Managing Virtual Networks on Large Scale Projects

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Agenda

• Environment
• Keys to Success
  – Vision
  – Technology
  – Collaboration
• Organic Networks
• Conclusion
Environment

• **Large Scale Distributed Program**
  – Multiple subsidiaries and partners in multiple locations
  – Designing and moving large sections
  – Cultural diversity

• **Large Scale Integrated Networks**
  – Just-in-time design tools and processes
  – Coordinated design and configuration control
  – One system interfacing with numerous legacy systems
Environment - Program Structure

Systems Integration, Processes & Technology
Creates Tools and Processes

Planned networks are embedded in the formal meeting and reporting system of the program. 787 has additional complexity with the presence of two major organizations; one to create tools and processes another to create the product.
The planned network structure to support a complex program will not cover all of the communication and information needs of the program. This creates “network gaps” that will need to be filled by organic networks.

**Systems Integration, Processes & Technology**

Creates Tools and Processes

- Coordination between systems
- Introduction of systems

**Product Teams**

Creates the Product

- Cross Platforms
- Cross Partners
- Partner Orientation
Keys to Success

Vision
Know where to go

Technology
Tools to get there

Collaboration
Work together
Vision

- Guides what to do
- Guides what not to do
- Define non-negotiable items

Management Role

- Communicate the Vision
- Vision Police

System Way Team Plan
Technology

Tools and Processes to create the product

Challenges
- Interfaces with multiple supplier systems
- Interfaces between internal systems
- Security

Design → Plan → Build → Maintain

Portals
- Challenges
  - Finding Information
  - Data Context
  - Configuration Control

Storage

Conference
- Challenges:
  - Culture
  - Distance
  - Common Understanding

Tools to facilitate product creation
Collaboration

“To work jointly with others” requiring the integration and knowledge management of unique business and worldwide cultures

**Structure**
Life Cycle Product Teams (LCPTs)

**Technology**
For virtual collaboration and information storage

**Commitment**
To cooperate and ensure that everyone truly understands each other
Organic Networks

Two Types

Management Driven – Management identifies gaps in the formal plan and designs networks to fill them.

Employee Driven – Employees identify gaps and create informal networks to fill them.
## Organic Network Examples

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Purpose</th>
<th>Management Role</th>
</tr>
</thead>
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| Management Driven  | Partner Integration Teams     | Ensure partners have and know how to use the processes, tools, systems that are required to support the program. Provide cultural orientation and integration into the program. | • Identify gaps and create networks  
• Assess if network is still relevant  
• Change or shut down obsolete networks  
• Identify new gaps and create new networks |
|                    | Partner Working Group         | Provide common communication platform for SIP&T the Program, and Partners. Encourage collaboration across boundaries   |                                                                                |
| Employee Driven    | User Groups                   | Provide knowledge sharing for employees from the program and partners who use a common system                        | • Determine if value added  
• Support and nurture                                                                 |

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7E7 Program Interrelationships

Systems Integration, Processes & Technology

- Processes
- Systems
- Training

Partner Steering

Partner Working Group

Partner Integration Team

Life Cycle Product Teams

- Design
- Planning
- Partners
- Support

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Global Collaboration Environment
Team Roles

**Role:**
- Responsible for collaborative culture
- Final arbiter for GCE issues
- Guidance to PWG
- Set strategy and vision for GCE
- Business decisions

**GCE Partner Steering Council**

**Role:**
- Implement GCE
  - Culture/collaboration
  - Technology
  - Infrastructure
  - Contracting
  - Communication
- Establish tactics to implement strategy and vision
- Resolve Issues
- Elevate as needed
- Provide status and visibility
- Business case/issues

**GCE Partner Working Group**

**Role:**
- Implement enabling technology
- Improving and updating technology
- Supporting PWG
- Providing detail plans to implement tactics

**GCC Business Process Computing Infrastructure**
### Management Driven Network – Partner Integration Team

<table>
<thead>
<tr>
<th>Organization</th>
<th>Roles (Focus)</th>
</tr>
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<tbody>
<tr>
<td>787 Systems Integration Processes and Technology (SIP&amp;T)</td>
<td>Computing Architecture Expert (Technology) Integrated Project Manager (Relationship Management and Planning)</td>
</tr>
<tr>
<td>787 Design and Build Program</td>
<td>Process Implementation Leader (Business Process)</td>
</tr>
<tr>
<td>Boeing Global Partners</td>
<td>Procurement Agent (Business Expectations)</td>
</tr>
<tr>
<td>Partner Company</td>
<td>Process Implementation Leader Information Technology Representative Integrated Project Management</td>
</tr>
<tr>
<td>Other</td>
<td>Boeing Learning, Training, and Development (Business Process and Systems Alignment)</td>
</tr>
</tbody>
</table>
Employee Driven Network - User Groups

• User Groups on 787
  – 16 groups with meetings attended by 15-115 people
  – Each group is centered around a specific application
  – Members include Boeing and Partner employees
  – Led by subject matter experts
  – Goal is knowledge sharing

• Management role
  – Assess if the group supports the program vision and goals
  – Support and encourage participation
  – Count progress and provide overall status but don’t set targets
  – Don’t impose your agenda on the group
  – Offer appropriate help if asked
Program Phases – Organic Network Evolution

Program Phases and Potential Network Emphasis

Re-Invention
- Radical Change
- New Markets

Build
- Feedback for quick design changes
- Cross functional collaboration

Design
- Using common tools and processes
- Orientation into the program
- Building common culture
- Cross functional collaboration

Sustain
- Continuous improvement
- Customer feedback
Conclusions

• The formal program network structure will have network gaps (the more complex it is the more gaps there will be)

• Nature of the gaps will change over the life cycle of the program

• Management needs to identify gaps and develop appropriate responses

• Employees will also create informal networks to fill gaps which managers need to support if they add value
More Questions

• How do we encourage managers to look for opportunities to develop gap filling networks without them creating numerous non-value added activities?

• How do we assess when networks have outlived their usefulness and need to be reinvented or disbanded?

• How do we react if an employee driven network is disruptive to the project?

If you would like to continue the discussion on this or other questions you may have please contact me at David.a.noll@Boeing.com