



How Freddie Mac is Using Decision Modeling to Improve Our Data Quality

Mark Pettit

Operations Management Group

July 15, 2010

The Opportunity

- The mortgage industry is adopting the MISMO 3.0 data standards – the data set we receive for loan purchase will move from 140 to 470 loan data attributes
- The potential to perform analysis on the loan attributes pre-purchase will improve our data quality
- However, the increase in the data set will necessitate an increase in the number of business rules to be managed
- This in turn will require more complicated business analysis and a more agile change management process

Rules/Decision Maturity Models

- We used KPI's rules and business decision maturity models to understand the different levels of maturity for analysis and change management
- After analyzing the maturity models and the capabilities needed to leverage the MISMO 3.0 data set we set our interim maturity target at 2/Agile

Characteristics of a level 2/Agile maturity:

- **Business Value** – Risk of loss greatly reduced; business change becomes possible through automated analysis.
- **Business Architecture** - Project level process and business decision standards established within broader architectural standards
- **Business Stewardship** – Integration of business decisions with use cases and process flows with business metrics

The Decision Model

- We chose KPI's Decision Model as our rules management framework
- The tabular format and the grouping of rules into decisions was very intuitive to the business
- The Decision Model's principles and normalization rules give us confidence we can get repeatability and consistency amongst business analysts when performing rules analysis

Rule analysis is greatly enhanced. The ability to navigate our rules framework top down allows us to focus on the rules that are relevant to the policy changes.

Business Process	Loan Purchase Eligibility
Product	30 Year Fixed Rate
Decisions	LTV Compliance
Rule Families	Base LTV Calculation
Rules	If this then, Base LTV = X/Y

Our Project Objectives

- 1. New Implementation Process** - Implement an enhanced change management process that would allow us to increase our agility in managing our business rules
- 2. Business Rules are a Business Asset** - Change the way we think about business rules – an asset of the business

Current Process

Policy changes are analyzed by the business and revised policies are published

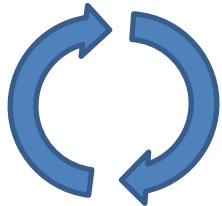


Policies are analyzed and converted into Requirements that are approved by the business



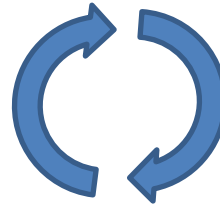
Requirements are analyzed by IT for coding and testing

What is the business logic in the system?



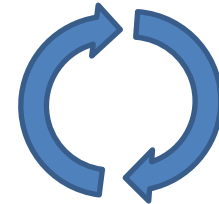
Pre-Implementation
Business led policy analysis among internal and external stakeholders

Objective 2



Implementation
Operations led policy analysis among the Business, Operations and IT

Objective 1



Post-Implementation
Operations led policy/system analysis for internal and external stakeholders (customers, regulators, audit, front office, finance etc.)

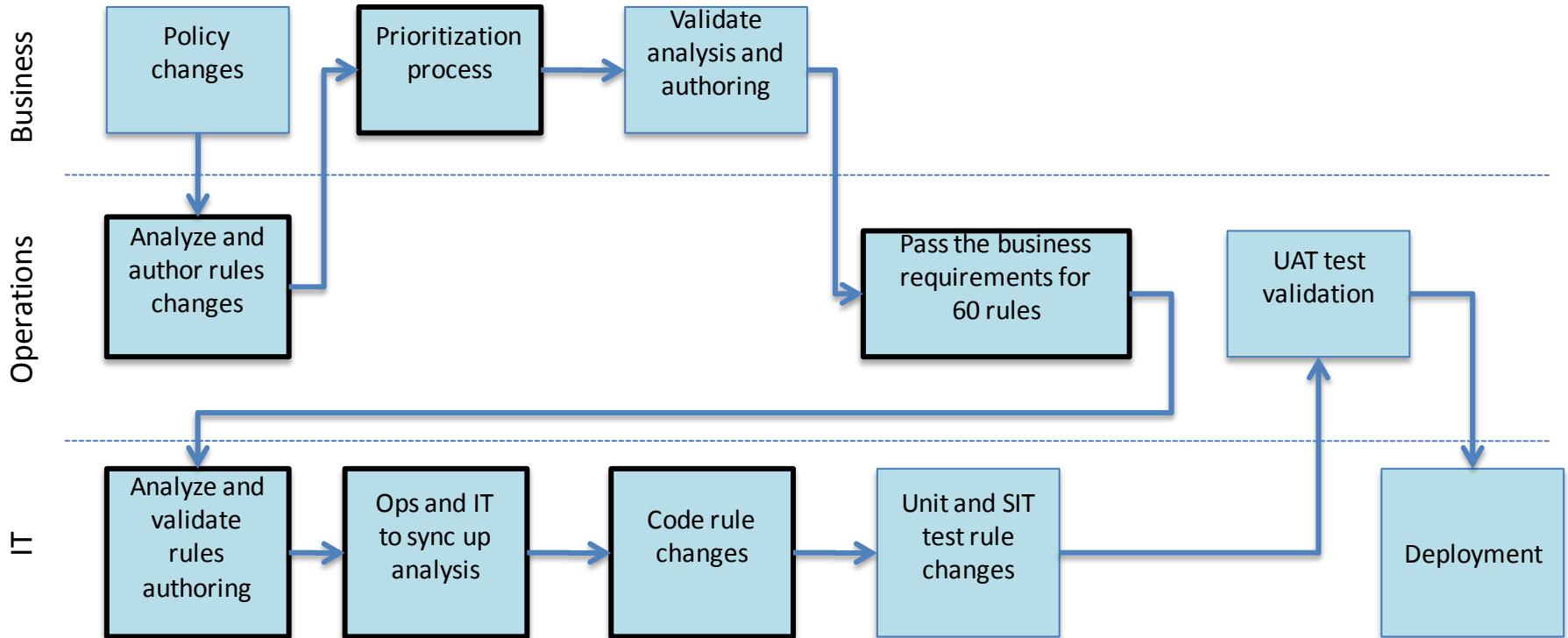
Objective 2

New Implementation Process

- Our business and operations teams have spent the last nine months creating a baseline of our core rules into a decision model based on MISMO 3.0
- As a result, we are confident the rigor of the Decision Model will greatly enhance our ability to analyze the rules with the greatly expanded MISMO 3.0 data set
- In addition, the structural integrity of the Decision Model makes the technology implementation straightforward

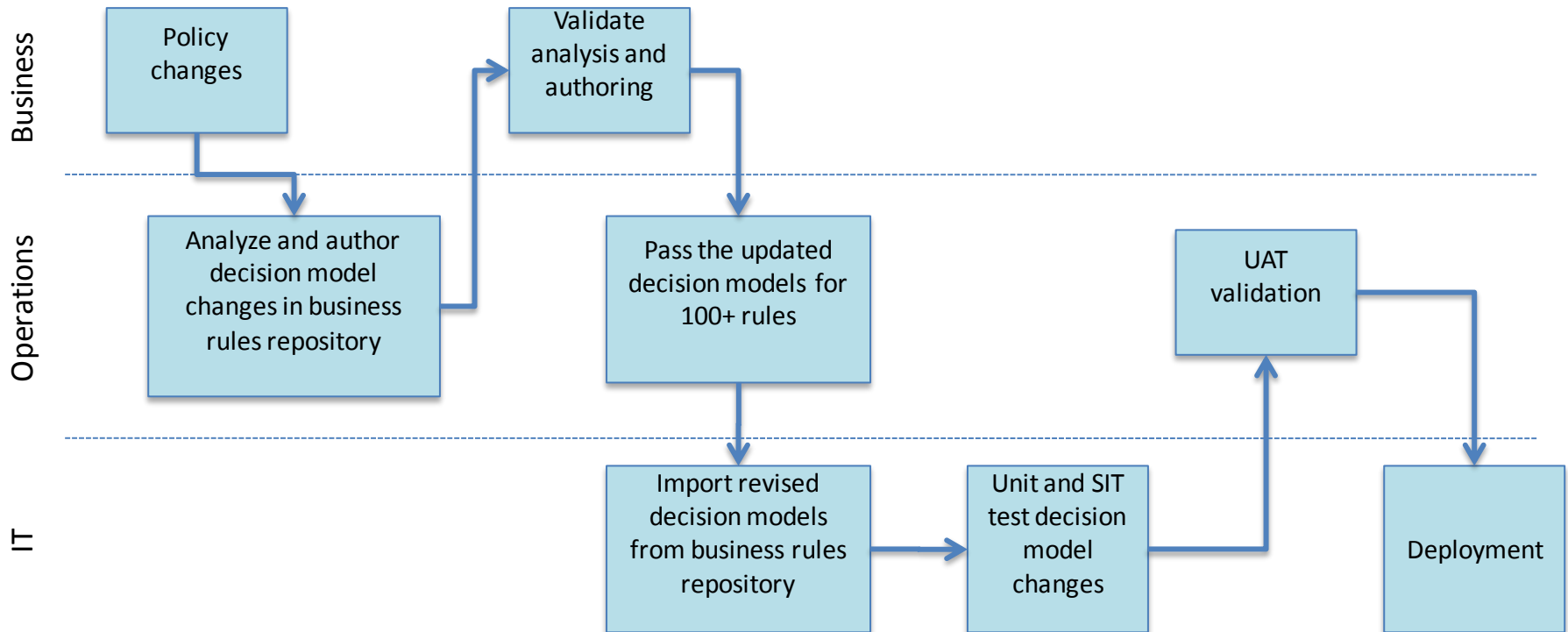
- IT and Operations have agreed to use our decision model as business requirements for business logic changes – this will greatly speed up the change process
- IT has created an Enterprise Decision Service (EDS) that will import our decision model out of our repository / rule book with minimal IT involvement
- The EDS will leverage our existing BRMS package and will be utilized by additional decision-intensive processes in the future
- In addition, the use of a COTS BRMS solution will allow us to take advantage of additional capabilities over time, such as enhanced testing and decision-warehousing capabilities

High Level “As Is” Implementation Process



Current process is a 3 week cycle time with a capacity of 60 rule changes

High Level “To Be” Implementation Process



New process is a 2 week cycle time with a capacity of 100+ rule changes

- Pre-implementation
 - » We have some examples of changes in the way we think about our business logic pre-implementation
 - The policy owners deciding it would be easiest to use our decision model to highlight policy changes
 - Other project teams engaging with us to understand the Decision Model and how it can help them
 - Customers are showing a desire to share business rules upfront

- Post implementation
 - » We have a rule book / rule repository that documents the business logic in our loan purchase process. It is in the decision model framework, approved by the business and under change management.
 - » Downstream consumers of our data will be able to see the data quality decisions that are executed on every loan. In addition, they will be able to see the results of that decision at loan purchase. This level of transparency will reduce the multitude of data quality validations that are performed by data consumers.
 - » Downstream data consumers will be able to request decision model changes that will improve data quality at loan purchase
 - » Business users have started to think about policy changes through the Decision Model framework. This speeds up operations' analysis substantially

Conclusion

- We are confident the Decision Model will enhance our ability to analyze and implement rules changes
- However, we are not at the finish line – MISMO 3.0 is effective on 9/1/2011 and there is a lot of work to operationalize our new rules architecture, The Decision Model.
- We are starting to see folks treat our rules as an asset. They are seeing the benefits of consistently documenting our business logic.
- The achievement of objective number 2, rules as a business asset, requires a multiyear effort to change how people think about rules....