Google Product Development/Management Process

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From a presentation given on Jan 8, 2003 to Silicon Valley Product Management Association
by Google Product Manager Marissa Mayer

Google's Mission Statement: "Organize the world's information to make it universally accessible and useful."

Formula: Smart people + creative environment + outlet for ideas = innovation

Smart people:
- High the best
- Including 50 PhD's, originated with strong ties to universities and continue strong ties to universities (especially Stanford).
- Also hire range of people with broad experience and non-traditional talents such as expert in Italian travel, machine learning, etc.
- Mostly looking for "enthusiasm and creativity"
- Very flat organizational structure, not very much hierarchy

Creative Environment:
- Creative office design. Looks like mix between college campus and playground with toys.
- Called the "GooglePlex".

Most of this presentation is about "outlet of ideas" and "innovation" part of formula.

Key point stressed several times: **<u>User-centered design</u>**
User-centered design means building products that people really want and start with users' needs and desires for designing products and services.

Cornerstones of Product Development
1. Build products that people really want
   - Search is #2 after email as most used application on Internet
2. Generate and capitalize on network effects
3. Values built into products "don't be evil"

Process
1. Accept ideas from everywhere
2. Prioritization – top 100
3. Small, agile engineering teams
4. Self-organization and visibility
5. User-centered design

<u>Accept Ideas From Everywhere</u>

- Acknowledge that great ideas may come from anyone, anywhere
- Have various forums and mediums for idea-collection and participation.
  - Since engineers may be quiet in speaking at meetings, also solicit feedback and ideas from
    - i. Collaborative workspaces (on Web – editable pages for ideas and casual conversation) and
    - ii. email.
- Employees (called Googlers) are best source for ideas at Google – also some of the most intense users of Google with well-formed opinions
- Product discussion meeting – like a brainstorming session – every week
  - 6 different ideas per hour average
  - Sometimes they have "themes' or "categories" for meeting
- "We get a lot of our ideas from our users" (including customer support queue)

Prioritization into Top 100 List
- Compile all new ideas, currently funded projects and ongoing maintenance efforts – anywhere where time and resources are spent or may be spent in future into list
- Assign attributes and rank to each item in list
  - o How useful will it be to users, will it aid in user retention (decrease churn), what is chance for success, does it diversity revenue stream, what is level of effort required relative to impact, etc.
  - o For each item, rank 1-5 (5=better than 4 and less risk, 4=risky but exciting…)
- Only 4 and 5's get any funding and staff to keep the project or start the project
- Easier to see priority if you must compare two projects directly - one project against another

Small, Agile Engineering Teams
- 3-person units (like start-ups!)
- Unit is a project – they don't have departments
- Unit is co-located (sit next to each other) also with PM
- Engineers work on project for 3-4 months, then transition to next project
- Very fluid
- With 180 engineers, they can work on 60 projects – so they can afford to invest on high-risk, high-return projects as well. (They call high-risk projects "Googlettes")
- Each project manager works with 9-10 people across units. For example, maybe a category such as "Enterprise Infrastructure"
- The technical lead in each unit of 3 is responsible for technical excellence of project.
- Documentation
  - o Very sparse, only what is needed in Product Requirements Document (PRD)
  - o Eric Schmidt: "Late binding decision-making process"

- o Evolves based on feedback
- o Includes information on general market size, revenue in PRD but believe that *"if you build something users use, there will be a way to make money"*
- Large Projects
  - o Example: Enterprise Product – broken into logical modules, thus 4 units (of 3 people) = 12 people
- Monetization teams
  - o Larry Page: "No such thing as a successful failure; if it is useful to people, later we can make revenue from it in a logical way."
  - o Focus on providing value to user first.
  - o Then create team to execute the "monetization" of most useful products/services.
    - Marissa (speaker) was on team to monetize search
    - Created AdWords, etc.

Self-organization and Visibility
- "Sparrow" Pages
  - o Launch calendar
  - o Shows each project – when launched, status
- Snippets
  - o Every Monday sent in by each employee
    - Organized by project
    - Includes link to employee's home page
  - o Helps with re-use across projects – leveraging what is already being done

User-centered Design
Original minimalist design because founder didn't really know HTML and did the simplest design. However, one founder also has Masters degree in human-computer studies.
- User studies (1x per week)
- Focus on quality and ask: What does user *really* care about?
- Experimentation
  - o Try out on public site and see if users respond well
  - o Do statistical analysis on results of use
- Iteration
  - o Make product better over time from feedback
- Expedient Solutions
  - o Better to get it out – "a good (rather than best) solution **soon**"

User Studies
First User Study:
- First user study conducted at Stanford University.
- Offered free pizza to students; marketed with flyers around university – 16 students came.

- Learned a lot of things about their user's experience.
- Now, recruit through Craig's List (popular San Fransisco Bay Area, California online community site, www.craigslist.com)

Current User Studies:
- 2 people (they talk to each other more), 1 observer (from Google, does not interfere with user's experience or reactions)
- "Tell us the parts of the page you see starting from top to bottom and left to right."
  - Found that eyes go to results links first and did not see the rest including advertiser logos, navigation bar, "help", etc.
- "Tell us what cached means?"
  - Found too many technical terms that users did not understand. "Cached", "Boolean search"
  - Better explanations and less assumptions were result.
- Ask user to find answer to a trivia question using the search engine and observe their interaction.
- They have an in-house user studies lab with a one-way mirror. Software that records mouse-clicks.
- Also, use laptops at bookstores – offer $25 gift certificates for participants in study.
- They test before and after releases.

Quality
- Initial spell-checker was low-quality (outsourced); eventually built their own
- Learned that "*Good quality by itself improves usage*"
  - Usage doubled on first day without any changes to user interface
  - Eventually improved user interface "Do you mean…" in distinctive red letters – doubled usage again
  - Larger font doubled usage again
  - Repeated "do you mean" at bottom of screen and doubled usage again

Experimentation
- If we have a good idea, try it
- Thumbnails of the web page next to results link was failure
  - Trial was Excite@Home users and it was default
  - Did not experiment with internal employees first
  - Both trial and Googlers turned off in preferences
    - Users said most important to have "*information density*"
    - Thumbnails decreased results links "above the fold" (that fit on one screen)
    - Picture not useful if never visited page before
    - Learned "*any new information must be MORE important than what is lost*" – limited screen real estate

Iteration

- Google News was result of watching engineering email (one employee wrote the demo after being frustrated trying to read news after Sept 11 event.
- Started as a demo created by one engineer on a weekend
- Googlers started to use it to read their news
- Then assigned 3 people (one was UI designer) and one PM to work on it
- Iteration example
  - Original: all news on one screen
  - Pre-release:
    - break into sections with a "google" look and feel
    - lots of mock-ups of the layout
  - User interface testing (user studies); Asked "Go to Entertainment Page" but users couldn't find their way around – poor navigation
  - Next iteration: Didn't make it to user studies because Googlers hated it
  - Next iteration: Finally got to put something on the public site, but found users not using the navigation bar at all
  - Next iteration: simplified navigation and moved it
- They use "test marketing" techniques where they try two styles when they can't decide which is best. Statistical analysis shows which is used more.

Expedient Solutions

- Internationalization Example
- Originally used a translation company, but not working well; answer came from users
- Volunteer translators from user community worked on portion of web sites
- 42,000 volunteer translators signed up (88 languages so far)
- How:
  - Created a form for "stings of text" needing translation
  - Quality control
    - Confidence ratings for each translator – others vote on how good the translation is
    - You can override the current translator by proving your credibility on new strings
      - New strings are added each week, if your rating is higher, you can start being regular contributor

Conclusion

- Use idea gathering and prioritization process that works for your company – adjust and adapt to your company
- Use a combination and mix techniques – statistical, user studies, etc.
- The service has to ultimately provide value to users
- Service must be designed *FOR* users

More Information: Google Labs (engineering demos): http://labs.google.com/