



# Boundary Objects as a Framework to Understand the Role of Systems Integrators\*



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# Outline

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- **Implications for System Integrators**
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# Problem Statement

- **Technical and organizational interfaces**
- **Programs and projects suffering from “organizational” disconnects**
- **Cost of unclear documentations and rework**
  
- **Hypothesis**
  - **Organizational interactions can be improved and disconnects can be reduced by effectively using and representing knowledge in boundary objects**



# Definitions

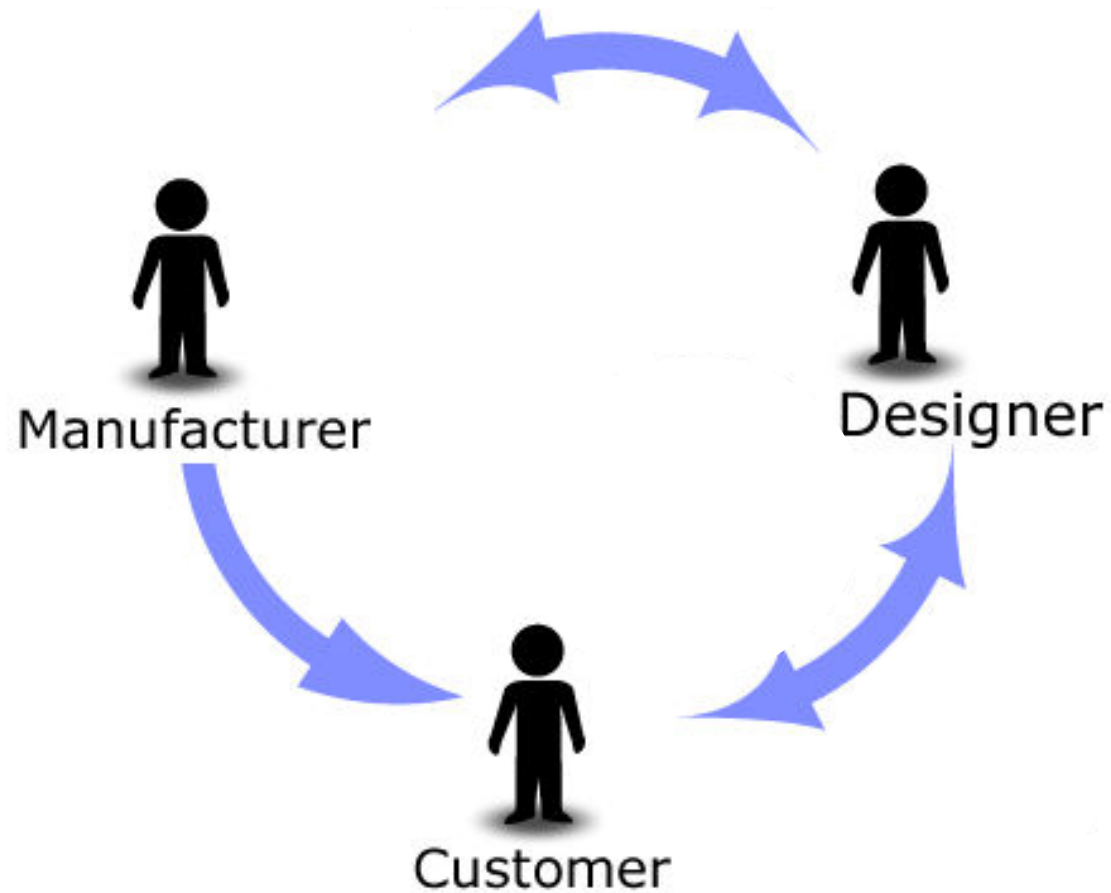
- **Community of practice**: Shared understanding of what the community does, of how to do it, and of how it relates to other communities (Brown and Duguid, 1998)
- **Boundary Objects**: Objects that are flexible enough to adapt to local needs yet specific enough to maintain a common identity across different interpretations (Star and Griesemer, 1989)
  - Bridge gaps and enables communication, coordination, and collaboration across boundaries
- **Boundaries**: gaps or differences in organization structures or entities, political power, relative expertise, knowledge domains, etc. (Greer, Black and Adams, 2006)

# Previous Research Applications

<b>Field</b>	<b>Organization</b>	<b>Boundary object</b>
<b>Social science (Star and Griesemer 1989)</b>	<b>Museum of zoology</b>	<b>Diagrams California map Collecting forms</b>
<b>Design engineering (Henderson 1991)</b>	<b>Engineering firm</b>	<b>Sketches Drawings CAD</b>
<b>Service (Ackerman and Halverson 1999)</b>	<b>Telephone hotline group</b>	<b>Written notes</b>
<b>Product development (Carlile 2002)</b>	<b>Automobile design and manufacturing firm</b>	<b>Drawings Automobile parts Schedule</b>
<b>Software development (Gunaratne et al. 2004)</b>	<b>R&amp;D facility</b>	<b>Storyboard Prototype</b>



# Boundary Object Example





# Boundary Object Attributes

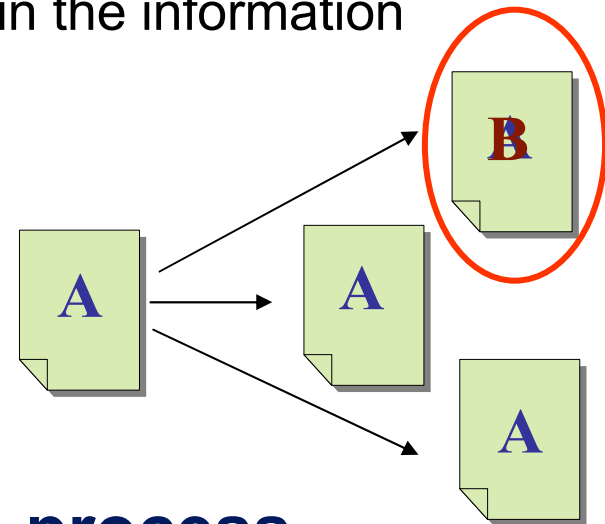
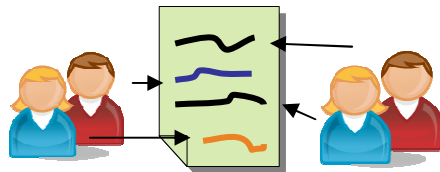
- **Medium**
- **Granularity**
- **Staleness Factor**
- **Malleability**
- **Inclusivity**
- **Synchronization**
- **Importance**
- **Layers**
- **Context Type**
- **Traceability**

# Staleness, Synchronization, Traceability

- **Staleness Factor: how stale the information tends to be**

$$\frac{\text{Average time to update a boundary object}}{\text{Average time between changes in the information}}$$

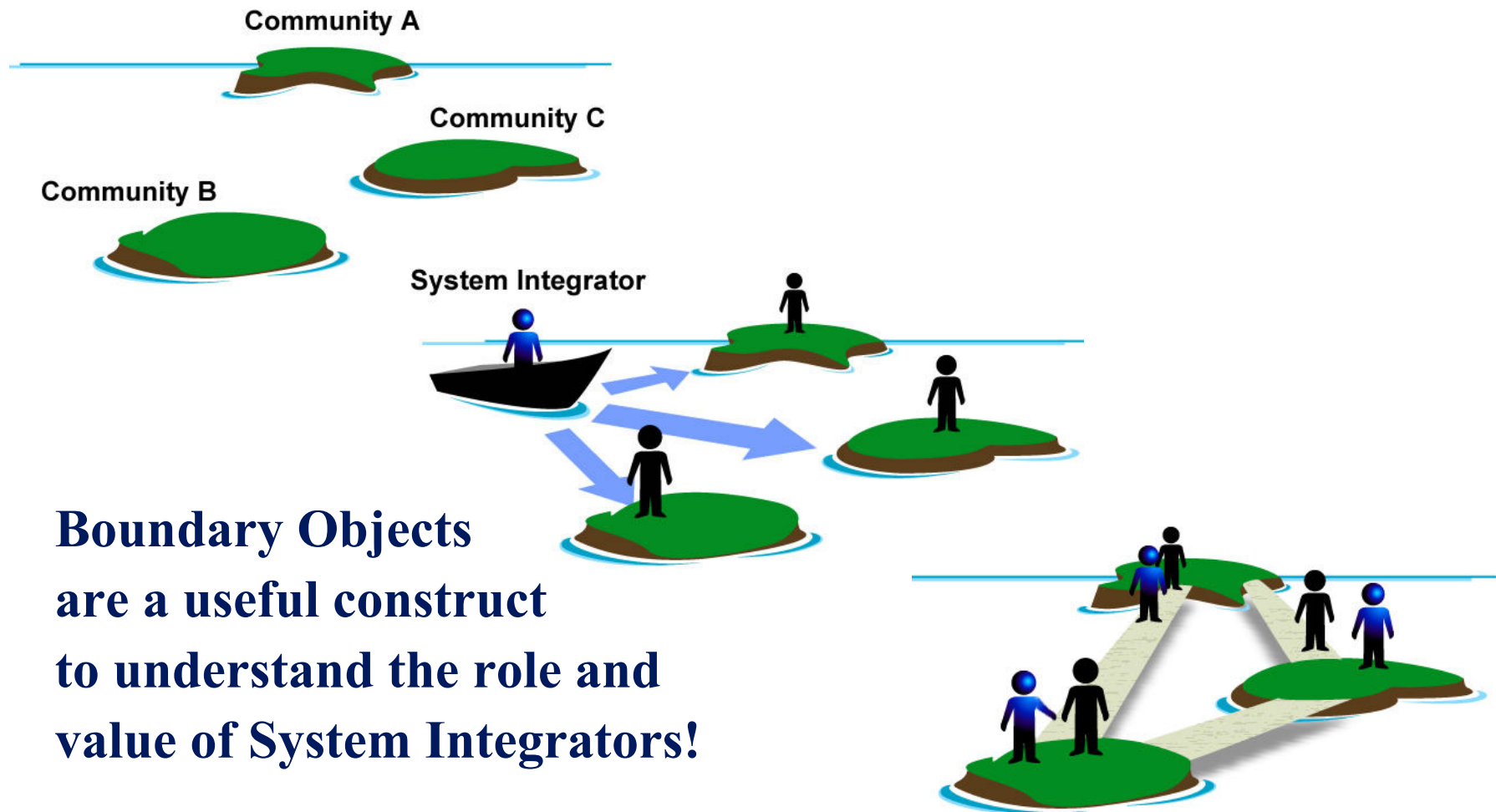
- **Synchronization:**
  - **Internal vs External consistency**



- **Traceability: accountability, process transparency**



# Implication for Systems Integrators



**Boundary Objects**  
are a useful construct  
to understand the role and  
value of System Integrators!



## Next Steps

- **Attribute and characteristic overlaps**
- **Apparent correlations**
- **Trade off between effectiveness and cost/time/resources/effort**
- **How to best design boundary objects to reduce disconnects?**



# Questions?