

Reducing NPI Cycle Time Using Collaboration

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Issue at hand

- Improve product development, product innovation and engineering processes in order to increase revenues, decrease cost and improve profitability

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Business Performance Measures

- Perfect Project Delivery
- Right-First-Time-Quality
- Time-To-Market
- Resource Productivity
- Profitability Tracking

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Pressures from product life cycle development

- Shorter development cycles / time to market
- Cost pressures
- Need for more innovation
- Need for revenue growth
- Support global growth and outsourcing

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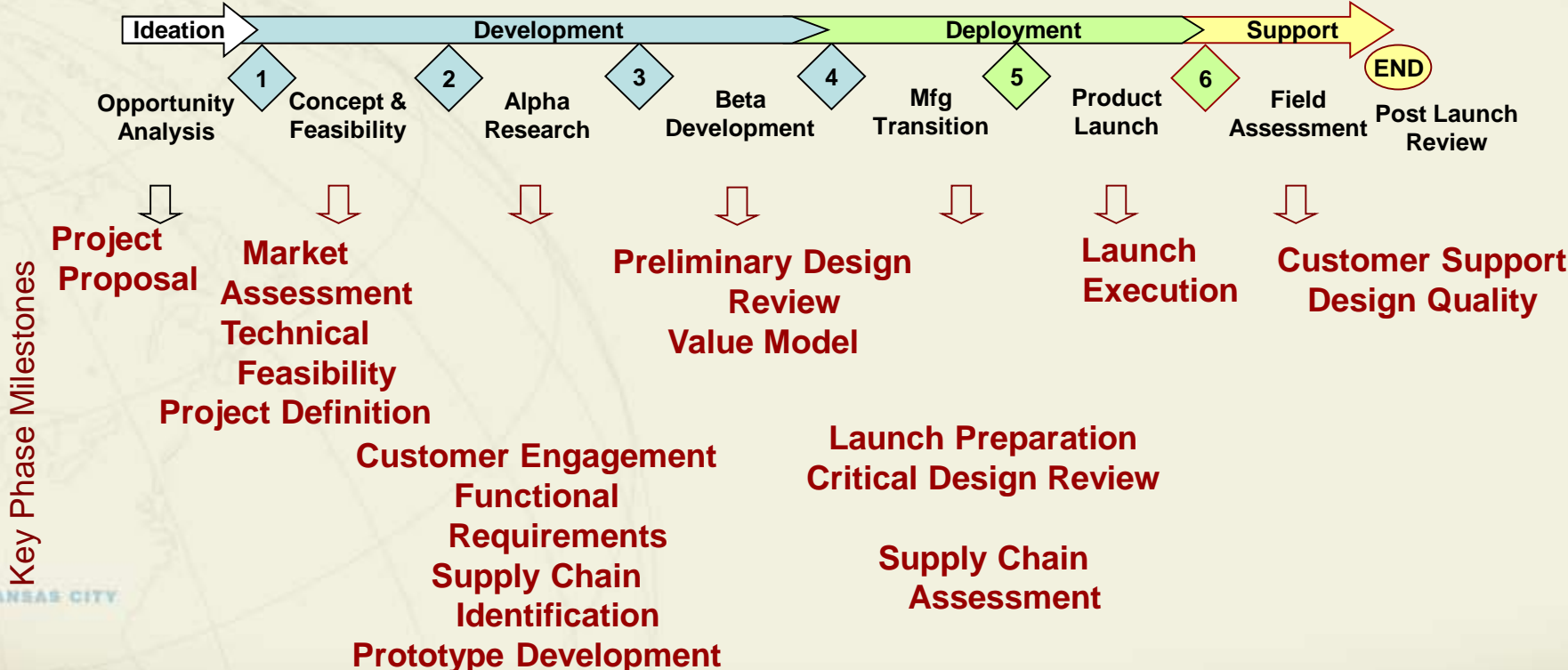


Revenue impact from innovation

- Increased fit of products to customer and market needs
- Increase value of new products chosen
- Bring products to market faster
- Increase product innovation
- Bring products to production volume faster
- Increase number of new products introduced



New Product Life Cycle



Areas for collaboration

- Design collaboration
- Collaboration with value chain
- Project collaboration
- Real time meeting collaboration
- Knowledge Leverage

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Collaboration partners

- Internal departments
- Internal design Teams
- Customers and suppliers
- 3rd party engineering teams
- Contract manufacturers

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Collaboration topics

- Product requirements
- Product specifications
- System level design
- Mechanical design
- Product documentation

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Design Collaboration

- Product development now crosses multiple organizational corporate and geographical boundaries
- Collaborating around CAD models and other designs
- Translation and visualization of CAD models
- Design mockup to visualize virtual assemblies of CAD designs



Goals of Design Collaboration

- Better match with customer / market requirements
- Faster time to market
- Product cost reduction
- Higher quality products
- More innovative products
- Design for ease of manufacturing or assembly

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Design Collaboration Actions

- Design review to eliminate later more expensive changes
- Design product components in parallel
- Involve customers in product planning and validation
- Increase customer input in product design
- Design manufacturing processes in parallel with products



What are the challenges in design collaboration

- Internal politics or turf wars
- Data in multiple formats
- Understanding the potential value that collaboration can bring
- Supplier component model data not easily available
- Protecting intellectual property



Design Collaboration Technology Enablers

- E- Mail
- Spreadsheets
- Paper drawings
- Stand alone document management
- Screen sharing tools
- Visualization tools
- Video conferencing
- Digital mockup
- Web portals
- Product data management



Value Chain Collaboration

- Configuration management
- Bill of material collaboration
- Collaborating on compliance
- Stand alone document management
- Supplier involvement in design phase
- RFP / RFQ

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Goals of Value Chain Collaboration

- Faster time to market
- Product cost reductions
- Higher quality products
- Product development cost reduction
- Lifecycle cost reduction

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Value Chain Collaboration Actions

- Communicate engineering changes electronically
- Communicate specifications electronically
- Increase BOM accuracy
- Automate the RFQ process
- Communicate BOM's electronically

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What are the challenges in value chain collaboration

- Protecting intellectual property
- Ensuring supplier conformance
- Inaccurate or incomplete product data
- No centralized source of product data
- Keeping revisions in sync

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Value Chain Collaboration Technology Enablers

- Email
- Text documents
- Spreadsheets
- ERP
- Standalone document management
- Component catalogue
- Procurement solutions
- Web portals



Project Collaboration

- Sharing project data
- Sharing product data in a project context
- Shared workflows
- Task management
- Resource management

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Goals of Project Collaboration

- Enhanced teamwork across value chain
- Better utilization of resources
- Faster time to market

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Project Collaboration Actions

- Improving execution of cross team performances
- Improving actions of cross enterprise projects
- Improving visibility of project status
- Enforce common project methodologies
- Providing a common repository for project deliverables
- Provide management oversight task execution

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What are the challenges of project collaboration

- Keeping remote project teams in sync
- Keeping project plans current in dynamic environments
- Ensure all resources are made aware of product or design changes
- Ensuring all resources are kept aware of expectations
- Ensuring all resources are aware of product changes



Project Collaboration Technology Enablers

- Project / Program Management
- Workflow / business process management
- Standalone document management
- Product data management

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Real Time / Meeting Collaboration

- Application sharing
- Chat
- Interactive web meetings
- Polling

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Goals of Real Time / Meeting Collaboration

- Faster time to market
- Higher quality products
- Better meet customer / market requirements
- Find and correct mistakes as early as possible
- Product development cost reduction
- More innovative products



Real Time / Meeting Collaboration Actions

- Review designs in interactive environments
- Include suppliers in regular project status meetings
- Include customers in regular project status meetings
- Simulate real time meeting environments for dispersed teams
- Enable virtual brainstorming



What are the challenges of real time / meeting collaboration

- Adapting presentation/meeting styles to incorporate remote teams
- Ability to rapidly to use meeting collaboration tools
- Access to meeting collaboration tools
- Ability to smoothly transmit high density design imagery



Real Time / Meeting Collaboration Technology Enablers

- Audio Conferencing
- Video Conferencing
- Web Conferencing
- Instant messaging
- Online training rooms
- Real time design collaboration tools

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Knowledge Leverage

- Manufacturing instructions
- Technical publications
- Installation manuals
- Maintenance procedures
- Marketing collateral

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Goals of Knowledge Leverage

- Faster time to market
- Product development cost reduction
- High quality documentation
- Promote reuse and efficiency
- Identify and automate documentation updates based on product changes
- Earlier availability of documentation
- Provide consistent complete documentation



Knowledge Leverage Actions

- Reuse design data in downstream publishing
- Align research and engineering teams
- Collapse time frame required to generate technical documentation

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What are the challenges of knowledge leverage

- R&D unwilling to share designs
- Design data (CAD) too large
- Internal politics or turf wars
- Inability to keep documentation in sync with designs

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Knowledge Leverage Technology Enablers

- Document management tools
- Screen capture tools
- Knowledge management tools
- Design capture tools

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Metrics

- Percent new product meeting revenue targets
- Percent new products meeting product cost targets
- Percent new products meeting launch date targets
- Percent of new products meeting product quality targets
- Percent of new products meeting product development cost targets



Collaboration Case Study

- A high tech manufacturing company with short shelf life products (> 2 yrs)
- Challenge was to consistently release new products while utilizing existing resources
- Had a globally spread network of customers, suppliers, research labs

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Collaboration Case Study

- Goal was to maximize products flowing through the idea to market funnel
- This could be done by:
 - ❖ Keeping the customer involved throughout the product development lifecycle
 - ❖ Work with partners on development phase
 - ❖ Let suppliers view the BOM data
 - ❖ Internal knowledge leverage to avoid duplication of work
 - ❖ Improved Project Portfolio Management
 - ❖ Increased use of Video Conferencing and web sharing tools

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Questions

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