# Boundary Objects:
## *Improving Inter-organizational communication*

**THE AEROSPACE CORPORATION**

## Motivation

**This study focuses on inter-organizational interactions in large complex system engineering programs. The aim is to identify and provide ways to reduce disconnects that occur at organizational boundaries by effectively using and representing knowledge and information in boundary objects.**

Programs and projects suffering from "organizational" disconnects due to unclear documentation, failure to communicate, etc, will often result in rework and additional resources.

Customer

Prime Contractor

Sub-Contractor
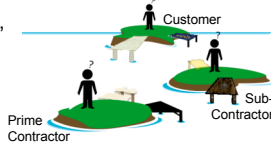
## Systems Integrators
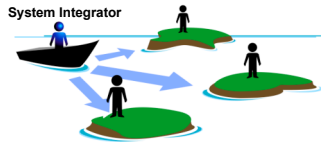
System Integrator

Systems Integrators become the translators and interpreters at these interfaces, managing and regulating the follow of boundary objects between the communities.

Boundary objects are a useful construct to understand the role and value of Systems Integrator.

## Boundary Objects

Boundary objects are 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)

B.

Manufacturer

Designer

C.

Customer

A.
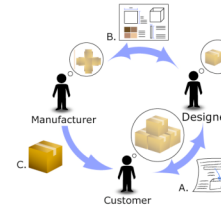
A. B. and C. are examples of boundary objects that bridge knowledge and information gaps by enabling communication, coordination, and collaboration across boundaries.
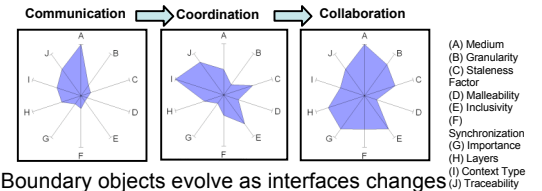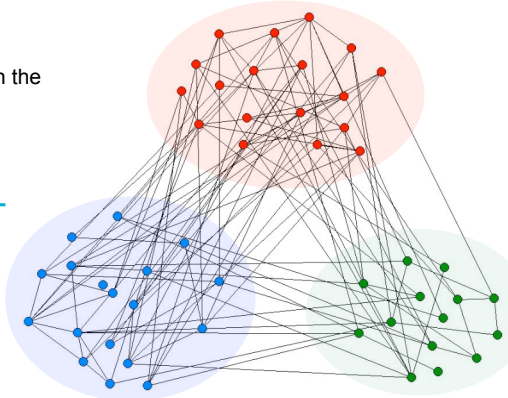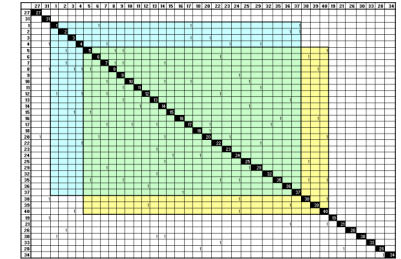
## Methodology

- Map organizational interactions, Design Structure Matrix
- Identify key areas of interests
- Correlate boundary object usage and social interactions

*The figures below are notional examples

**Communication** ➡ **Coordination** ➡ **Collaboration**

(A) Medium
(B) Granularity
(C) Staleness Factor
(D) Malleability
(E) Inclusivity
(F) Synchronization
(G) Importance
(H) Layers
(I) Context Type
(J) Traceability

Boundary objects evolve as interfaces changes

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

## Implications

- Identify common sources of organizational disconnects
- Categorize successful boundary objects and their attributes
- Provide suggestions and recommendations to reduce disconnects

### Case Studies
- Future Combat System
- Transformation Communications Satellite (TSAT) system

Army / Defense    The Army's LSI

TACOM 24 Aug 2005, case 05-179

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