A Strategy for Stakeholder Management on an Enterprise-wide Software Engineering Project

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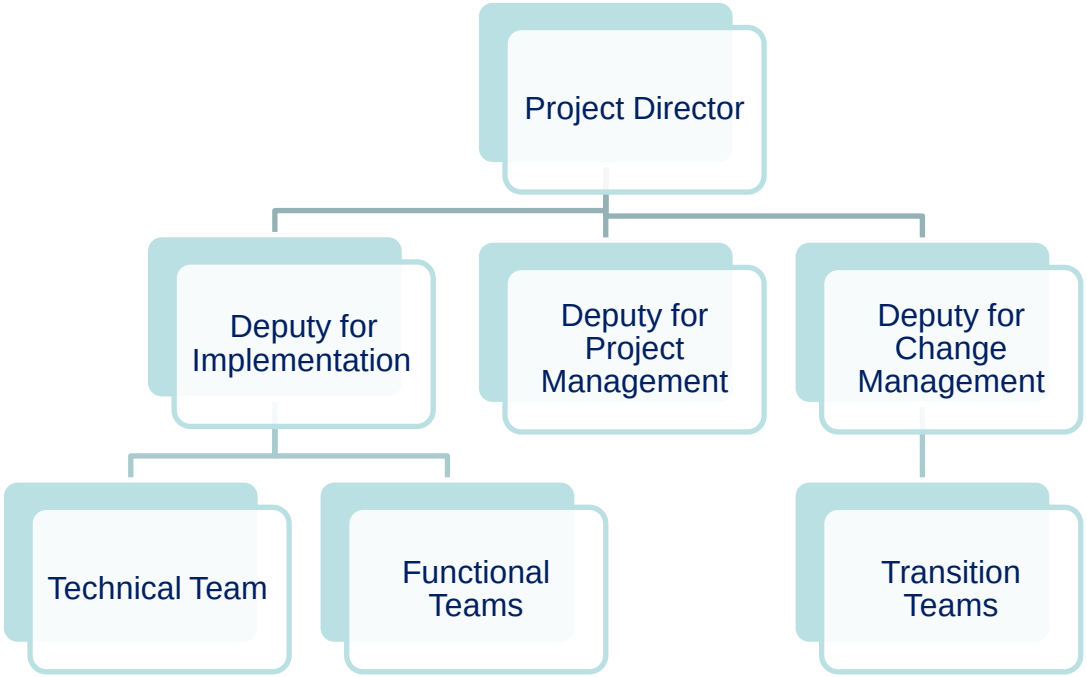
Introduction to LANL's Enterprise Project

- Project objective was implementation of COTS Enterprise Resource Planning system to replace antiquated, home-grown HR, Finance, Procurement, and Project Management business systems
  - Launched in 2001
  - Determined to have "no chance of success" with existing project structure – which lacked both systems engineers and qualified project managers – in 2003
  - Reconstituted in 2004 with both project management and distributed systems engineering functions
  - Issued first "release" in October, 2004
  - Formally closed in 2006, with additional functionality released as part of the routine operation of the IT Department

Introduction Continued – Project Organization



Applied the enterprise technology
Owned functional requirements, architectural design, configuration management, integration, verification

Responsible for acceptance and use of the system
Owned specialty engineering – human factors/ organizational development; process engineering/reengineering; procedures development; training; transition to production; sustainment

Orientation to this Presentation

- Focus of this talk is on the Enterprise Project's implementation of two key elements of the stakeholder requirements definition process – stakeholder identification and requirements elicitation – with a discussion of what worked and what didn't (and our thoughts as to why)
- Results were obtained through lessons learned exercises conducted by the project team after each release
  - In the future, we should do XYZ again because doing XYZ contributed to the following positive outcome:_____
  - In the future, we should not do ABC again because doing ABC resulted in the following negative outcome:_____

Approach to Identification of Stakeholders

- Defined stakeholders as those individuals or groups who would be affected, directly or indirectly, by the project
- Defined classes of stakeholders as identified in the change management literature: sponsors, advocates, change agents, and end users
- Used the project's WBS to identify individual stakeholders and/or stakeholder organizations for each category, asking the question at each WBS element "Who is affected by this element?"
  - End users were generally all members of a few organizational entities, so were identified on an organizational, rather than an individual, basis
  - Used members of the functional teams as surrogates for members of their business application units
- Initial lists of stakeholders were validated and periodically reviewed

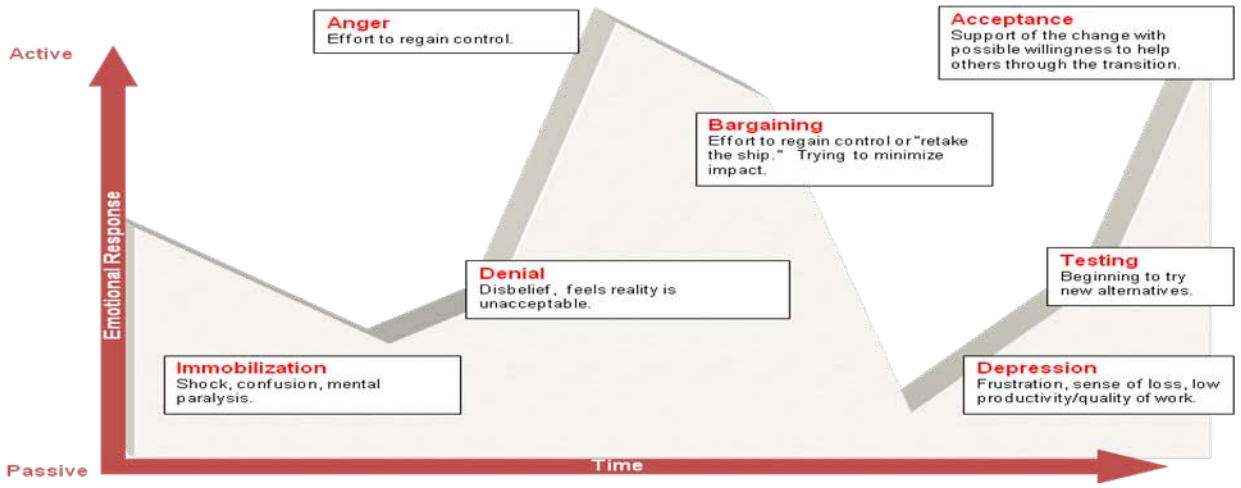
Stakeholder ID Lessons Learned

- Most stakeholder ID approaches were only partially successful – resulted in some stakeholders being omitted or underestimated
  - Use of the WBS
  - Use of the stakeholder classes defined in the change management literature
  - Use of stakeholder representatives and surrogates
- Validation/review processes failed to identify omissions timely enough
- In the future, we would:
  - Augment WBS-based stakeholder ID with ID based on system lifecycle
  - Broaden the classes of stakeholders considered to include system critic, system adversary, and system threat
  - Validate with surrogates what stakeholders they represent, and ensure that all stakeholders really are represented

Approach to Requirements Derivation

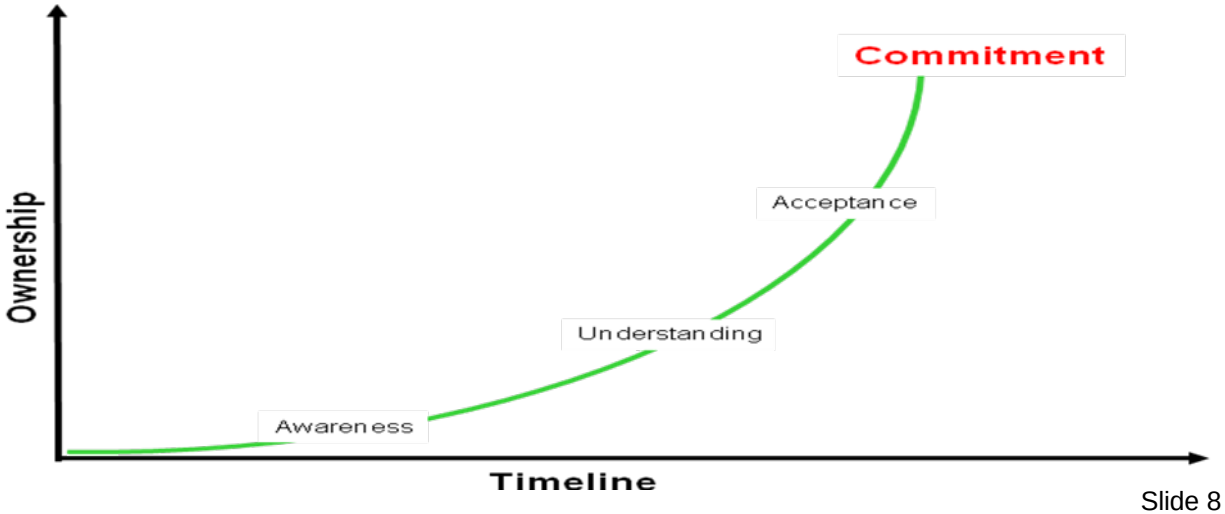
- Highest level requirement was the transition of the system from development to acceptance and use in the operational environment
  - This perspective focused the requirements elicitation on the transition, that is, the processes that people go through to adapt to new situations (Bridges 2003)
  - Sought to understand the activities and artifacts that would be needed to move the stakeholders from a state of commitment to legacy systems to a state of acceptance and adoption of the ERP system
  - Identified requirements relative to each stage of the transition process

Use of the Transition Process Lifecycle



Kubler-Ross's (1969) Coping Stages

Awareness-to-Commitment Curve



Use of Resistance to Change Factors

- Used Connor's (1995) resistance to change factors as a diagnostic to understand how different stakeholders would experience the different factors and to inform selection of interventions
  - Some reasons for resistance: lack of trust; belief that change is unnecessary or not feasible; economic threats; relative high cost; fear of personal failure; loss of status and power; threat to values and ideals; and resentment of interference

Use of Burke's Model

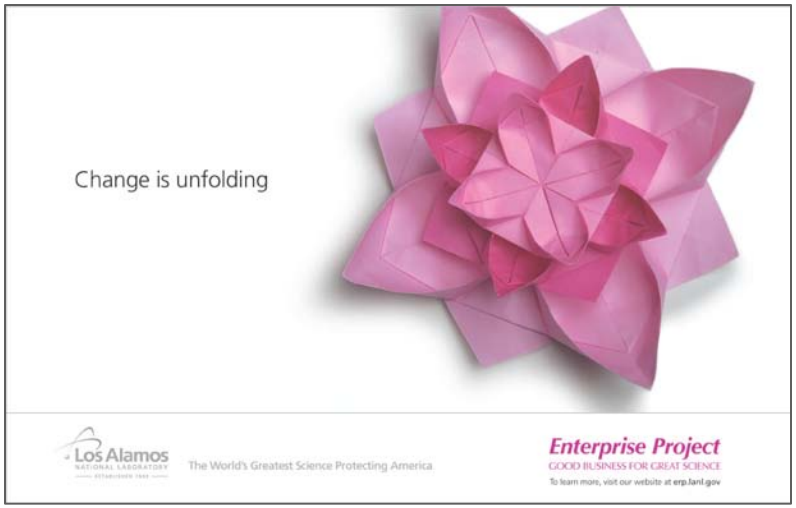
- Mapped Burke's (1993) model to the Awareness-to-Commitment curve and used it, as well as work by Kanter, Stein, and Jick (1992), to suggest transition activities and artifacts
  - Four stages of change – pre-launch, launch, post-launch, and sustaining – roughly correspond to the stages represented on the Awareness-to-Commitment curve
    - Addressing resistance to change occurs during the post-launch phase
  - Examples of particular products that were specified: communications materials and branding; business process descriptions, process flows, and procedures; descriptions of roles and responsibilities and associated staffing profiles; training materials; demonstrations, simulations, and "day-in-the-life" descriptions; and requirements traceability matrices to support transition to operations

A Framework for Managing Change (adapted from Burke1993)

Stage of Change	Pre-launch	Launch	Post-launch	Sustaining
Activities (some as suggested by Kanter, Stein, and Jick, 1992)	▪Communication –Establish the need for change –Develop shared vision ▪Planning –Assess culture –Determine organizational readiness –Determine accountability & responsibility –Review policies & systems –Plan for measurement & evaluation	▪Communication –Describe the changes ▪Implementation –Leave room for local participation and innovation	▪Addressing resistance to change –Conduct team building/ organizational development	▪Progress monitoring & continuous improvement –Implement standards, measures, & feedback mechanisms ▪Solidifying the new culture –Provide symbols & rewards
Desired Outcome	Awareness	Understanding	Acceptance	Commitment

Requirements Definition Lessons Learned (1)

- Things to repeat in the future
  - Use Connor's resistance to change factors as a diagnostic
    - Helped us to understand the requirements for various interventions
  - Use the combination of the Awareness-to-Commitment Curve and Burke's (1993) model to understand timing requirements for transition activities
    - Helped us to understand the need for early intervention



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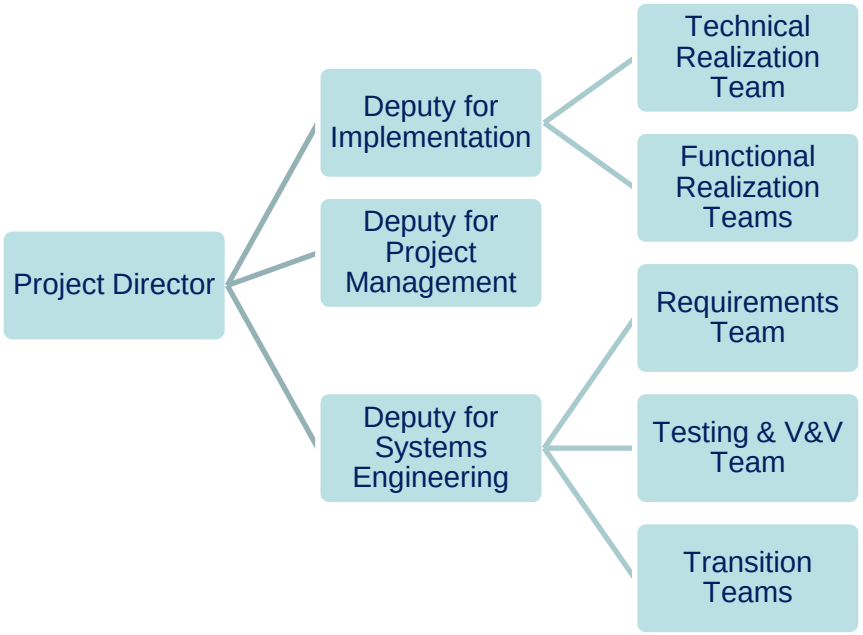
Requirements Definition Lessons Learned (2)

- Things to change in the future
  - Dependence on the Awareness-to-Commitment Curve contributed to a failure to recognize the life cycle linkages between the legacy system and the ERP and to miss the opportunity to facilitate “letting go” of the old system
    - Incorporate the system dynamics associated with successive generations into the Awareness-to-Commitment Curve (interlocking S curves)
  - “Academic” approach was not adequately tested for fit with organizational dynamics, resulting in unintended consequences that increased resistance to the change
    - Use the literature as a source of ideas, but always evaluate the concepts in the operational environment prior to use

Project Organization Lessons Learned

- Distributing the systems engineering functions across the Implementation and Change Management teams resulted in disconnects in requirements

- In the future, organize as follows:



Conclusions

- System engineering practices can be informed and enriched by learning from other domains, including the discipline of change management
  - The adaptation of Kubler-Ross's (1969) coping strategy model to a transition lifecycle and the use of Connor's (1995) change resistance factors as a diagnostic were particularly helpful
- Adherence to systems engineering's most fundamental principles – that all stakeholder requirements must be systematically elicited, analyzed and prioritized, verified and validated, and tracked and maintained throughout the project lifecycle – is key to project success
- Skyrme's (1999) assertion about project failures being the result of inadequate attention to stakeholder concerns, rather than to failures of technology, was borne out
  - Unrecognized, and therefore, unmet stakeholder requirements accounted for many of the difficulties encountered on the Enterprise Project

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