Panel

Challenges in Outsourcing and Global Development: How Will your Job Change?

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ABSTRACT

If you are a software professional, your job is changing. Outsourcing and global development affect many things in our work environment: what and where we build, how (and when) we communicate, and how we prepare ourselves for the future.

Outsourcing and global development inherently create challenges with long-distance communication, cultural differences, and crossing organizational boundaries. For example, how do software interface contracts help or hinder system integration? How can a team in one country extend or maintain software built by developers in another country?

This Panel will appeal to anyone whose job is affected by outsourcing and globalization. Panelists will present and discuss both social and technical issues.

Categories & Subject Descriptors:

K.1 The Computer Industry: Suppliers
K.4.2 Social Issues
K.4.3 Organizational Impact
K.6.3 Software Management

General Terms: Management, Process

Keywords: Out-sourcing, off-shore development

1. Steven Fraser, sdfraser@acm.org

By way of introduction, the motivation for offshore development seems to be primarily driven by three factors: cost avoidance, time-to-market, and customer proximity.

Karmarkar (Harvard Business Review, June 2004) has observed that cost-avoidance in the knowledge/IT industry seems to work best when there is a significant bimodal wealth distribution among a global community sharing linguistic and cultural contexts. Karmarkar suggests that the "English speaking world" appears to foster outsourcing opportunities more than any other language communities.

According to a recent A. T. Kearney survey, the top 10 countries for US-based companies with offshore development include: India, China, Mexico, Brazil, Canada, Czech Republic, Philippines, Australia, Hungary, and Ireland. The report ranked countries on the basis of their financial structure, business environment, staff talent and availability. While broadband connectivity has facilitated the sharing of information, it has not necessarily made sharing the context and culture of the end-user customer environment easier.

In keeping with fair disclosure, panelists are served notice that at the conclusion of this panel, they will be asked to answer the question: "In the context of outsourcing and global development – how will your job change?"

Steven Fraser has been involved in the issues of global development since his days at Nortel Networks. While at Nortel he created a virtual collaboration forum facilitated by video, audio and web-casting conferencing to promote R&D effectiveness across a network of global development centers. Currently Steven is an independent consultant in Santa Clara California. Previous to 2002 Steven held a variety of diverse software technology program management roles at Nortel Networks including: Process Architect, Senior Manager (Disruptive Technology and Global External Research), and Process Engineering Advisor. In 1994 he spent a year as a Visiting Scientist at the Software Engineering Institute (SEI) collaborating with the Application of Software Models project on the development of team-based domain analysis techniques. Steven is an avid operatunist and videographer. Dennis Mancl and Bill Opdyke are acknowledged for their collaboration and partnership in developing a similarly themed OOPSLA'04 workshop.

2. Lougie Anderson, lougie@sabrix.com

Sabrix is a VC-funded start-up company using Agile Development to produce mission-critical software for large multi-national companies. Sabrix began its first offshore development project in January of this year. We received recommendations from our VCs, researched the pros and cons of offshoring, checked references, and came up with a simple plan. We're still engaged with our selected off-shore partner and have been generally pleased with the work performed. However it has had an impact on how we develop and on our expectations for what is possible. My position, a dose of reality rather than a political or philosophical statement, will briefly describe our experiences during the execution of this 'simple plan'.

Lougie Anderson is Vice President of the Product Development at Sabrix, Inc. and is an adjunct faculty member at the Oregon Graduate Institute. She has over 20 years experience in the computer industry, having managed product groups involving internet technology, object technology, databases, and interactive multimedia. She has published papers on database benchmarking, data modeling, database user interfaces and tools, corporate digital libraries, and object technology. She served as the General Chair for the OOPSLA '96 Conference in San Jose and was a past board member of the OMG.

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3. Ron Crocker, ron.crocker@motorola.com

Competition is a natural outcome of a free market economy. People who run businesses will purchase their goods and services from the supplier with the best net effect on their business, and providers of goods and services compete on this basis. Competition in providing "high-tech" jobs is not inherently immune to this effect, therefore such competition is a natural consequence of operating in a free market; this effect is often referred to as labor arbitrage.

The terms of competition include costs and values – a focus on one or the other will provide sub-optimal results to the consuming organization. Specifically, focusing only on the [perceived] reduced price of software developers in certain far away places neglects the very real costs of working with people in far away places – costs in time, money, and value.

In a certain sense, software developers are modern-day autoworkers. Much like the auto manufacturers retooled their factory processes to leverage outsourcing and globalized development, organizations that create software must do the same. My experiences in building substantial software systems, including systems of systems, teaches me that these costs of working among distributed teams are the ones that will ultimately make or break the net success of the projects. Further, things independent of the software development process itself, things such as how the teams communicate or how the software is integrated, are the ones that have the largest impact on the success of the project.

Further, an important consideration is something I'll label "opportunity costs." I've been asked many times why I took on the job of building a system using resources from 7 countries – isn't that suboptimal? My response is always the same: No – it's only suboptimal if there's another way you can do the job. I had only the resources of these teams in 7 countries to do the job; doing the job required these resources, so we did it that way. The approach I most often counsel similar projects to follow is best labeled "minimize communication" – to find out what that means, come to the panel discussion.

Ron Crocker is a Fellow of the Technical Staff at Motorola. He has been responsible for 3rd Generation cellular system architecture, and has been working with object technology for 21 years. Before joining Motorola, he was a C++ guinea pig at Bell Labs. Ron was General Chair for OOPSLA 2003 in Anaheim.

4. Martin Fowler, fowler@acm.org

ThoughtWorks has been using offshore development with our Bangalore lab for a couple of years ago. We've been determined to use the same agile principles to do offshore as we do in our other work, and have found we can - although there is always a cost due to the communication gap in offshoring. (For more information on our lessons learned visit: http://martinfowler.com/articles/agileOffshore.html).

Martin Fowler is an author, speaker, consultant and general loudmouth on software development. I concentrate on designing enterprise software - looking at what makes a good design and what practices are needed to come up with good design. I've pioneered object-oriented technology, refactoring, patterns, agile methodologies, domain modeling, the Unified Modeling Language (UML), and Extreme Programming.

5. Richard Gabriel, rpg@dreamsongs.com

Outsourcing is spoken of as a great evil: Jobs are being shipped to far-away lands where the same work can be done for a fraction of the cost. Jobs we covet are moving pronto from renaissance locales like Cupertino to places like Sykes, North Dakota—you betcha. And from Sykes to Hà Nô. I derive two lessons from the practice of outsourcing: one is bad news, and the other is great good news. First the bad news. Executives are outsourcing software design and development because we aren't performing up to our salaries. Perhaps we have special skills and talents, but these are not seen as providing enough value. A rational company trying to improve and maintain its core competencies does that at home—it keeps these assets close to its center. If software development is not being improved and maintained at home, then it must not be a core competency. And if something is not a competency, then well, it must be an incompetency. With an average software project failure rate of 30% (almost 70% for large projects), and with our spectacular failures during the dotcom (*don't come?*) era (*the Zieglers* [founders of ZoZa.com] *scrapped all that when they found that the technology ruined the shopping experience because it took too long to download. "The medium is far more rigid than we imagined," says Mel [Ziegler]*), we got what we deserved. Maybe being too narrowly focused in technology is our problem. Here's what Daniel H. Pink said in a recent issue of Harvard Business Review: *Getting into Harvard Business School is a cinch. At least that's what several hundred people must have thought last year after they applied to the graduate program of the UCLA Department of Art—and didn't get in. While Harvard's MBA program admitted about 10% of its applicants, UCLA's fine arts graduate school admitted only 3%. Why? An arts degree is now perhaps the hottest credential in the world of business.*

We need to be able to do things you can't find for cheap in Sykes and Hà Nô. As long as we have programming languages and practices that are 80% drudge work, executives will pay labor wages for laborious work. Now the good news. What gets outsourced are the non-core competencies. Last time I checked, management is not a core competency of any business aside from management consultants etc. Customers place just about no value on what the CEO and top executives know and do. Here is what Mark Jaffe of the Bloomberg News wrote at the end of 2003: *The average pay for chief executive officers at 200 of the largest U.S. companies held steady in 2003 at about $11.3 million, while fees paid to corporate directors jumped as much as 15 percent. Top executives' average salary rose as much as 5 percent to $1.2 million and cash bonuses increased asmuch as 15 percent to $2.2 million.*

Let's look at a technology company at random. Adobe's CEO, Bruce Chizen, made $900,000 in salary and $942,000 in bonuses last year. Here is how Adobe creates value: *Adobe helps people and businesses communicate better through its world-leading digital imaging, design, and document technology platforms for consumers, creative professionals, and enterprises.* Chizen is a sales and marketing guy. I'm pretty sure he doesn't dream up new technologies or design products at Adobe. He seems like a charming guy, but in China, CEOs are paid 23 times less than in the US, so Adobe could outsource their CEO job—a job that creates no value whatsoever—and pay about $80,000 a year. Technical entrepreneurs can take advantage of this. Instead of eventually hiring an expensive CEO who golfs with the VCs, giving up a big chunk of the company and having to listen to mulligan stories at staff meetings, a software founder could hire an eager beaver "management team" in China at a fraction—1/23 to be precise—of the cost, retaining crea-

tive and technical control of the core competencies and having great dim sum at board meetings.

Dick Gabriel (Ph.D., MFA) is a Distinguished Engineer and chief scientist of a small laboratory at Sun Microsystems, researching the architecture, design, and implementation of extraordinarily large systems as well as development techniques for building them. He is Sun's open source expert, advising the company on community-based strategies. He is also President of the Hillside Group, a non-profit that nurtures the software patterns community by holding conferences, publishing books, and awarding scholarships.

6. Ricardo Lopez, rjlopez@qualcomm.com

Offshore development is concomitant with globalization, and like globalization it has both its adherents and detractors. There are many forums in which one can discuss both the benefits and impacts of globalization and specifically offshore labor. But the issues that offshore development raises for software development from my *point-of-view* specifically relate to the nascent formation of the Professional Software Engineer and the Software Architect in the U.S., Europe and Australia. I am concerned that a drive to measure software cost as pure NRE (*non-recurring engineering costs* - as many of us remember in business models of times past) will postpone the necessary evolution of these professions. Such a postponement could foster greater risk of destabilization in an increasingly software hostile environment.

Ricardo Lopez is a Senior Staff Engineer for the Office of the Chief Scientist at Qualcomm. He is responsible for Software Architecture, Software Process & Methodology, and sometime *Just Plain Old Software* (JPOS) whenever the need arises. Architecting & Designing Software for 30 years, he has been an evangelist for OO technology for the last 18 years and he has the arrow heads to prove it. He continues to advance and foster quality software architectures, designs and practices wherever he goes.

7. Dave Thomas, dave@bedarra.com

Outsourcing to gain an advantage in labor costs has been standard practice for years in many industries. It is actually surprising that it has only recently become a major factor in IT. Long before international outsourcing it happened nationally as businesses relocated to cities and states where business expenses were lower.

The negative view is that this further erodes an already difficult IT market taking jobs from wealthy countries to countries where labor is cheaper. The positive view is that outsourcing provides a redistribution of wealth from “have” to “have not” countries. This is clearly a value judgment and anyone being displaced is unlikely to see this positive perspective.

It is important to note that cheaper salaries are not the only catalyst for the redistribution of software development globally. Distributed development allows companies to locate near their customers; providing their customers in that region first class service in their language and time zone. Further it allows companies to exploit the high quality talent available in these countries. It allows even a small company to hire a world class team. Indeed these were the primary motivations for OTI to establish small labs globally.

While outsourcing opponents complain that work will be of poorer quality and performed by less skilled workers - we don’t agree. Developing countries place a very high value on education and hard work which is in this case their competitive advantage. IT in particular is so non-responsive, poor quality and disconnected from the business in many organizations that outsourcing is the final act of frustration for executives. In our technology arrogance we abandoned perfectly functional systems to “legacy” and pushed new technologies, largely unproven in value, with much greater accidental complexity than 4GLs or even COBOL. It appears that our legacy will be much more expensive to maintain than that of the previous generation of applications..

Outsourcing creates an increased need for communication of requirements, acceptance testing and most importantly communication of architecture. The use of component technology and loose coupling greatly facilitates the development of software at different sites. Distance requires that we make much more of the context explicit rather than implicit.

For those of us seeking to build and maintain software in America and Europe we need to first ensure that our professional competencies meet and/or exceed those of our competitors abroad. Secondly we need to substantially improve our productivity, quality through better discipline, and tools. In parallel we need have a much better understanding of the domain/business and the ability to work with the people in it. In the future combined honors BA, BSC, BB, BENG will be much more in demand than a 3 year CS degree.

Dave Thomas is founder of Bedarra Research Labs and adjunct research professor at Carleton University and the University of Queensland. Bedarra current focus areas are eLearning; Next Generation Application Development; Agile Software Development and Pervasive Computing. Dave is well known to the object community as the founder of Object Technology International (OTI) developers of Envy-Developer a unique CM environment for object oriented development; virtual machines for Smalltalk, Java and IDEs for IBM VisualAge for Smalltalk; for Java; Micro Edition for Embedded Systems and Eclipse. Bedarra focuses on the transfer of research from the lab to industry. Dave is a founding director in Agile Alliance, and columnist for the Journal of Object Technology (JOT) and OTLand.