Business Context Equivalence

Using REA and UMM for Interoperability

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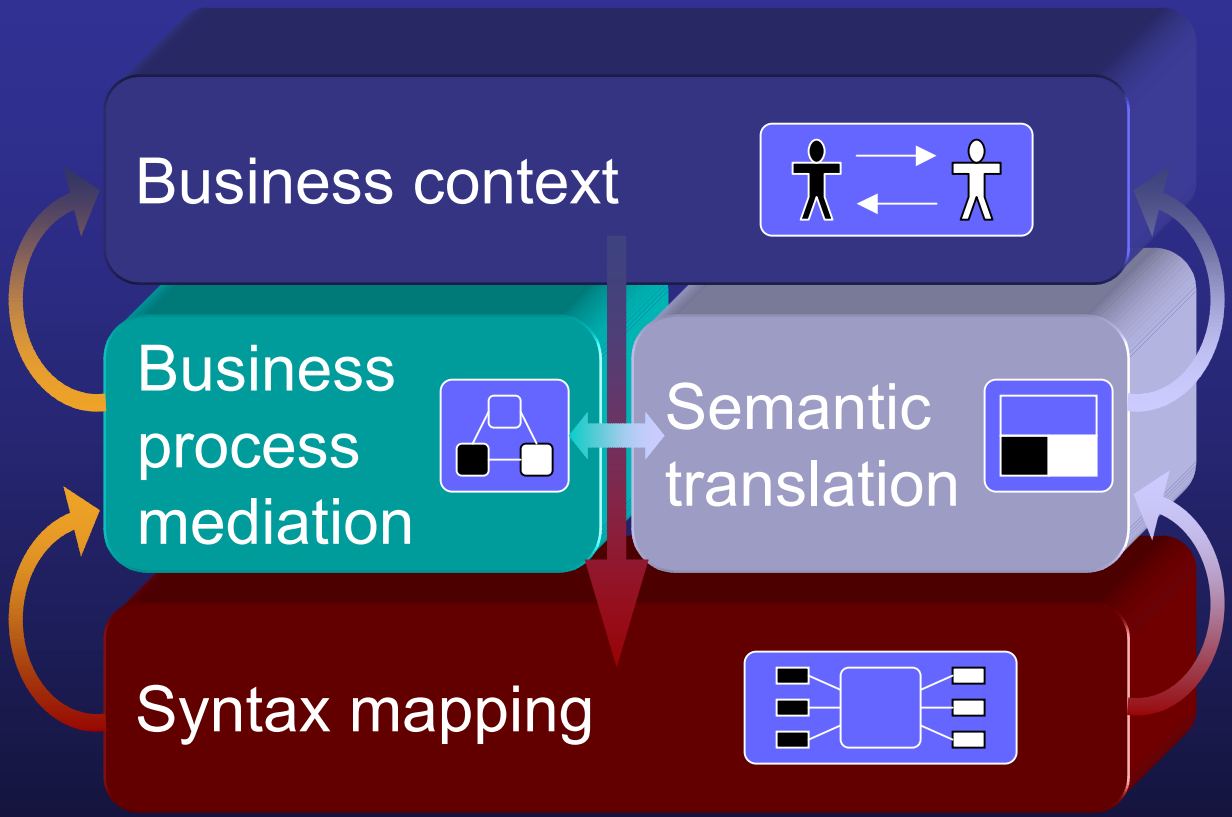
ECIMF Principles

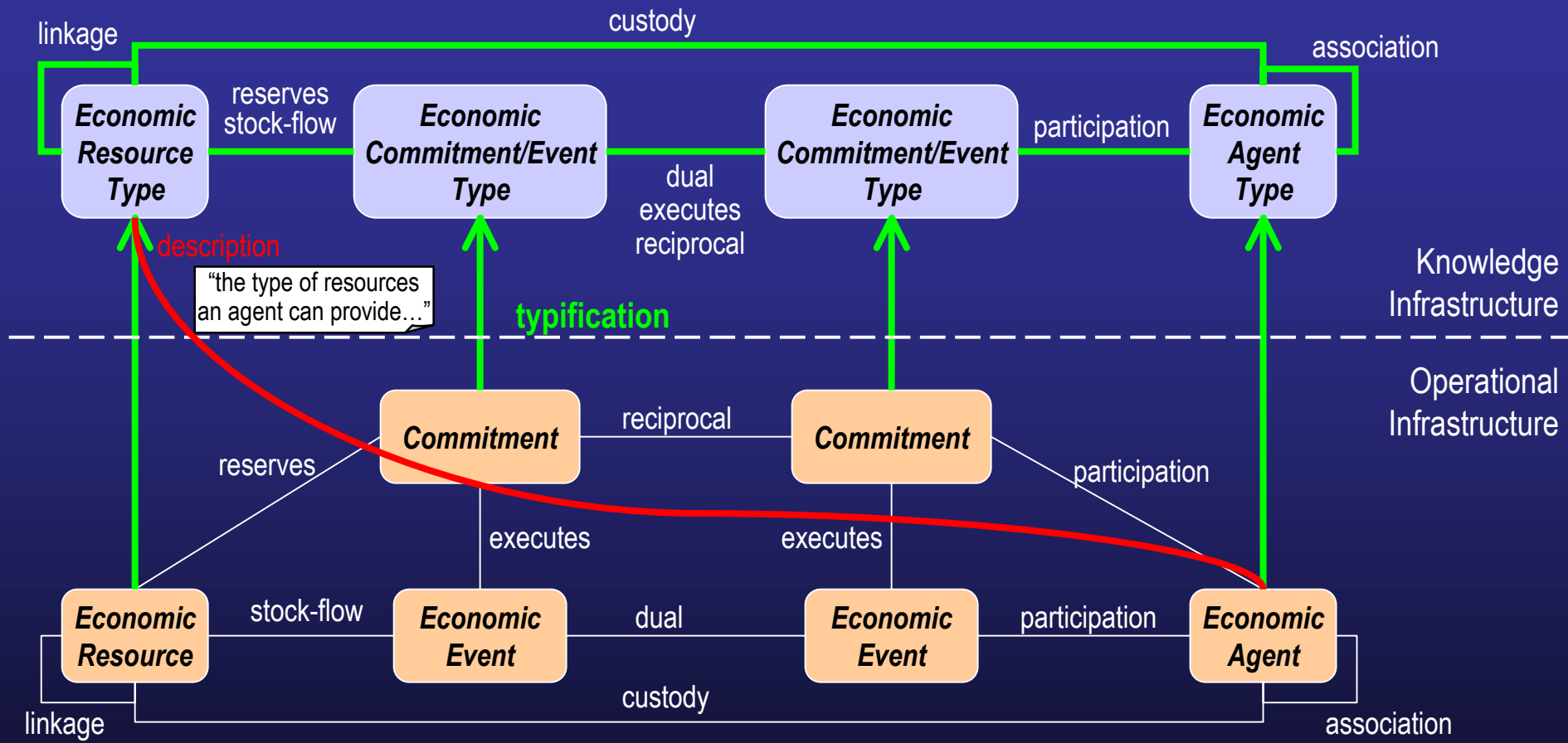


- Top-down analysis
- Structured, iterative process
- Business Context: the “plain business” understanding

The need for Business Context

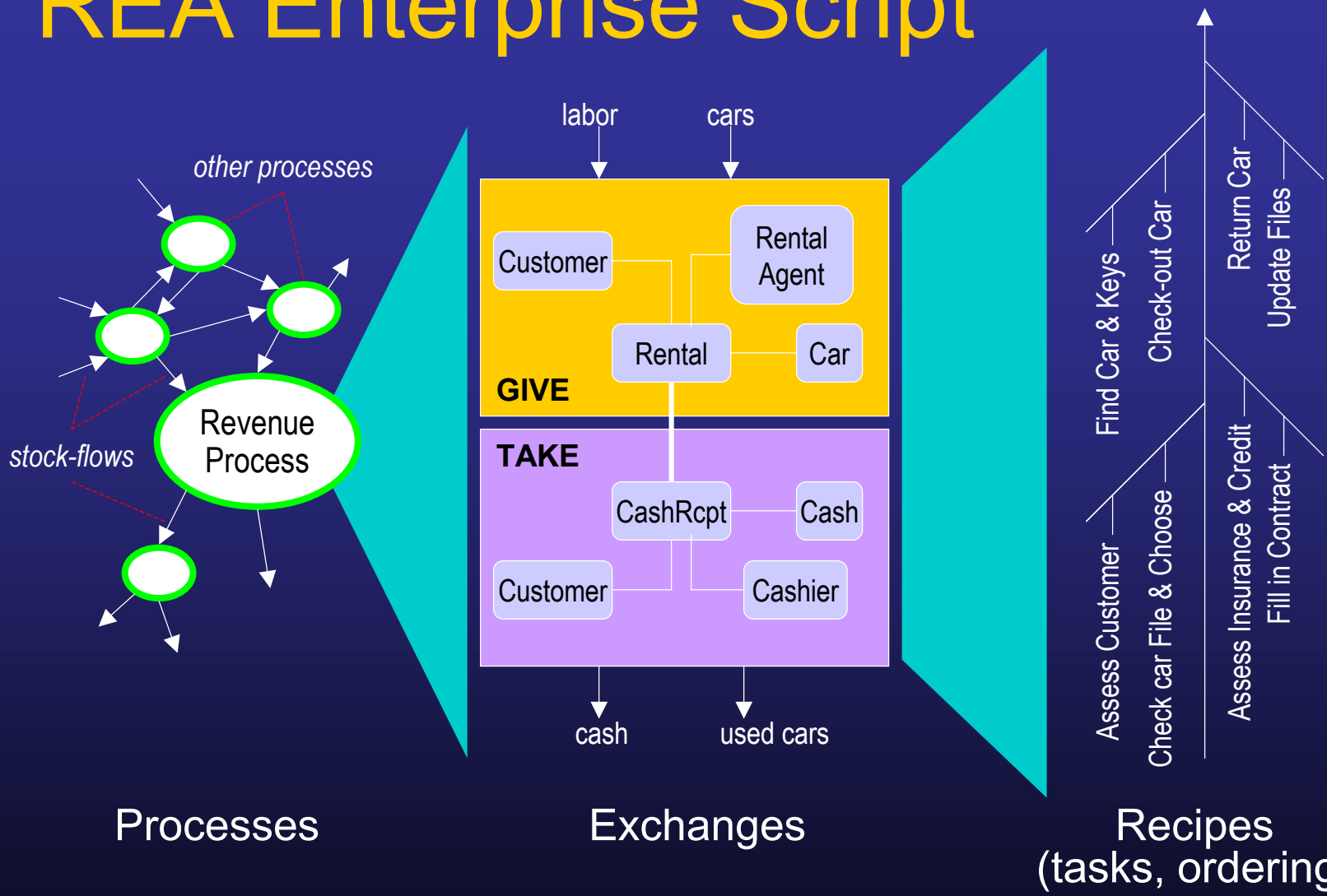
- **IT infrastructure exists to support business goals**
  - IT systems don't exist in a void
  - IT systems play specific roles in the business
- **Business context is crucial**
  - Information is useful only when considered in the business context
  - Business context determines the meaning of data and information exchange
- **Business flow before technical flow**
- REA is often used as the underlying meta-model

REA Enterprise Modeling



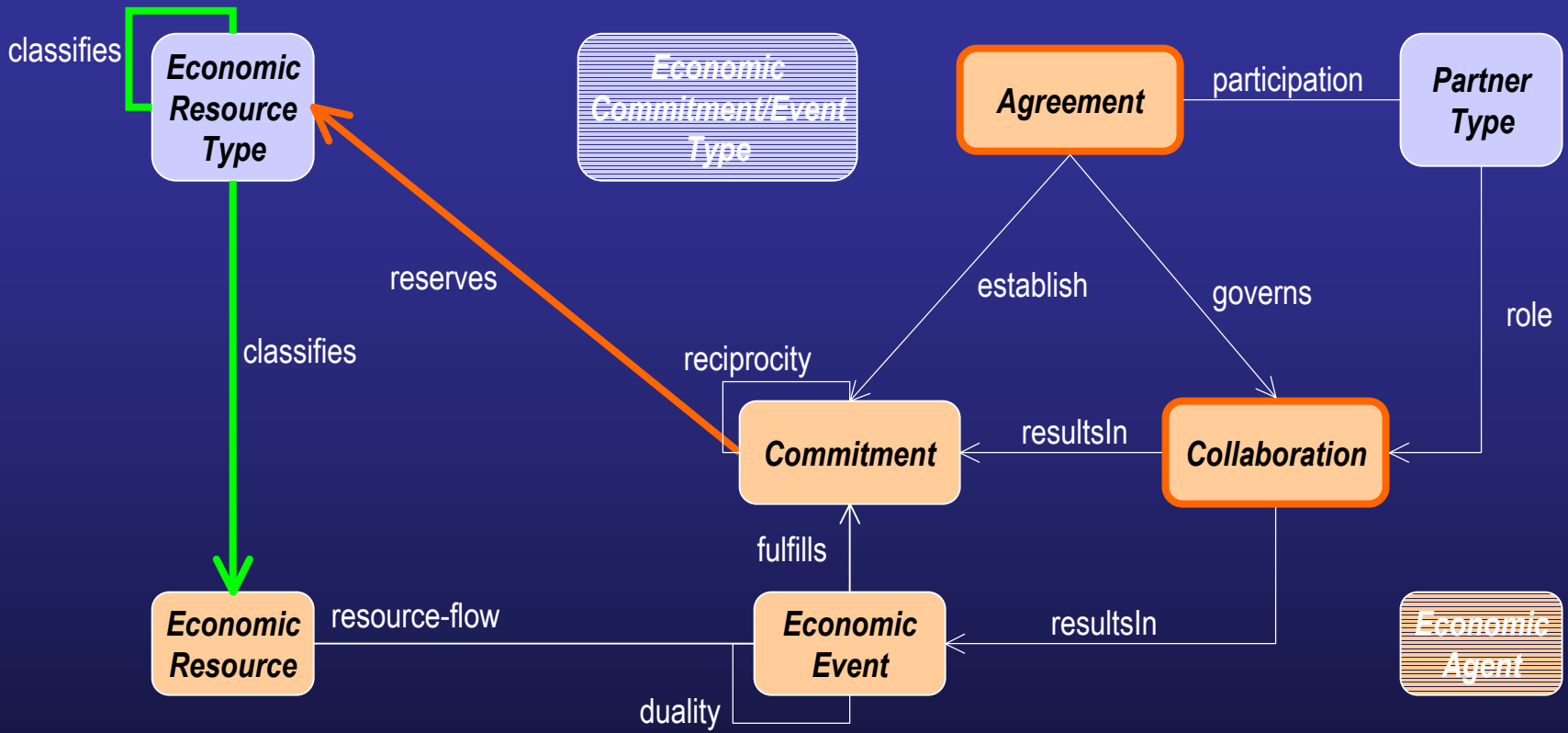
- Economic exchange as a central concept
- Recently extended to provide a comprehensive meta-model
- Non-standard modeling notation (can be expressed in UML)

REA Enterprise Script



- Enterprise script is a series of processes, consisting of exchanges realized with recipes (ordered tasks)

UMM Business Requirements View*



- Slightly different, but compatible with REA
- More focused on technical than human aspects
- Provides clear connection with the dynamic aspects
- Uses standard UML diagrams

* simplified

ebXML Economic Modeling Elements

- Closely follows a subset of UMM-BRV
- Non-normative and disconnected
  - Status of “Technical report”
  - No specified influence on the BPSS formation
- BUT: Very useful worksheets in bpWS
  - Could be recommended as one of the Business Context modeling procedures in FIG
- There is hope for the tools to support it …

REA vs. UMM vs. ebXML

- All are suitable for acquisition of the business context knowledge
- REA provides more human oriented view
  - should be easier to understand for the business people
- UMM/ebXML provide more technology oriented view
  - should be easier to understand for the technical people
- Each can provide similar results:
  - Economic exchange view
    - class/collaboration diagram
  - Business process view
    - activity diagram

Business Context Equivalence

- What is required in traditional business?
  - Both partners need to agree on:
    - The type of resources exchanged
    - The timing (event sequences/dependencies)
    - The persons/organizations/roles involved
  - Each of the partners needs to follow the commitments under legal consequences
- Business Context models need to be equivalent
  - Partners need to play complementary roles
  - Expected resources need to be equivalent
  - Timing constraints need to be mutually satisfiable
    - The sequence and dependencies between events need to be the same, even though the individual interactions may differ
  - Transaction boundaries need to be preserved
    - Especially those, which cause legal consequences

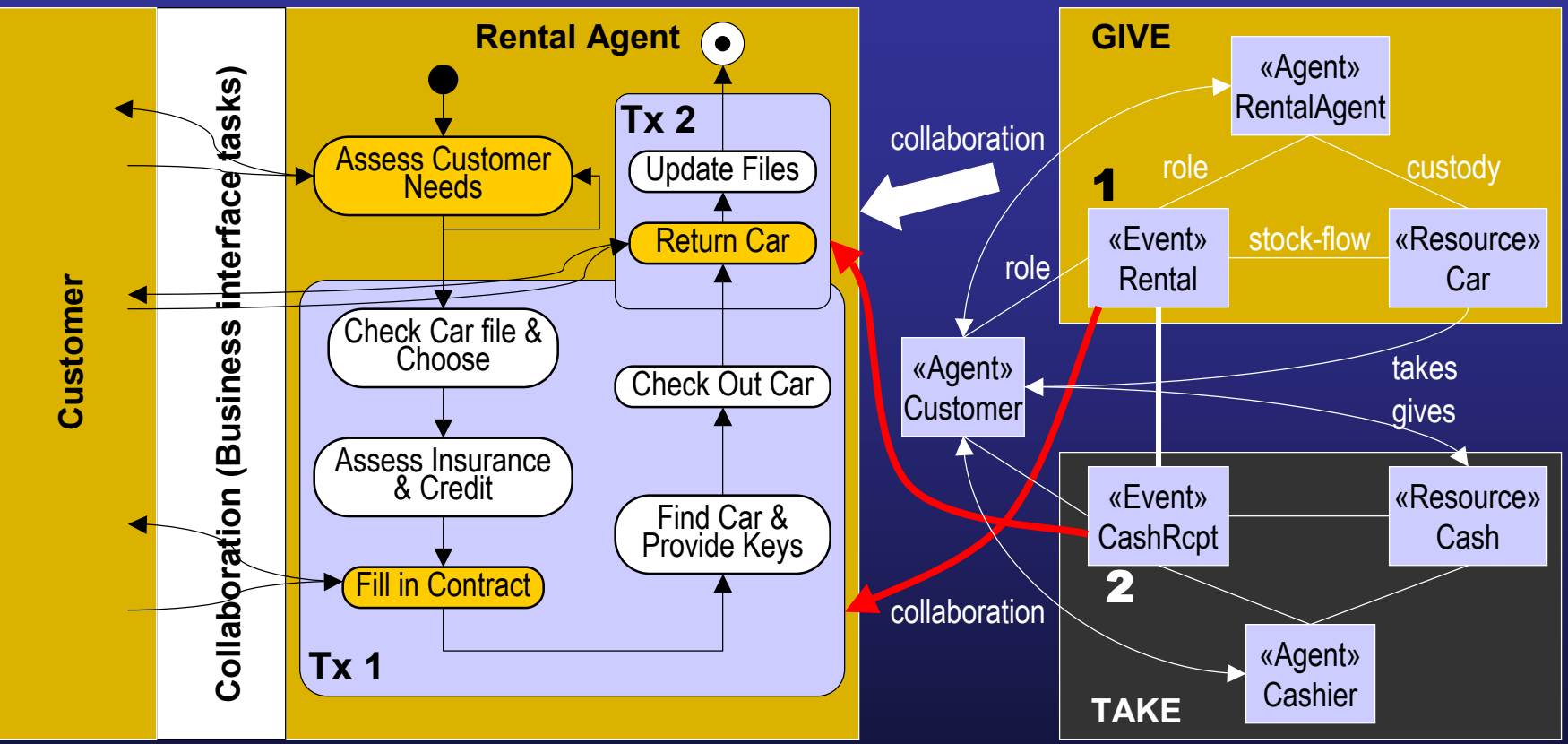
Pragmatic Conclusions

- Use whichever best suits the scope of your work
  - Since the traditional bias is towards technology, REA seems a better choice to counter-balance this…
- REA is probably more understandable in the SME context
  - Less technical/modeling knowledge required
  - Less complex scenarios to model
- Use UMM and ebXML/bpWS for practical in-depth guidance
  - The ebXML Worksheets provide a good tool for knowledge acquisition
    - Though they need to be re-adapted for use with REA!

Business Context: application

- Economic exchange view
  - Events sequence constraints
  - Stock management constraints
  - Legal constraints
- Business process view
  - High-level transaction boundaries
  - Relationship to business activities
  - Relationship to business documents
- All above aspects will limit the degrees of freedom in other integration layers

Example: Business Context model



- Customer and RentalAgent follow the same collaboration protocol
- Customer, RentalAgent and Cashier execute commitments according to the Contract
- Rental occurs first, and then CashReceipt (within time constraints)
- The transaction boundaries are related to Events (and legal constraints)

Example: Application

- Business Context Equivalence:
  - Both partners play complementary roles
  - Both partners expect first Rental, then CashRcpt
    - They still need to agree on the exact timing!
    - The collaboration tasks have to be grouped into 2 transactions, which correspond to Events
  - Both agreed to the type of Car and amount of Cash
- Conclusions from the Business Context model:
  - The assessment of needs doesn't cause any Events
    - I.e. the Customer can repeat this step as many times as he wants without any legal obligations on either side
  - The success of Return Car should depend on success of tasks related to CashRcpt
    - This collaboration (Customer - Cashier) should be recorded in another activity diagram

Summary

- Business Context model is necessary to understand the non-technical constraints
- Establishing the Business Context Equivalence is necessary for any meaningful integration
  - REA provides a formal way to do it
- REA seems better suited for use in SME context than UMM/ebXML
- ebXML Worksheets can be adjusted for use with REA
- More work needed on the equivalence rules
- More work needed on the application of the Business Context models to other interoperability areas

Further Information

- REA
  - *The Ontological Foundation of REA Enterprise Information Systems* G.L. Geerts, W.E. McCarthy, Aug 2000
  - *An accounting object infrastructure for knowledge-based enterprise models,* same authors, IEEE Intelligent Systems, Aug 1999
- UMM
  - *UN/CEFACT Unified Modeling Methodology,* TMWG N090 R9.1
- ebXML
  - *Business Process Analysis Worksheets & Guidelines v1.0,* ebXML Technical Reports, bpWS
  - *Business Process and Business Information Analysis Overview v.1.0,* ebXML Technical Reports, bpOVER
- ECIMF Project Information Center
  - http://www.ecimf.org