



Outsourcing Software Development

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Bennett Barouch

Leadership and Engineering at

- iPass
- Comergent Technologies
- General Magic
- Cadence Design Systems
- Hughes Micro-Electronics Center
- Other Companies

More than 20 years' experience

- Mobile computing and security
- IT policy enforcement
- Enterprise business software
- Consumer software
- Computer-voice integration
- Computer-telephony integration
- Compiler technology
- IC design automation
- Software development methodology

Products developed under Bennett's leadership

- Have won various forms of industry recognition
- Have been awarded several patents
- Have been included in the permanent collection of The Smithsonian Institute for Outstanding Achievement in Information Technology



Software Development

– A Social Endeavor –

- One or more developers
- One or more quality assurance engineers
- Some number of these
 - Board / CEO / Exec Team
 - Sales / Marketing / Product Management
 - Architecture
 - Technical Publications
 - Customer Care
 - Technical Operations

Software Development – A Community Effort –

Sales are largely independent of each other

Break the build

Shut down the department for a half day

Commit a coding mistake

Damage functionality in a number of seemingly unrelated ways

Commits an architectural mistake

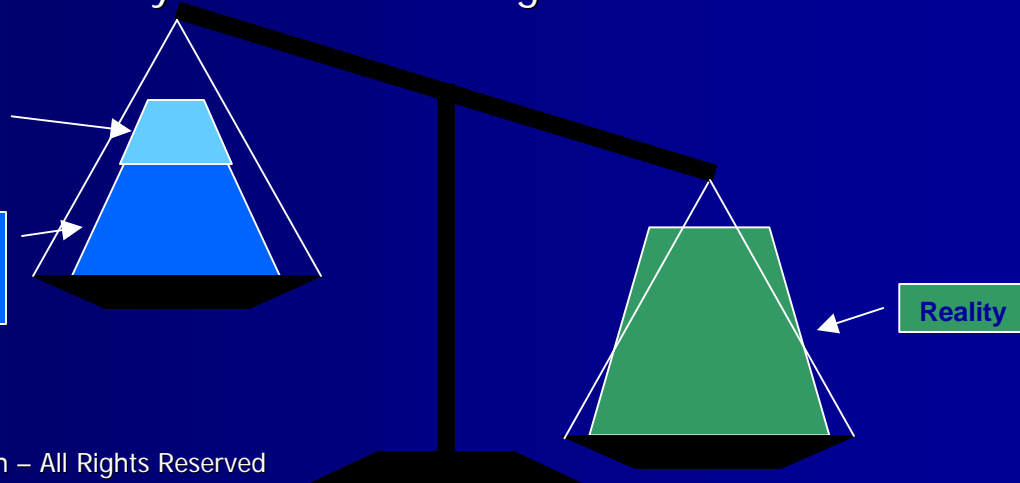
Cripple the company's responsiveness

Dependencies live in three places

The same one always carries more weight

Documents that are not read, not understood, not complete, not remembered

In fragments in the minds of specific individuals, many of whom are not available, and the sum of whom may still not know everything



Software Development Is Hard

- The core lexicon is HUGE
- Nothing is ever “just like the last one”
 - Always creating new intellectual property
 - Never manufacturing, never repeating the sales cycle
 - Never making *more*, always making something *new*
- Every line of code mortgages your future
 - Everything in the product has weight that induces drag
 - And has momentum that induces inflexibility
 - In addition to the value it **might** add
- Dependencies are not generally grokable, or even grepable

The Plan – Irony, Isn't it

- Let's take some nerdy engineers
 - Famous for their lack of social skills
- Put them into one of the largest departments in the company, with lots of inter-dependencies
- Make them work with people in virtually every other department as well
- Expect them to produce mission critical work that cannot get done without huge amounts of
 - Social interaction
 - Communication
 - Cooperation
 - All-around teamwork

The Plan

– Revised for the New Economy –

- Let's Outsource!
 - Multiple teams
 - Geographically distinct regions
 - As much cultural difference as possible
 - As many time zones as possible
 - Differing corporate and personal goals and allegiances

To Save Money in the New Economy

- \$100,000 per year is about \$52 per hour
 - Mark up for fringe benefits
 - Mark down for federal and state R&D tax credits
 - About \$65 per hour
- Compare to about \$20 per hour in India
- Net: about 3.25 : 1 – 70% Savings!
- Not True

Dollar amounts on these slides are rounded estimates for California and India as of mid-2005. Use whatever countries and rates you think best represent your circumstances and follow the same reasoning to arrive at your own conclusion.

How Much Do I Spend In Order To Save (1)?

- For every 3 people in India
 - Expect the output of 2 people in the US

(There are plenty of great engineers from India and in India – I am fortunate to employ more than a few of them myself, so I know – but *most* of the people your outsourcing partner will attract and retain will be entry level people with modest skills.)

How Much Do I Spend In Order To Save (2)?

- For every 5 to 10 people in India
 - One Technical Lead on your site at \$70 an hour
 - Live conduit for technical information and project management
 - At least one, no matter how small the team
 - The best way to fail at outsourcing is to “streamline out” this particular expense

How Much Do I Spend In Order To Save (3)?

- For every 50 people in India
 - One person on your site at \$120 an hour
 - Engagement Manager
 - At least one, no matter how small the team
 - Do NOT imagine that someone can do this part time and still get technical work done

How Much Do I Spend In Order To Save (4)?

- Budget \$3,000 per trip for you or one of your leads to go to India for two weeks
 - Half-yearly or quarterly, depending on total team size
 - If you have more than two dev teams in India
 - Send more of your leads, on separate trips
 - Have each one pay attention to every team and project

How Much Do I Spend In Order To Save (5)?

- Budget \$15,000 per dev team per qtr
 - One person from India on site
 - Achieve acculturation
 - Improve communication
 - Build emotional intensity
 - Foster company loyalty
 - Rotate this across all team members over time

Straight Comparison – US Data

- 16 developers at \$100,000 = \$65 / hr
- 4 managers / leads at \$120,000 = \$80 / hr
- \$1,360 per hour x 40 hours per week x 52 weeks
- \$2,828,800 per year

Straight Comparison – India

- 16 developers * 3 / 2 to match 16 US developers = 24, at \$20 / hr
- 4 leads at \$70 / hr
- 1 engagement manager at \$120 / hr
- \$880 per hour x 40 hours per week x 52 weeks
- Plus \$6,000 for you to travel to India twice
- Plus \$60,000 for India-based employees to rotate on site
- \$1,896,400

Straight Comparison

That's about 1.5 : 1
(not 3.25 : 1)

Netting It Out

- Now “Compute” ...
 - Lost Efficiency
 - Coordination effort by regular staff that would otherwise have gotten other work done
 - Time and money for misunderstandings and re-work
 - How much equipment will you have to fund to create a suitable offshore lab
 - *How much pain will your company tolerate when the risk materializes as an actual failure*
- Net: Considerable Savings (< 33% not 70%)
Considerable Risk (> 33%)

The Cost Savings Is Not Compelling

- Offshoring companies agree – now marketing
 - Increased capacity
 - Staffing flexibility
 - Technical expertise
 - World class process
 - NOT reduced cost
- “Co-Shoring”
- On Site Services

But Mom, *Everybody's* Doing It!

- ✓ Offshore IT projects
- ✓ Offshore Quality Assurance
- ✓ Offshore whole product development projects
 - On a large scale with *a lot* of buffer
 - (300 people, 2 years, net drag now nearing zero)
- ✗ Do NOT offshore
 - Time-sensitive
 - Quality-sensitive
 - Mission critical product development work
 - Especially if splitting work across multiple locations but not at a clean API
 - You are a small to medium sized company
 - ***Unless the rest of the company accepts the risk*** (they don't)

Domestic Outsourcing

- Fewer time zones
- Closer cultural match
- Easier travel
- Expertise you don't have and can't practically hire
- Staffing flexibility you do not want to manage
- Generally costs more than if you do it yourself
- Has similar hidden costs to offshoring
 - Inefficiencies
 - Lab build out
- Has much of the risk of offshoring
 - Wrong things get built
 - Re-work takes more money and more time – plan on it

Mitigating Risk – What Offshore Partners Say

- Specifications
- Visibility
- Process
- Tools
- Experience
- (people)

Mitigating Risk – Reality

- People
- People
- People
- Frequent Mini-Milestones
- Suitability of Project
 - Well-understood
 - Clear architectural boundaries, modularity, testability, clean API
 - Not over-constrained for time, money, functionality, quality
 - Dedicated technical supervision and measurement by someone on your team
- (Specifications, Visibility, Process, Experience)

Summary

Domestic Versus Offshore

- Remote Development Bad
- Do it domestically
 - To get expertise you don't have
 - If you can afford it
 - If you can take the risk of an imperfect deliverable
- Do it offshore to save < 33%
 - Projects you can afford to screw up for a while

Summary

No Matter What

- Spend the money and provide the leadership
 - Maintain a high level of social contact between the teams
- Rely on
 - People, People, People
 - Frequent Mini-Milestones
 - Project Suitability
 - Project Supervision