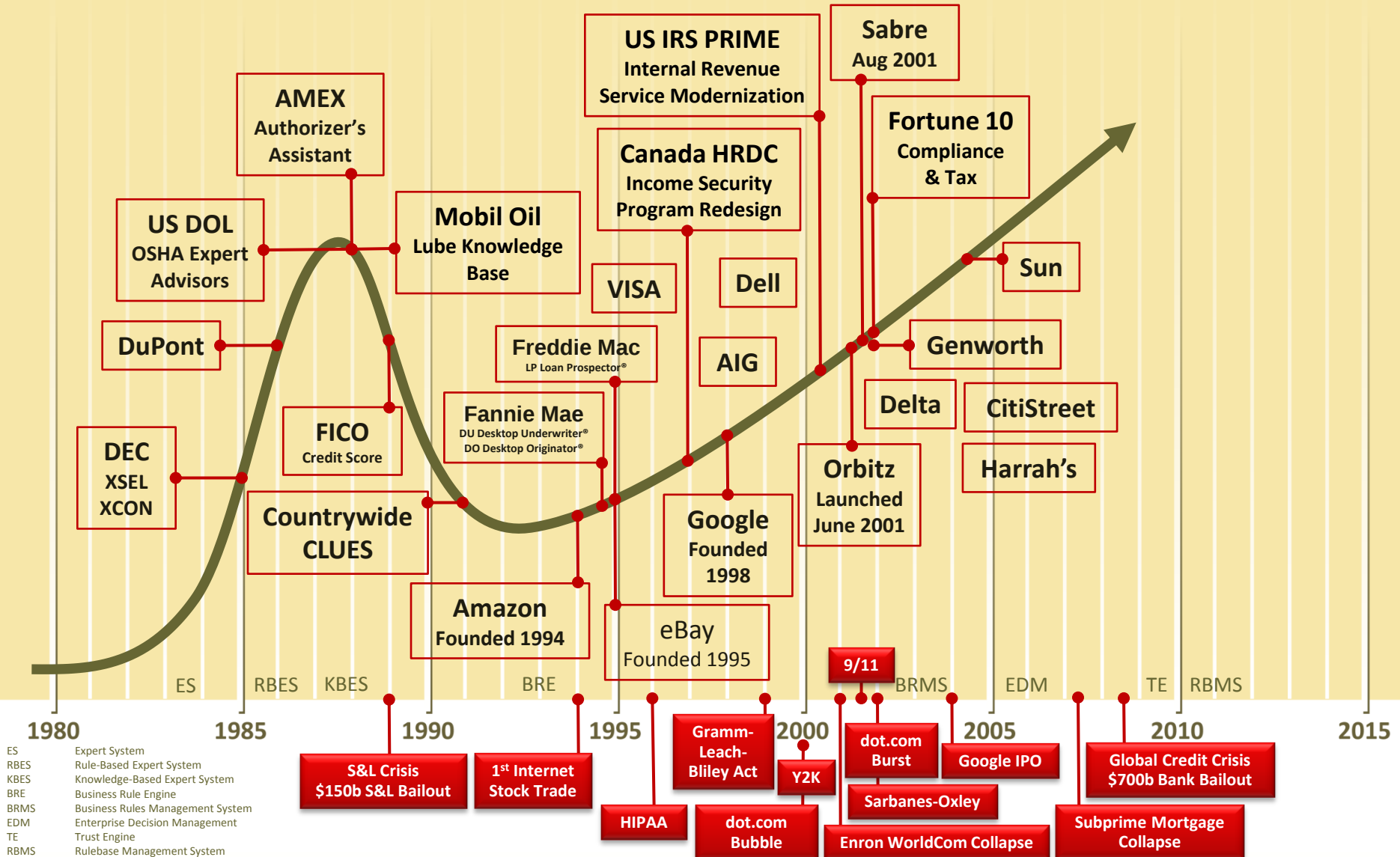


Scientific Revolutions and Paradigm Shifts

- James Clerk Maxwell theory of radio transmission 1864
- Marconi radio system transmitted Morse code over the Atlantic Ocean 1901
- Sholes typewriter patented 1868
- Typewriters mass-produced 1909
- Wright Flyer 1903
- First jet airplane 1939
- First helicopter flight 1907
- Modern helicopter 1939
- Turbojet engine 1930
- Boeing 707 entered service 1958
- Airbag patented in 1953
- In 1987 Porsche 944 first car with standard driver and passenger airbags
- CD patented in 1970
- By 1991, Music CD's outsold LP's
- **Rete algorithm 1978**
- **October Rules Fest, Dallas Sheraton, Oct. 22-24, 2008**

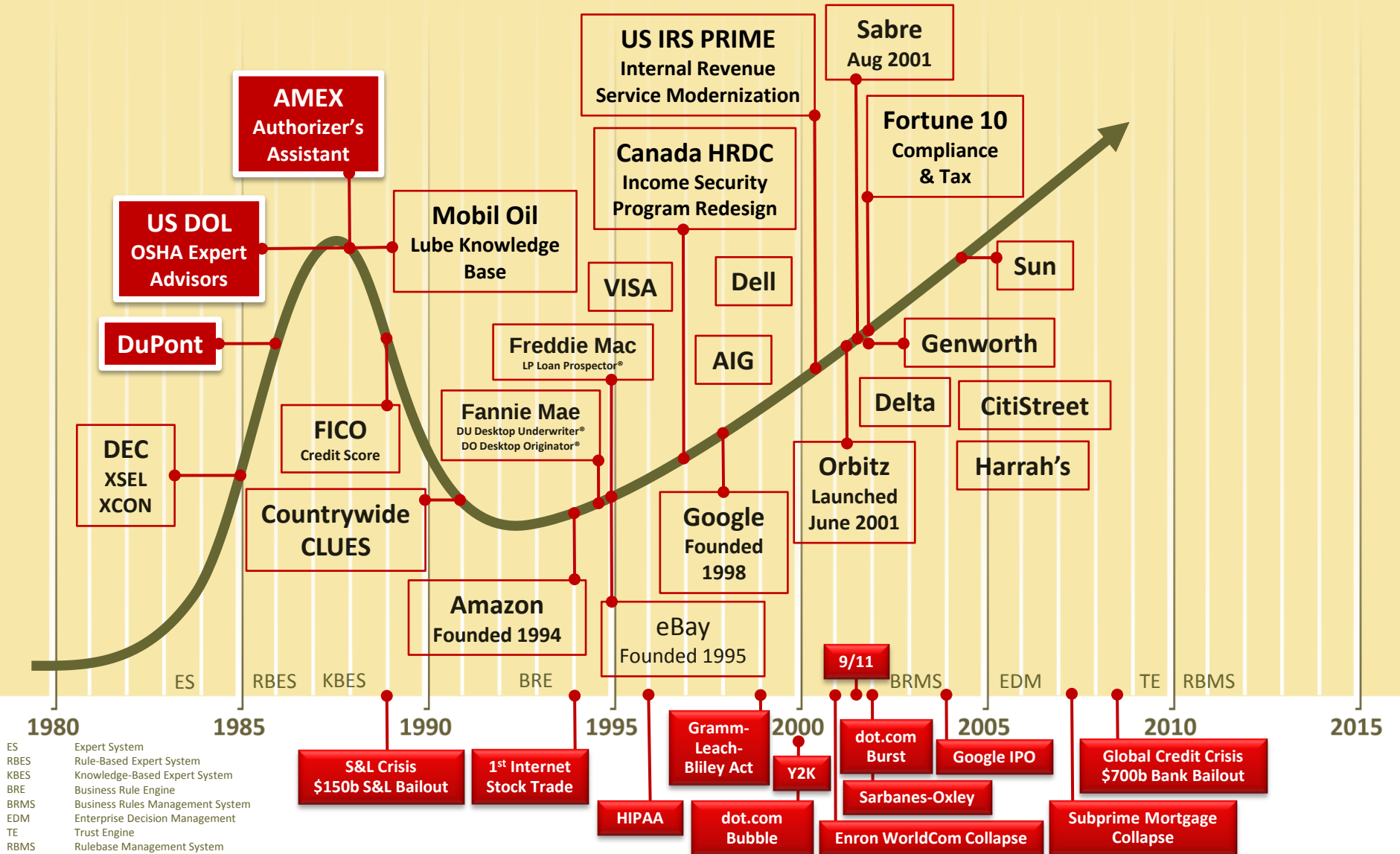
Who uses rules technology?

A.I. Expert Systems, Rulebase, and Knowledgebase Case Studies



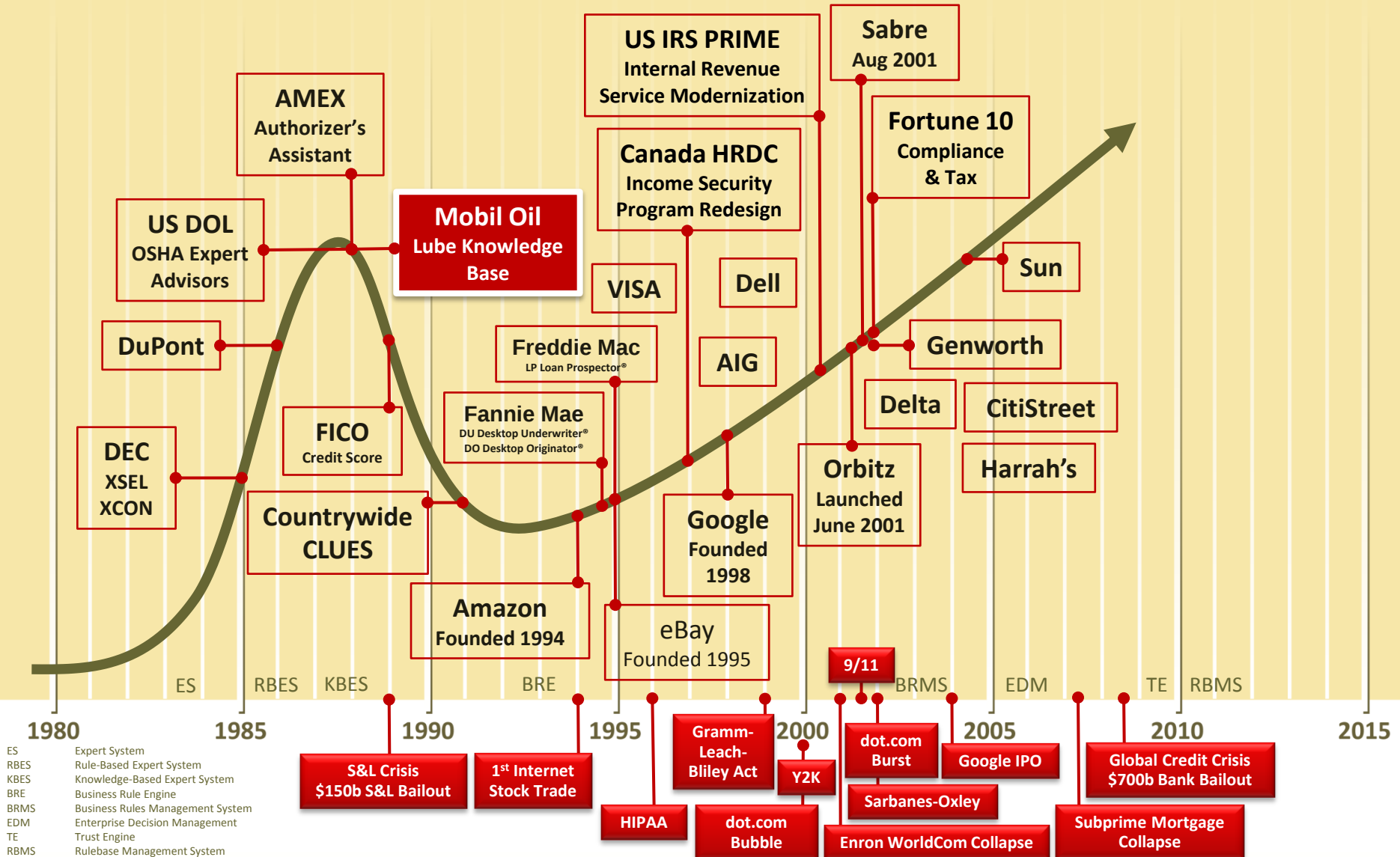
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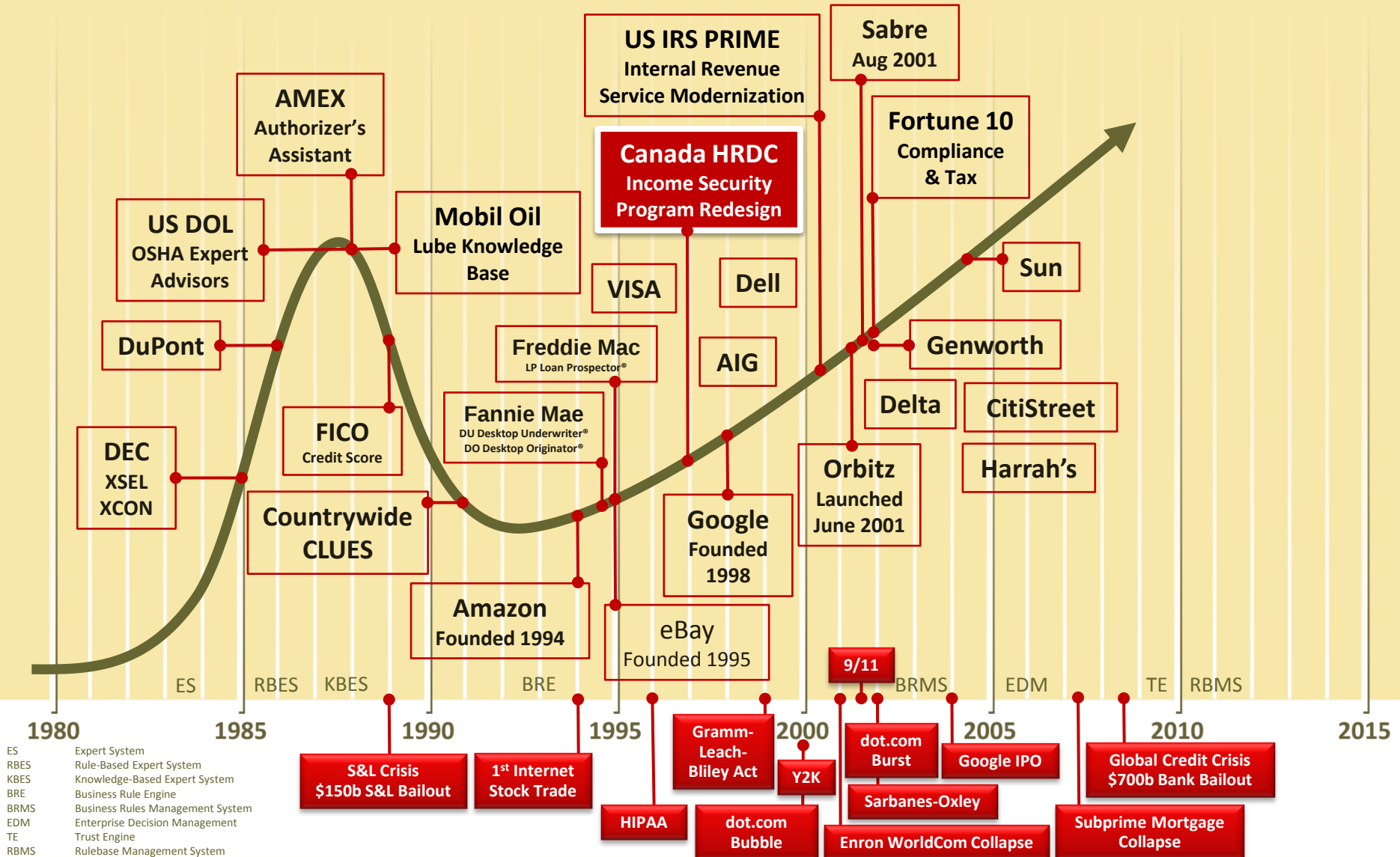
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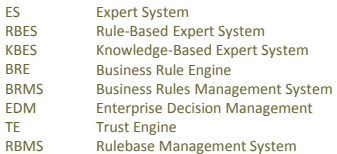


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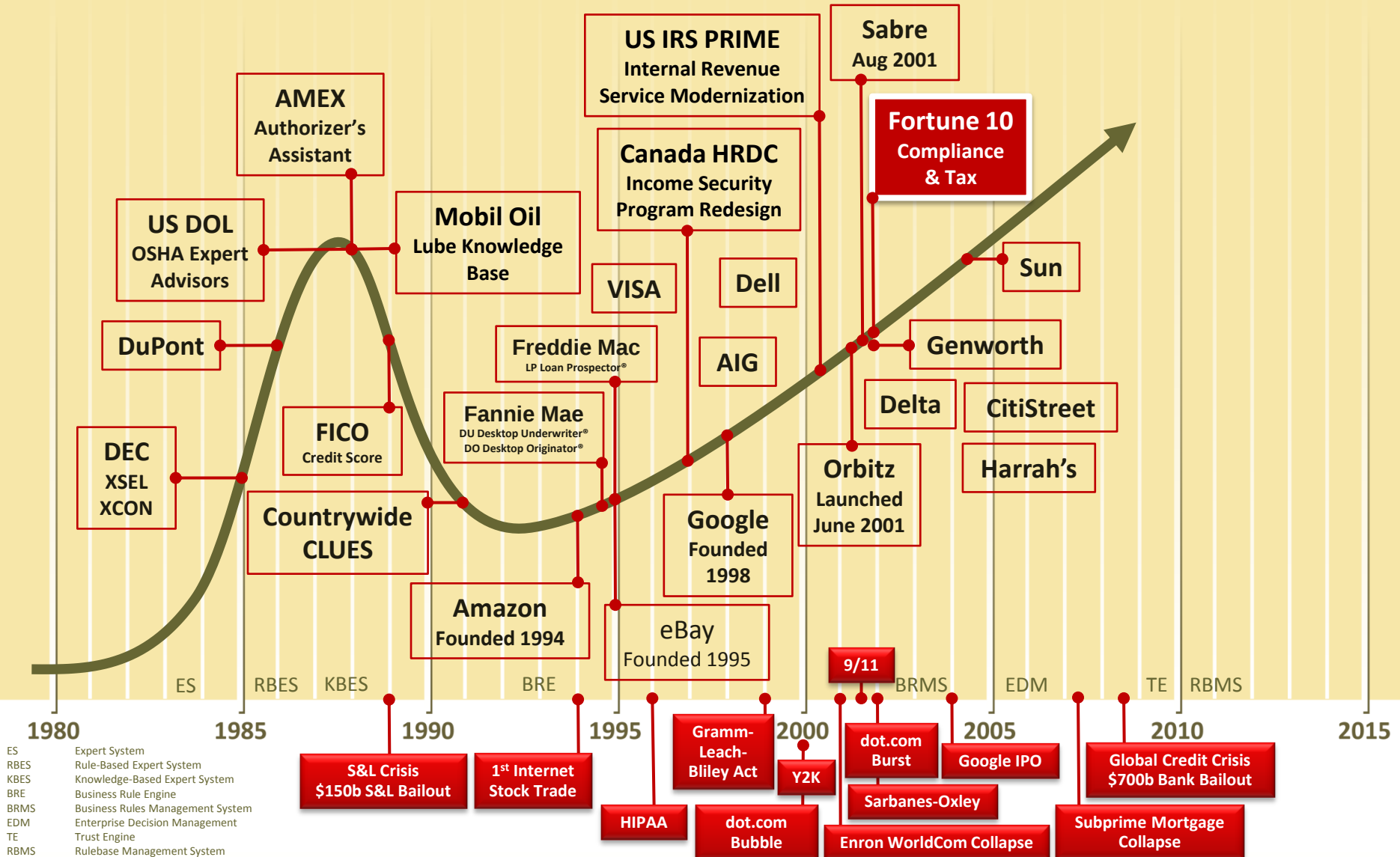


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Who uses rules technology?

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Thank you

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Thanks for your time!

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