Why Model Business Knowledge?

An apologia for BKMs

Dr Alan N Fish
Principal Consultant, Decision Solutions
‘Every discussion of DMN these days seems to begin with some declaration of what “business users don’t like.” They don’t like FEEL. They don’t like boxed expressions. They don’t like BKMs.’

• Bruce Silver, methodandstyle.com
What are BKMs for?
What are BKMs for?

• BKMs are for reuse of decision logic
  – “While the decision logic for a DRD may be added entirely to the decisions in the diagram, it is possible that some number of BKMs will be added either because the logic is reused (or intended to be reusable) or to provide easier management of certain pieces of business logic”.
    • Tom Debevoise & James Taylor: *The Microguide to Process and Decision Modeling*
  – “DMN Method and Style limits use of BKMs to situations where reuse of the decision logic is needed.”
    • Bruce Silver: *DMN Method & Style*
  – “Business Knowledge Models should only be applied when an actual reuse scenario is imminent.”
    • James Taylor & Jan Purchase, *Real-World Decision Modeling with DMN*
What are BKMs for?

• BKMs are for implementation
  – “There are two key knowledge objects in DMN—Business Knowledge Models (BKMs) and Knowledge Sources… Knowledge Sources are for documentation. BKMs are about implementation.”
  – “Why Doesn’t DecisionsFirst Modeler Have BKMs? Our decision modeling software ... does not capture implementation details such as business rules or decision tables in our models as this results in duplication—there would be one version in the model and another in your implementation environment.”
    • James Taylor, decisionsfirst.com
What are BKMs *for*?

- “For reuse” and “for implementation” suggest that the value of BKMs is at decision logic level: just a form of visual programming

- Some history
  - *Knowledge Automation* proposed “Knowledge areas” in DRDs
  - These became “Business Knowledge Models” in DMN DRDs
  - Given execution semantics as functionals
  - Tools support implementation of BKMs as (e.g.) decision tables

- BKMs therefore *allow* reuse and implementation, but is this primarily what they are *for*?

- A proposition...

- Business Knowledge Models are for *modelling business knowledge*
Why model business knowledge?
The benefits of modelling

• OMG strong advocates of Model-Driven Architecture

• Domain models consist of objects with three facets:
  – business concept
  – notation
  – behaviour

• Success of any modelling paradigm depends on the right set of objects:
  – cover the most important & widely-used business concepts
  – have a convenient notation
  – have a clear & natural execution semantics
  – ideally one-to-one mapping between all three facets
The benefits of modelling

• For BPMN:
  – Business concepts include Processes, Activities, Events and Gateways
  – Readily understood by business users
  – Simple notation based on previous diagrams
  – Executed in a way that seems natural
The benefits of modelling

- For DMN:
  - Business concepts are Decision, Input data, Business knowledge and Knowledge source
  - Readily understood by business users
  - Simple notation
  - Natural execution semantics
The benefits of modelling

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• Business Knowledge Model:
  – business concept: “knowledge required to make a decision”
  – notation...
  – behaviour: functional, implementing business logic

• Value of BKM lies in all three facets
### Business relevance

- Businesses are acutely aware of their **existing** knowledge assets
- How will they fit into a new decision-making structure?

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**Application score model**

**BehavioralScore Category**

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
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<tbody>
<tr>
<td>GOOD</td>
<td>1-2</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>3-4</td>
</tr>
<tr>
<td>BAD</td>
<td>5-6</td>
</tr>
<tr>
<td>N.A.</td>
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** Characteristics**

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<th>Condition</th>
<th>Points</th>
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<tbody>
<tr>
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<tr>
<td>(Application date - Main applicant.birthDate) in whole years</td>
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<td>57</td>
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<td>[39..53]</td>
<td>58</td>
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<tr>
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<tr>
<td>Months at current address</td>
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<tr>
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<tr>
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<tr>
<td>'Other' (3)</td>
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<tr>
<td>'Lives with parents' (2)</td>
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<tr>
<td>Missing</td>
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<tr>
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<tr>
<td>&gt;= 2</td>
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Business Rules Manifesto
The Principles of Rule Independence
by Business Rules Group

Article 1. Primary Requirements, Not Secondary

1.1. Rules are a first-class citizen of the requirements world.
1.2. Rules are essential for, and a discrete part of, business models and technology models.

Article 3. Deliberate Knowledge, Not A By-Product

3.1. Rules build on facts, and facts build on concepts as expressed by terms.
3.2. Terms express business concepts; facts make assertions about these concepts; rules constrain and support these facts.
3.3. Rules must be explicit. No rule is ever assumed about any concept or fact.
3.4. Rules are basic to what the business knows about itself — that is, to basic business knowledge.
3.5. Rules need to be nurtured, protected, and managed.
Business relevance

- BRG 2003
- Rules not primary
- BKMs are

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Scoping & estimating

• Decision automation = capturing & encapsulating business knowledge

• Scope of automation project determined by:
  – Decisions to be made
  – What knowledge is used to make them (and what is not)

• To depict functional scope in a diagram, use BKMs

• Single best predictor of effort for automation is quantity of knowledge to be encapsulated

• To estimate, itemize and characterize BKMs

• DRD without BKMs gives you structure of decision-making, but you cannot define functional scope or estimate costs & timescale of a project without BKMs
Project management

• In *Knowledge Automation* I propose a top-down methodology, starting with process and decision modelling

• Each BKM implemented as (e.g.) ruleset, table, score model, calculation

• Provides basis for:
  – increments of work
  – planning
  – work allocation
  – progress monitoring

• All visible on DRDs for all project stakeholders

• Value of this approach far exceeds any theoretical cost of “additional invocation logic”
Delivery & maintenance

- BKM = package of knowledge to be built and maintained
- Delivery:
  - BKM is the natural unit for delivery, based on a logical decomposition of scope
  - Using BKM only to refactor decision logic for re-use is bottom-up and opportunistic
- Maintenance:
  - Knowledge maintenance interface should reflect structure of DRD
  - Knowledge editors grouped according to roles and responsibilities of users
  - This does not necessarily correspond 1:1 with decisions
• ‘One man’s “clutter” is another’s essential component.’
  – Bruce Silver, *DMN Method & Style*

• We are using tools

• If BKMs are clutter,
Clutter

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• We are using tools

• If BKMs are clutter,

• **SWITCH THEM OFF**
What is DMN for?
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• Modelling structure of enterprise decision-making
  – Decisions, dependencies on data & authorities
  – BKMs not necessary
What is DMN for?

- Modelling structure of enterprise decision-making
  - BKMs not necessary

- Implementing decision services
  - Decision services encapsulate business knowledge
  - BKMs very useful for scoping, estimating and management, and a natural basis for delivery & maintenance
What is DMN for?

- Modelling structure of enterprise decision-making
  - BKMs not necessary

- Implementing decision services
  - BKMs very useful

- Making knowledge marketable
  - Knowledge economy, e.g. FICO analytic cloud
  - (In FICO DMS, component = BKM)
  - BKMs are the obvious vehicle, as a reusable form of knowledge
What is DMN for?

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- Making knowledge marketable
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- Understanding your knowledge assets
  - Prediction: auditors valuing a corporation will have to study DRDs
  - Two aspects of value:
    - value of decisions (in terms of optimised results) – profit and loss account
    - value of business knowledge (as an asset or investment) – balance sheet
  - BKMs are vital
What is DMN for?

- Modelling structure of enterprise decision-making
  - BKMs not necessary
- Implementing decision services
  - BKMs very useful
- Making knowledge marketable
  - BKMs are the obvious vehicle
- Understanding your knowledge assets
  - BKMs are vital
- BKMs are becoming more important
That’s why you should model business knowledge.
Thank You

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