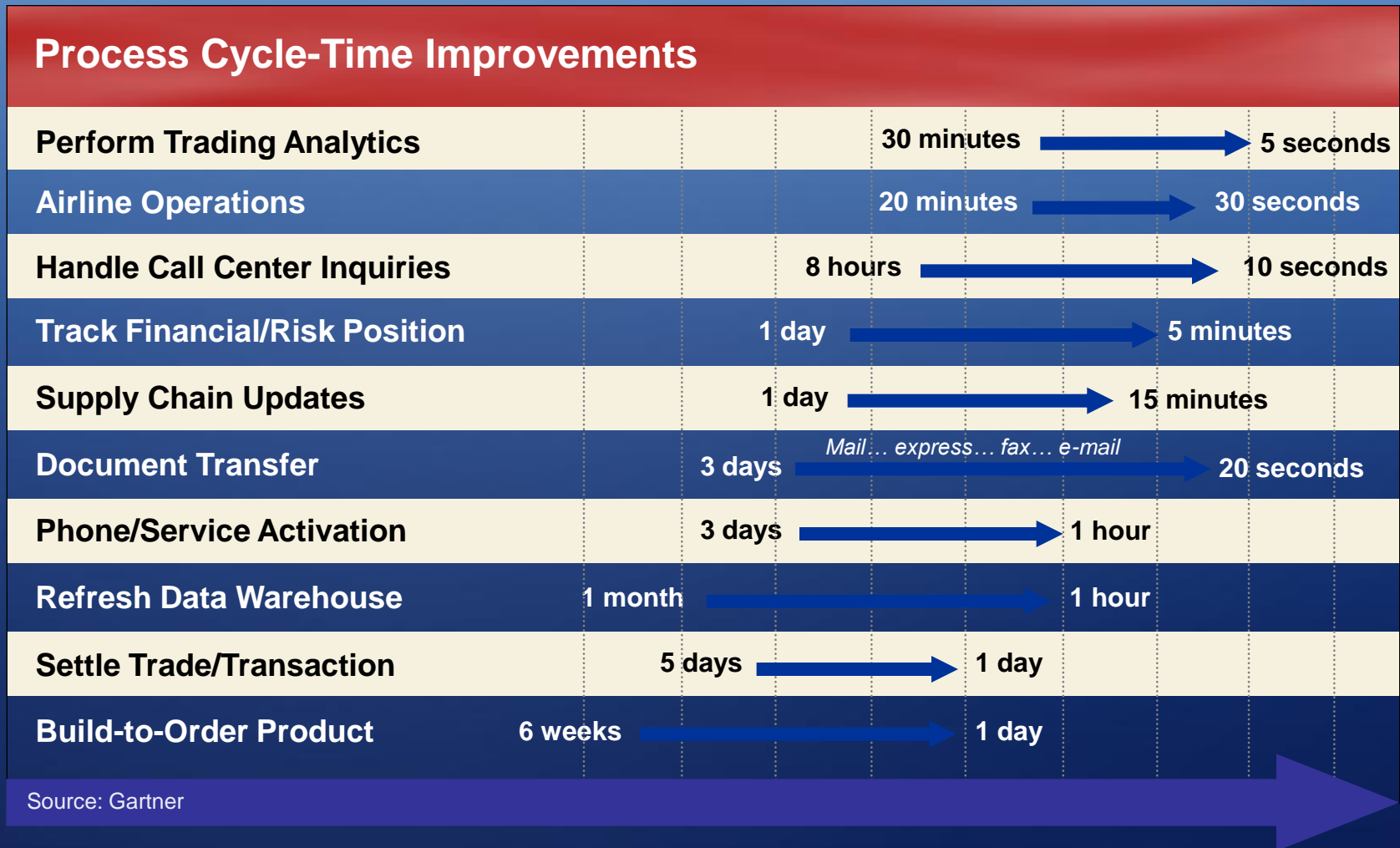




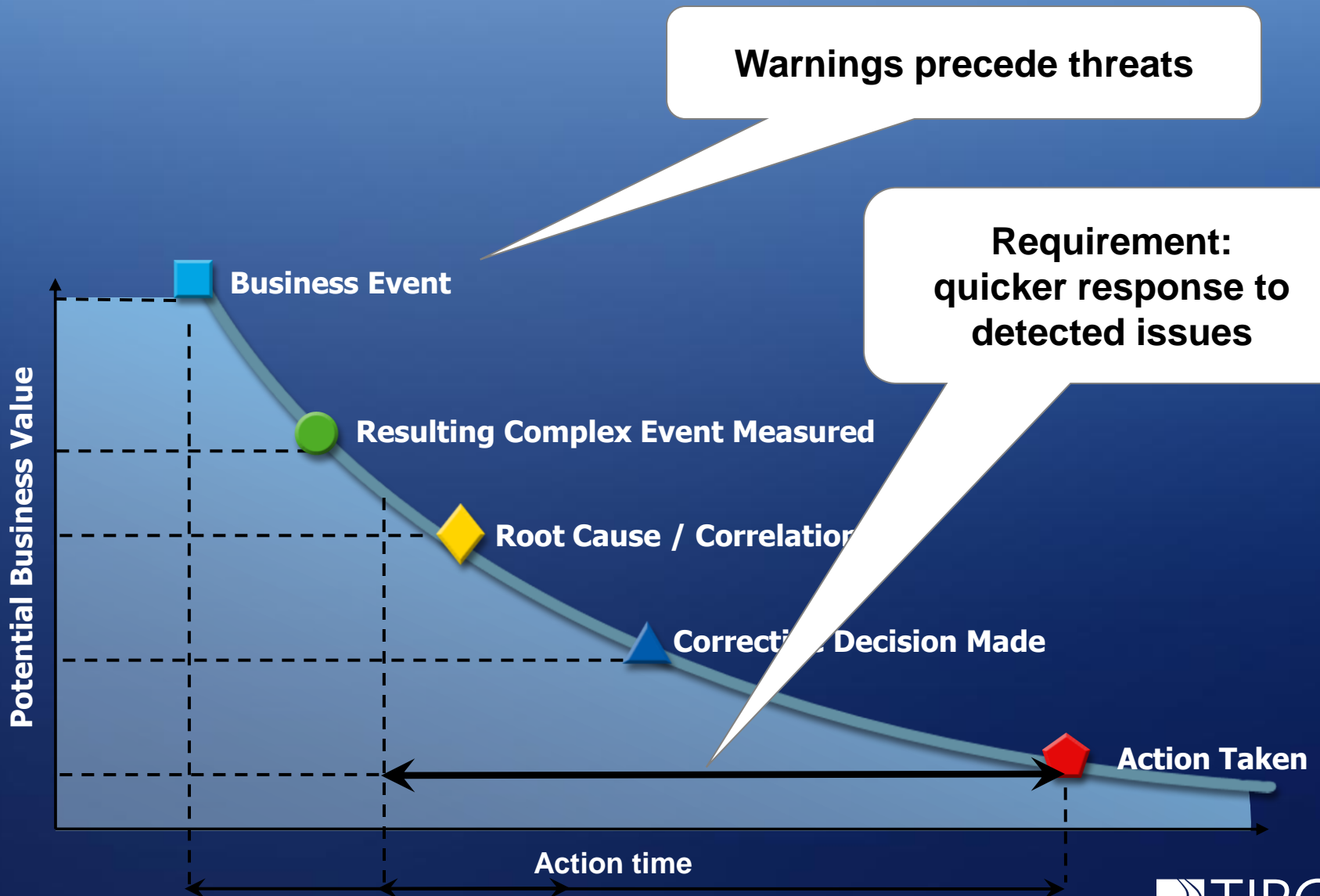
CEP and Decision Management

Paul Vincent, CTO Business Rules and CEP

More Decisions...



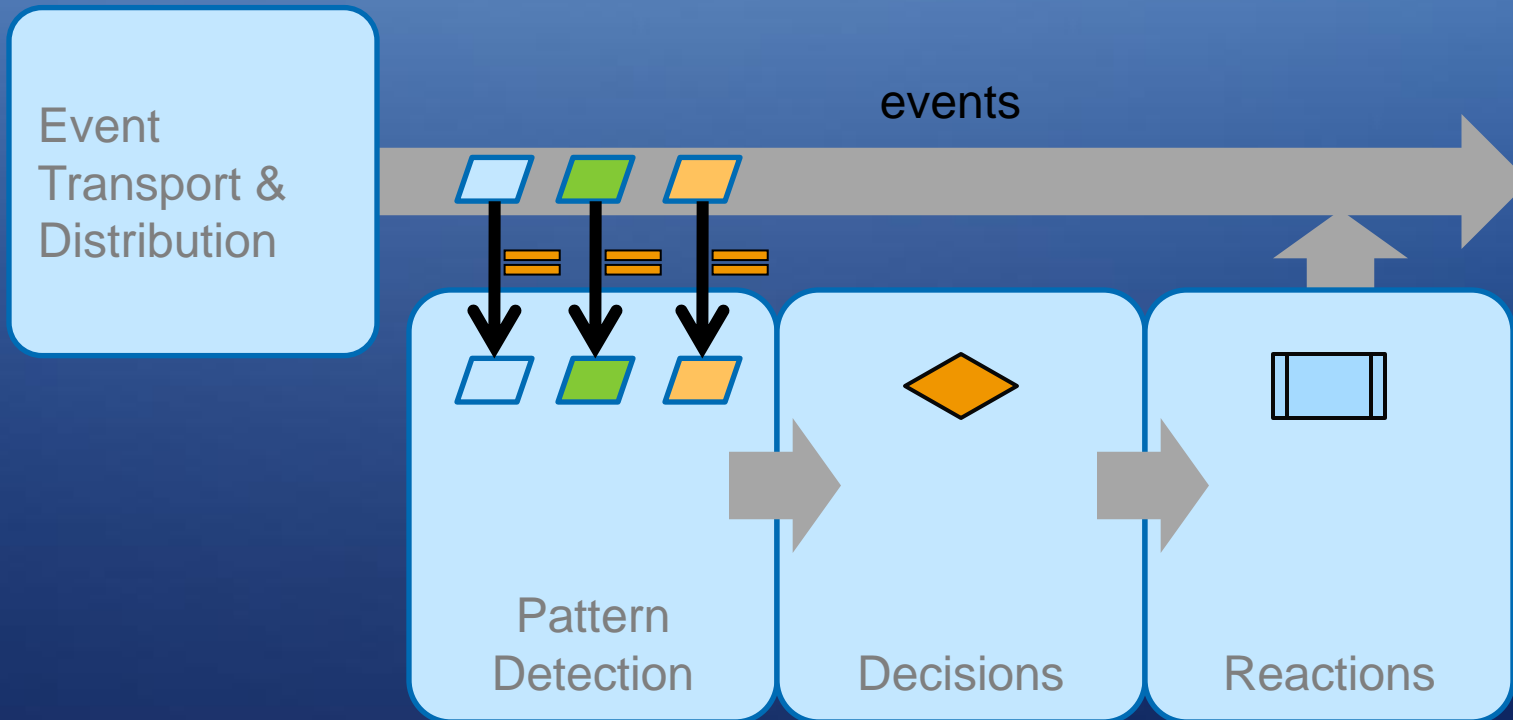
Faster Decisions...



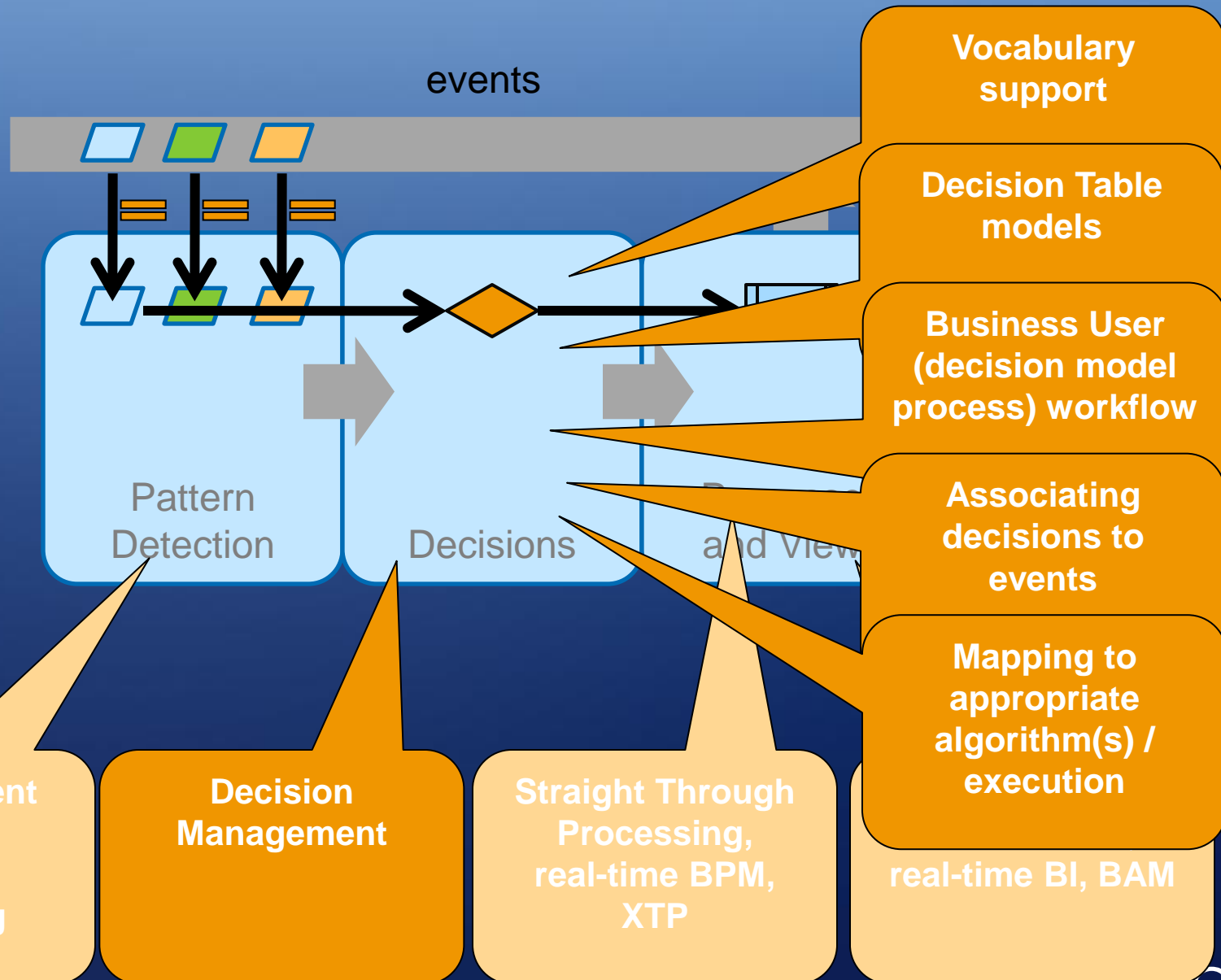
Also...

- We don't always know when we will need to make a decision in advance (i.e. In a BPM flow)
- Decisions are driven by some event (i.e. When do I need to decide this?)
- Decisions depend on context like time, status, etc

What is “CEP”?



CEP Coverage of Decisions



Decision Tables TIBCO-style

Decision Tree option

Exceptions table

Validation, test cases, diffs etc

Filter tables by column and values

Aliases

Effective Dates

Static verification

Refactorable multi-hit

Analyzer for rule verification

Table import from Excel

Redundancy (exhaustiveness) options



Decision Manager: validation and test cases

The screenshot displays the TIBCO BusinessEvents Decision Manager application. The main window is titled "Test Data" and contains a table with columns: Application, Name, Gender, Age, Address, HasDriver..., SSN, Income, CreditScore, Status, and Eligible. The table lists six test cases for various users. Below the table are buttons for "Import", "Export", "Save", "Start Test", "Stop Test", and "Shutdown Engine". A console window at the bottom shows the execution log, including messages like "Invoking Application_VirtualRuleFunction" and "APPLICATION REJECTED".

Test Data Table:

Application	Name	Gender	Age	Address	HasDriver...	SSN	Income	CreditScore	Status	Eligible
/Concepts/A... User2	User2	Male	30	USA	true	1234567	110000	150		true
/Concepts/A... User3	User3	Male	40	USA	true	2234567	50000	80		true
/Concepts/A... User4	User4	Male	35	USA	true	3234567	130000	200		false
/Concepts/A... User5	User5	Female	40	USA	true	4234567	40000	130		true
/Concepts/A... User6	User6	Female	22	USA	true	5234567	50000	90		true

Console Output:

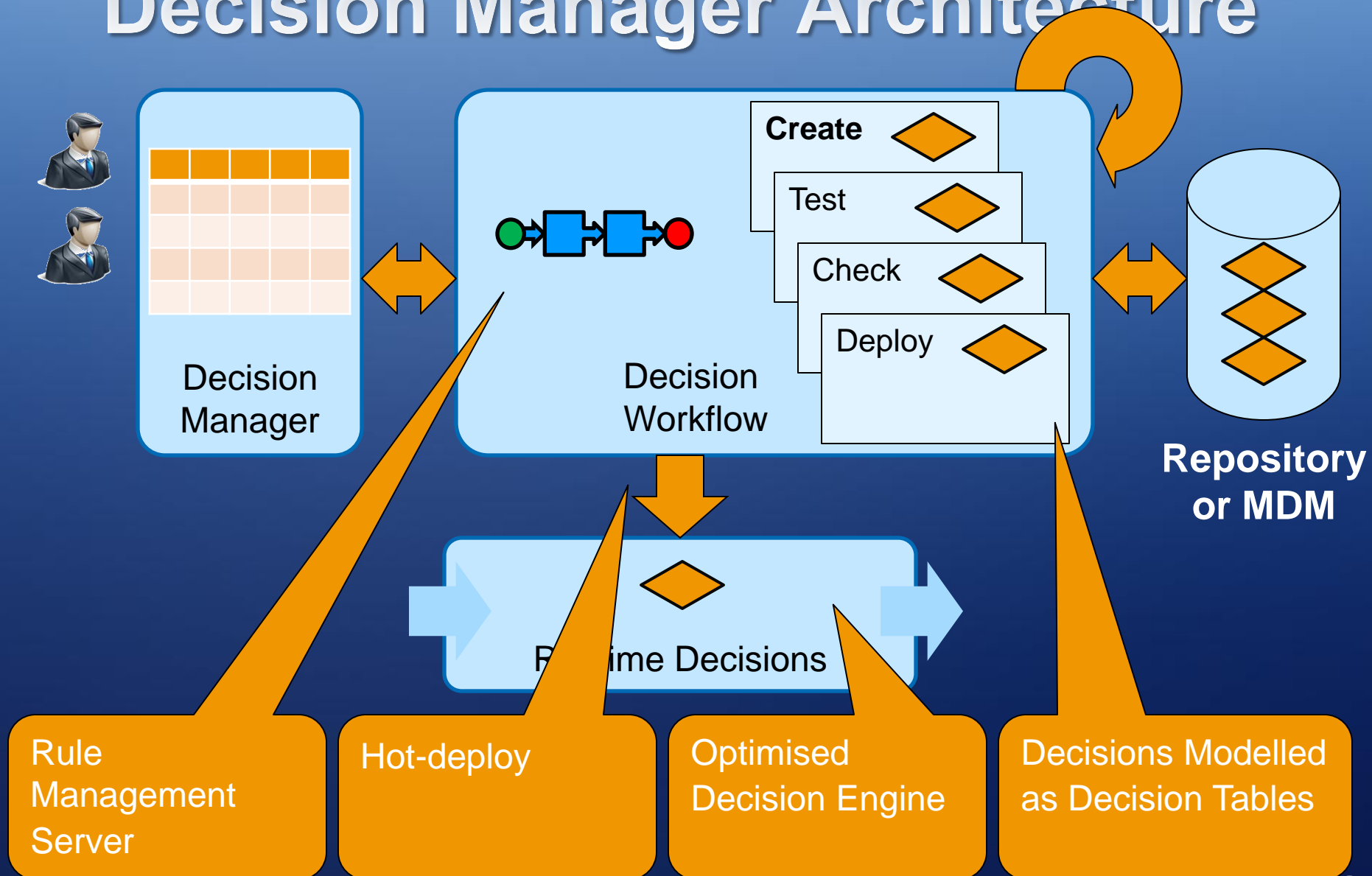
```
BusinessEvents Console
- [CreditCardApplication_BAR] *****Invoking Application_VirtualRuleFunction*****
- [CreditCardApplication_BAR] *****APPLICATION REJECTED*****
- [CreditCardApplication_BAR] After Invoking Application_VirtualRuleFunction
- [CreditCardApplication_BAR] Application Name = LowIncome-4234567
- [CreditCardApplication_BAR] Application Status = Rejected
- [CreditCardApplication_BAR] Application Eligible = true
- [CreditCardApplication_BAR] *****Invoking Application_VirtualRuleFunction*****
- [CreditCardApplication_BAR] *****APPLICATION REJECTED*****
- [CreditCardApplication_BAR] After Invoking Application_VirtualRuleFunction
- [CreditCardApplication_BAR] Application Name = LowIncome-5234567
- [CreditCardApplication_BAR] Application Status = Approved
- [CreditCardApplication_BAR] Application Eligible = true
```

Test case
management

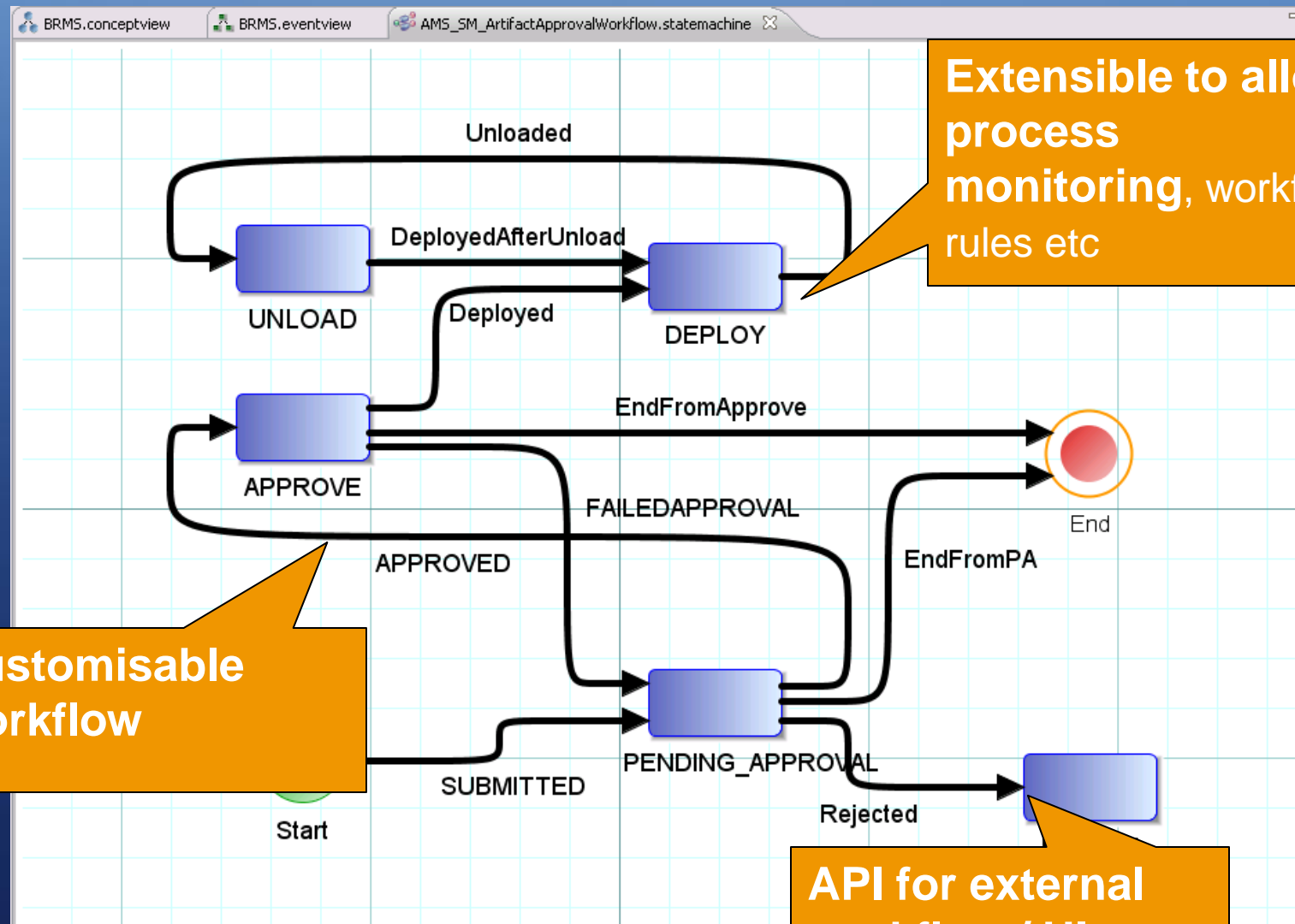
Test case import
from Excel



Decision Manager Architecture



Decision Manager: Workflow



Extensible to allow process monitoring, workflow rules etc

Customisable workflow

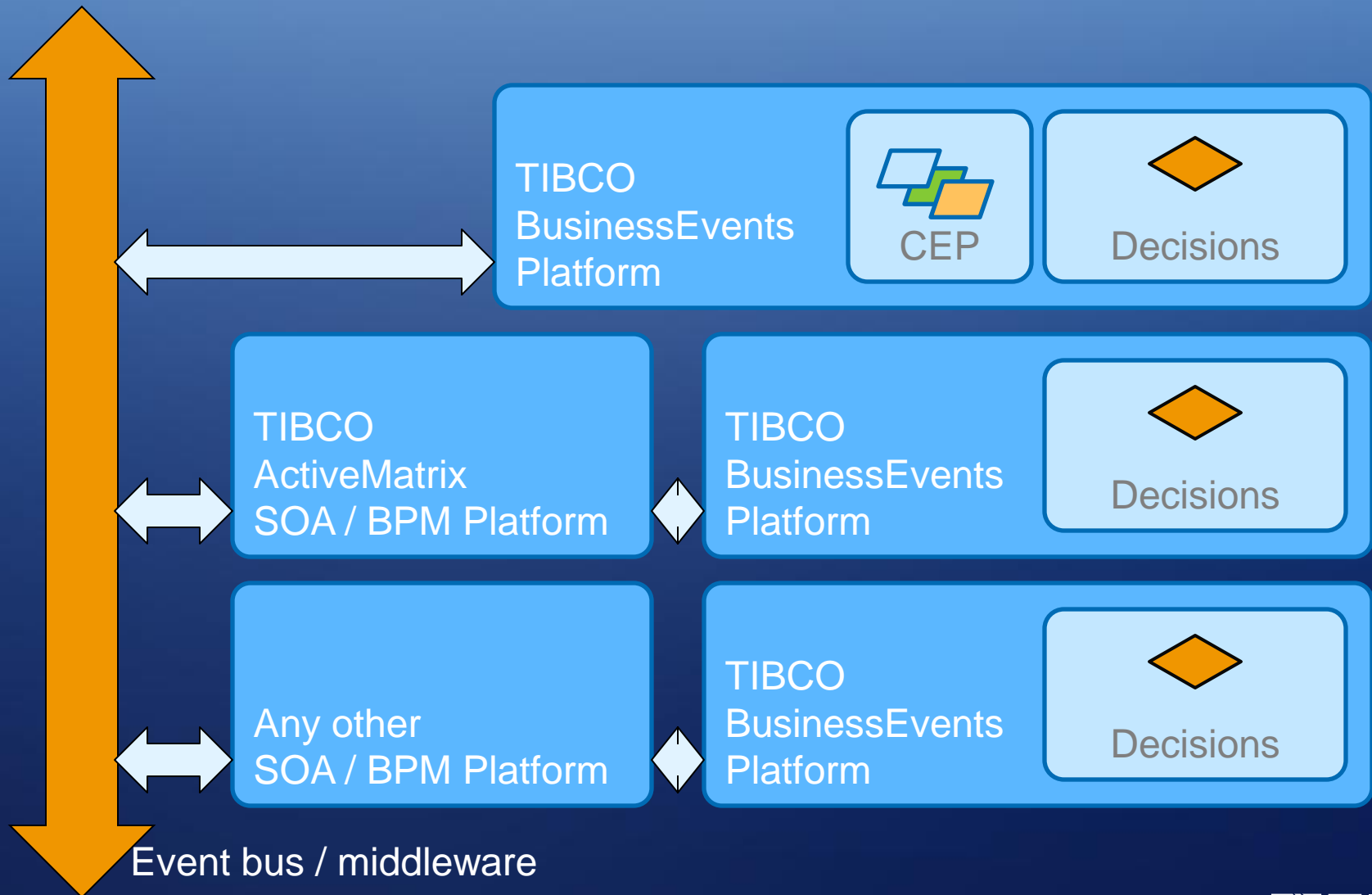
API for external workflow / UI

BUT...

Decisions are Context Driven

- **The Decisions I need to make depend on the context:**
 - If I buy a plane ticket, should I be offered travel insurance?
 - Have I previously purchased travel insurance?
 - And if so is it still valid?
 - Did it cover the type of journey specified by the ticket?
 - Has my status changed that might invalidate the previous insurance?
 - Etc etc
- **Context includes data and time...**
OR
“Where am I in my process”

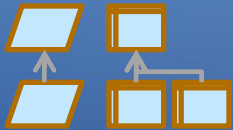
Options



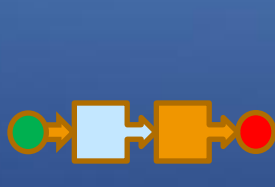
Context-based Decision Modelling

- What are my goals and end-states?
- What models best support the construction of such decisions
- What about the management, metadata, etc etc?

Models we use in CEP



Event Model and Concept Model
for static relationships



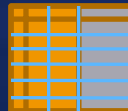
State Model
for dynamic, time-based concept lifecycles



Query Model
for sets of concepts + windows of events

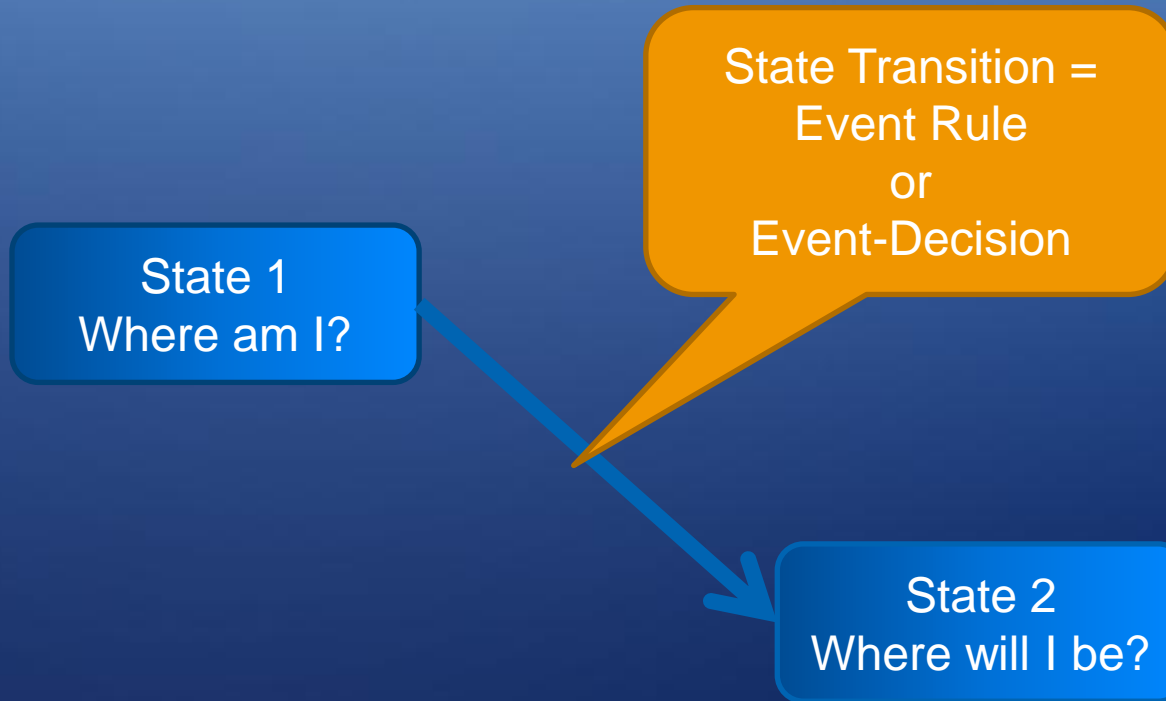


Inference Rule Model
for business knowledge



Decision Model
for managed decisions

Stateful Decisions?



Concluding Remarks

- **Decision Modelling part of Decision Management**
- **Decision Modelling <> Decision Maintenance**
- **Decision Modelling **is** a process**
 - supported by methods / methodologies
 - should use common/standard notations & underlying principles/metamodel
- **Base artifacts (eg tables) commonly supported**
- **Business analysis artifacts (eg goal networks) “less commonly supported” eg only via process or state**