INNOVATING PRODUCTS FASTER: 45 IDEAS *

ADVANCED PROJECT MANAGEMENT FOR PRODUCT DEVELOPMENT

Presented by John Carter in conjunction with IEEE-CNSV

www.tcgen.com, jcarter@tcgen.com
www.californiаconsultants.org

* Well, 12 if you are counting
THE SAN FRANCISCO BAY BRIDGE

Length: 8.4 miles
Opened Nov. 1936
Time to Build: 3.5 years
Cost $77M
THE SF BAY BRIDGE – NEW SECTION

Length: 3 miles
Original Cost Est: $780M
Current Cost Est: $6.3B

Planning time: 11 years
Construction began: Jan. 2002
Still under construction (after 11 more years)

What’s Wrong with This Picture?

6/11/2013
All kidding aside, product development can take way longer than it should!

We're here to talk to you tonight about how you can shorten your product development time through application of Advanced Project Management Principles illustrated in our book “Innovate Products Faster”.

Specifically, we would like to share with you key topics from our book on improving execution and innovation in Product Development.

We can’t present all of the 45 best practices in the book, but we can give you a sample of some of the best and most impactful.

Because so many of today’s projects involve Partners, Distributed teams, and Software, we would like to use these themes to illustrate this talk.

The talk will also talk about the writing of the book “Innovate Products Faster” as it describes how literally anyone (meaning YOU) can write a book.
INNOVATE PRODUCTS FASTER

Biography – Experience with Innovation & Execution

- Invented the Bose Noise Cancelling Headphone and hold the original patent on noise cancellation
- Developed the Apple New Product Process (ANPP) which is used by all Apple product divisions, including the iPhone teams
- Former Chief Engineer of Bose, responsible for some of the most innovative products such as the Wave Radio and Home Theater Systems
- Consulted to leading companies including Apple, Bose, Cisco, Dolby, HP, IBM, Xerox, and 3M
- Member, Board of Directors, Cirrus Logic (CRUS)
Tonight, you will learn:

1. Techniques for managing Distributed Teams that you can apply immediately
2. Examples of Open Innovation to help your team define programs and priorities
3. Agile methods to create project Burn Down charts
4. How to professionally publish your first manuscript
How does Project Management today differ from what it was 10 years ago?
# Advanced Project Management vs. Traditional Project Management

<table>
<thead>
<tr>
<th>Advanced Project Management</th>
<th>Traditional Project Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select competencies</td>
<td>Heavy on generic competencies</td>
</tr>
<tr>
<td>Iterative development</td>
<td>Waterfall development model based</td>
</tr>
<tr>
<td>Distributed teams</td>
<td>Team located together</td>
</tr>
<tr>
<td>Social/Open methods</td>
<td>Contributors employed by company</td>
</tr>
<tr>
<td>Joint Development models</td>
<td>All design work done in house</td>
</tr>
<tr>
<td>Collaborative partnership model</td>
<td>Un-trusting partnership model</td>
</tr>
<tr>
<td>Open &amp; trusting culture</td>
<td>Hierarchical culture</td>
</tr>
<tr>
<td>Employ collaboration technology</td>
<td>Email and static reports</td>
</tr>
<tr>
<td>Minimum viable product</td>
<td>Each product is a major release</td>
</tr>
<tr>
<td>Leverage personal agents</td>
<td>The burden is on you and you alone</td>
</tr>
<tr>
<td>Software</td>
<td>Hardware</td>
</tr>
<tr>
<td>Cloud (releases in days)</td>
<td>Client (releases in months)</td>
</tr>
</tbody>
</table>

There are profound changes in how fast paced development is conducted and project management training has not kept up!
A successful Program Manager has these critical soft skills

- Trusts the partner – without trust there is little hope for transparency
- Treats the partner as a team member, not an outsider
- Trusts but verifies progress continually
- Develops a personal relationship with the partner & their top management

These soft skills apply to Distributed Teams, Too!

**Smoothness**... *How do we achieve it? By having the ability to monitor the critical path which has built in short interval feedback elements that actively alert you to delays.*

6/11/2013
**SUCCESSFUL COLLABORATION MODELS**

- **Share Risk & Profit**
  - Commodity
  - Major Part/Service
  - Key Part/Service

- **Relationship Style**
  - Multi-source
  - Single source

**Supply Base Concentration**
Typical Award Process
- Create Product Spec
- Set out to bid
- Supplier responds
- Select Supplier

Best Practices for Trusted Suppliers
- Master Service Agreements
- Partners Part of Team (JIT-2)
- Award precedes Business Case Decision!

New
Old

Saves 6-9 weeks in Time to Market

6/11/2013
### IPF: Outsourcing Selection Matrix

<table>
<thead>
<tr>
<th>Highest Technology</th>
<th>Local Resources (Silicon Valley) Ex Employees Academic Partnerships Craigs List</th>
<th>Partner Specialist Joint Venture</th>
<th>Develop Inhouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Technology</td>
<td>oDesk Top Coder eLance</td>
<td>Traditional Domestic Outsourcing Temporary Agency Partner Specialist Joint Venture</td>
<td>Develop Inhouse Remote Development Partner Specialist Joint Venture</td>
</tr>
<tr>
<td>Low Technology</td>
<td>Virtual Personal Assistant Business Process Outsourcing My Man in India</td>
<td>Traditional Domestic Outsourcing Temporary Agency Partner Joint Venture</td>
<td>Remote Development</td>
</tr>
<tr>
<td></td>
<td>Low Strategic Importance</td>
<td>Medium Strategic Importance</td>
<td>High Strategic Importance</td>
</tr>
</tbody>
</table>
## IPF: Outourcing Selection Matrix

<table>
<thead>
<tr>
<th>Strategy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral to the strategy or core?</td>
<td>1</td>
</tr>
<tr>
<td>Not used again or will be used again and again?</td>
<td>3</td>
</tr>
<tr>
<td>Part of differentiation?</td>
<td>1</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>1.7</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>How technically sophisticated?</td>
<td>1</td>
</tr>
<tr>
<td>How much relies on internal patents/know how?</td>
<td>1</td>
</tr>
<tr>
<td>Technical impact if knowledge not captured?</td>
<td>2</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>1.3</strong></td>
</tr>
</tbody>
</table>

### “Other Factors” - refine choices after doing the overall mapping

<table>
<thead>
<tr>
<th>“Other Factors”</th>
<th>Importance from 1 (low) to 3 (high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small vs large effort?</td>
<td>2</td>
</tr>
<tr>
<td>Long vs. short term?</td>
<td>2</td>
</tr>
<tr>
<td>Is cost critical?</td>
<td>2</td>
</tr>
<tr>
<td>Is problem well specified?</td>
<td>3</td>
</tr>
<tr>
<td>Reason to have regional presence?</td>
<td>1</td>
</tr>
<tr>
<td>How much is English a requirement?</td>
<td>3</td>
</tr>
<tr>
<td>Strength of internal project management?</td>
<td>3</td>
</tr>
<tr>
<td>How quickly is it required?</td>
<td>3</td>
</tr>
</tbody>
</table>

Example
## IPF: Outsourcing Selection Matrix

<table>
<thead>
<tr>
<th>Technology Level</th>
<th>Strategic Importance</th>
<th>Collaboration Type</th>
<th>Project Management Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Technology</td>
<td>Low Strategic Importance</td>
<td>Virtual Personal Assistant Business Process Outsourcing My Man in India</td>
<td>Remote Development</td>
</tr>
<tr>
<td>Highest Technology</td>
<td>Medium Strategic Importance</td>
<td>Traditional Domestic Outsourcing Temporary Agency Partner Specialist Joint Venture</td>
<td>Develop Inhouse</td>
</tr>
<tr>
<td>Highest Technology</td>
<td>High Strategic Importance</td>
<td>Traditional Domestic Outsourcing Temporary Agency Partner Specialist Joint Venture</td>
<td>Develop Inhouse</td>
</tr>
<tr>
<td>Medium Technology</td>
<td>Low Strategic Importance</td>
<td>oDesk Top Coder eLance</td>
<td>Remote Development</td>
</tr>
<tr>
<td>Medium Technology</td>
<td>Medium Strategic Importance</td>
<td>Partner Specialist Joint Venture</td>
<td>Develop Inhouse</td>
</tr>
<tr>
<td>Medium Technology</td>
<td>High Strategic Importance</td>
<td>Partner Specialist Joint Venture</td>
<td>Develop Inhouse</td>
</tr>
<tr>
<td>Low Technology</td>
<td>Low Strategic Importance</td>
<td>Virtual Personal Assistant Business Process Outsourcing My Man in India</td>
<td>Remote Development</td>
</tr>
<tr>
<td>Low Technology</td>
<td>Medium Strategic Importance</td>
<td>Traditional Domestic Outsourcing Temporary Agency Partner Specialist Joint Venture</td>
<td>Develop Inhouse</td>
</tr>
<tr>
<td>Low Technology</td>
<td>High Strategic Importance</td>
<td>Traditional Domestic Outsourcing Temporary Agency Partner Specialist Joint Venture</td>
<td>Develop Inhouse</td>
</tr>
</tbody>
</table>

*6/11/2013*
LEVERAGING TOOLBOX

Circle Dot

Tracking Gantt

Team Wheel

Team Agendas For Weekly Meetings

Communication Paths

Specific Objectives of THIS Meeting (9-9:15)
- Make decision on Audio Output Limits
- Make decision on HDMI 1.5 Standard
- Key actions between now and next milestone (focus on critical path) MSS ENGINEERING RELEASE (9:15-9:30)
  - BFF Certification test results (4/2)
  - SW Quality Assurance test (4/7)
  - HW Prototype due (4/25)
- Follow up from last Core Team Meeting (9:30-9:45)
  - UI report submitted and approved
  - CS&U President approved cosmetics for button
  - NIPI approved LTO sub for SW development
- Quality (Following discussion points as needed: 9:45-10:00)
  - Supplier EMI qualification (4/15)
  - Do by Digital certification completed (5/15)
- Procurement
  - NIPI approved PCB subcontractor (2/5)
  - BOM price finalized with LTO (4/2)
- Engineering
  - Replaced lead mechanical engineer (2/3)

6/11/2013
How to apply the tool

- The vertical axis identifies the key functional team members
- The horizontal axis identifies the key project deliverables.
- Open circle means contributes
- Closed circle means directly responsible (DRI)
- Done as a Distributed Team
Sample Discussion Points

- Specific Objectives of THIS Meeting
  - Make decision on Audio Output Limits
  - Make decision on HDMI 1.5 Standard
- Key actions between now and next milestone (focus on critical path) MSS ENGINEERING RELEASE
  - RFI Certification test results (4/2)
  - SW Quality Assurance test (4/7)
  - HW Proto sample due (4/15)
- Follow up from last Core Team Meeting
  - UI report submitted and approved
  - CSBU President approved cosmetics for button
  - NPI approved LTO sub for SW development
- Quality
  - Supplier EMI qualification (4/15)
  - Dolby Digital certification completed (5/15)
- Procurement
  - NPI approved PCB subcontractor (3/5)
  - BOM price finalized with LTO (4/2)
- Engineering
  - Replaced lead mechanical engineer (3/1)

Example Agenda: One page only, always has schedule, always focus on critical path
Keeps issues and risks captured, contains big picture (overall schedule) and minute details
Objective: Construct a Project Team Wheel for your project

- Create a Project Team Wheel with your team
  - Identify core team members: typically, in addition to the program manager, a product manager, development lead, and QA lead, but can also include a design/UI lead and/or operations lead.
  - Identify both internal and external team members required to support the delivery of the product to market.
  - Populate the wheel with the name of each team member and their function.
  - Present the wheel to the core team for quick review.
  - Have the CEO, CMO, and CTO review the wheel.
Atlassian’s Confluence ($200 a month for 50 Users)

- Define and track requirements in one place
- Secure your content with permissions
- Stay connected with mobile
- Assign team and personal tasks
- Create rich mockups and wireframes
- Schedule team leave, travel, and rosters
- Publish product documentation to the world
Not all development tasks need to be done in house
Not all work needs to be done by your established system level partners
How do you find sources to help with finite tasks? Suggest the following:

1. oDesk
2. Elance
3. Vworker
4. Freelancer.com
5. Guru
6. Scriptlance
7. TaskRabbit
8. VMG BPO

Red indicates sources I’ve used successfully

http://blog.timedoctor.com/2011/02/22/the-top-6-outsourcing-sites-and-how-to-use-them
I am a freelance graphic designer working with several groups and individuals. I am well adept in using certain graphic software such as Adobe Illustrator, Adobe Photoshop, Adobe InDesign, Corel Draw, and AutoCAD as well as MS Office software. Through my years of experience in the field of graphics, I have worked on various projects in publishing and advertising. My aim is to provide high quality work to satisfy clients and further sharpen my skills in design and other fields.
VIRTUAL PERSONAL ASSISTANTS

How can you get a secretary when your company will not pay you for one?

• VIRTUAL PERSONAL ASSISTANTS (and pay for it yourself!)
• They help you on small to medium sized tasks
• Great for writing, web research, competitive analysis, documentation, graphics
• Example Tasks
  • Turning white board photos into PowerPoint slides
  • Researching Conferences to attend on Product Development
  • Copy editing chapters of a book
  • Performing graphic design of a book
  • Improving presentations such as this one!

Getting Started Tips:
1. Search based on number of hours and ratings
2. Ask candidates to answer a very simple question (this weeds out a lot!)
3. Understand their workload
4. Hire two in parallel
5. Give small initial task (2 hours)
6. Have simple short deliverables
7. Pick the best, or restart
Practice: In designing a new cosmetic line, the company asked their target market (busy moms) to photograph and share their empty purses to help design the ideal “mobile” cosmetic solution

- Specifically, this rich input depicts various cosmetics carried by moms, and the size and space where those items need to fit, and other items (non-cosmetic) that might be also be included in the product.
- **Photographic input is much richer than a survey**, and is much more accurate because it does not rely on memory.
- By sharing the photographs the moms can share experiences and provide a more meaningful context for probing and further exploration.

Goal: Increase number of products simultaneously delivered and significantly accelerate time-to-market

- This technique was also able to **reduce the cost of product definition** since customer visitation was done via the internet, not in person.

Results: Set new standard for production delivery

- **Twelve new products in six months**, and with lower development costs.
- Inclusion of the photographs from the focused target market enhanced contextual product definition and allowed the company to realize that many cosmetic product could be included in one package.

*Capturing specific environments of use allows your customers to make the highest value contributions*
**MANAGING SOFTWARE**

**Mythical Man Month**

_A job that one person can complete in 10 days_

**Waterfall vs. Agile**

**Requirements vs. Specifications**

**Bug Scrubbing Process**
MANAGING SOFTWARE: WATERFALL VS. AGILE

- **Waterfall** attempts to prevent scope changes ("freeze the spec"); **Agile** expects changes to occur and manages them.
- **Waterfall** defines features first and this activity drives schedule and cost estimates; **Agile** determines cost and schedule constraints, and then focuses on the highest value features for the customer.
- **Waterfall** is useful when features are known and reasonably stable; **Agile** works best in rapidly changing markets or where the features are less certain.

Key components of Agile Software Development:

1. **Sprints** – 2/3 week build cycles, basic unit of the Scrum
2. **Scrums** – Flexible, holistic product development strategy (team goes the distance, passing the ball)
3. **User Stories** – Description of what a user needs to do in plain language (quick requirements)
4. **Story Points** – Amount of work required to satisfy the requirement
5. **Burn Down Charts** – Chart showing remaining Story Points
6. **Kanban** – A visual inventory of User Stories to address

What Is the Tool?

- The burn down chart is an application of the agile development methodology.
- The tool shows the team and management how much progress they are making on a project.
- Stories are use cases, Story Points are an estimate of how difficult it is to satisfy that use case (how many days to write the software).

Which Business Problems Does the Tool Solve?

- Keeps your project and management teams focused on delivering features that are most important to customers in the fastest and most innovative way possible.
- Supports innovation by allowing for the addition of new features during development.

Benefits

- Focuses on the customer, as the primary vertical axis indicates the number of user stories and the team makes tradeoffs in the context of customer impact.
- Shows the actual work that the team delivers, so it is a true measure of progress.
How to apply the tool

- Vertical axis indicates the number of story points (user stories) within a sprint.
- Horizontal axis indicates the number of sprints, which can be equivalent to a time scale.
What Is the tool?

- The tool applies task burn down chart to the requirements process.
- Tracks unfinished/unclear requirements, rather than tracking requirements that have been coded

Which Business Problems Does the Tool Solve?

- Facilitates innovative requirements and tracks them.
- Helps organizations develop difficult platform programs quickly and creates a common vision for the product.

Benefits

- This methodology can help you create compelling product definitions
- It increases definition speed due to the tight loop of iteration between development and management
1. Testing according to test plan & test cases
2. QA logs a bug and assigns severity and priority (default P5)
3. Product Management assigns priority
4. Development assigns defect to resources
5. Bug scrub meetings (weekly/daily)
6. Waiver list is generated by Product Management
7. Waiver list is communicated up to Engineering Leadership
8. Product is released with GM Release form
MANAGING SOFTWARE: BUG PRIORITIES

<table>
<thead>
<tr>
<th>Label</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>Blocker</td>
<td>Blocks development and/or testing work, production could not run.</td>
</tr>
<tr>
<td>P1</td>
<td>Critical</td>
<td>Crashes, loss of data, severe memory leak.</td>
</tr>
<tr>
<td>P2</td>
<td>Major</td>
<td>Major loss of function.</td>
</tr>
<tr>
<td>P3</td>
<td>Minor</td>
<td>Minor loss of function, or other problem where easy workaround is present.</td>
</tr>
<tr>
<td>P4</td>
<td>Trivial</td>
<td>Cosmetic problem like misspelled words or misaligned text.</td>
</tr>
<tr>
<td></td>
<td>Untriaged</td>
<td>Default field value for issues that have not been triaged</td>
</tr>
</tbody>
</table>

- Best practice is not to have two criteria (Severity and Priority) but just Priority
- Priority should be assigned by Product Management with input from Quality and Engineering
HOW WE WROTE THIS BOOK

- Identified the topic based on market research
- Created unique title, registered domain
- Selected Publisher (CreateSpace)
- Created a structure that could easily be divided with multiple authors
- Enrolled contributors in addition to mail authors
- Used oDesk to find the following skills:
  - Editor
  - Graphic Designer & Cover Designer
  - Book Designer
  - Indexer
  - Book Marketing Coach (Laura Lowell)
- Cranked out the book
- Created Book page and Author page on Amazon

Gary
Pomona
United States

Alexandria
Egypt

Laura
United States

INNOVATE PRODUCTS FASTER: ADVANCED PROJECT MANAGEMENT

INNOVATE PRODUCTS FASTER

GRAPhICAL TOOLS FOR ACCELERATING PRODUCT DEVELOPMENT

IEEE

CNSV

TCGen

6/11/2013
TIME AND COST TO WRITE

- From start to finish was 13 months
- Used event – SXSW as a launch platform
- Marketing Consulting $15K
- Editing $12K
- Graphics Design $5K
- Other Costs $5K
- Total $38K

Was it worth it?

We budget 20% for marketing and sales, and our average project is $100K. This has already lead to one larger than average project... and helped us close many other projects... so

YES!