

Economic Cooperation

2008/SMEWG/SYM/013 Agenda Item: 7.1

The Challenges of Building Capacities and Skill Sets for an IT Outsourcing Partner

Purpose: Information Submitted by: USA



APEC Symposium on Improving Market Access for ICT Outsource SMEs Hanoi, Vietnam 27–29 October 2008

The Challenges of Building Capacities and Skill Sets for an IT Outsourcing Partner

By: Hoang Nguyen (PacificLinks Foundation, USA)

ABSTRACT:

At the beginning of this century, many people still thought that IT Outsourcing is a fad, a marketing ploy. Several years ago, a number of visionary leaders of the industry and business world started recommending that IT Outsourcing be taken more seriously, in the context of corporates' strategic thinking. The concept of 'partner' has been used more frequently to indicate the preferred roles to be played by IT Outsourcers.

We are now in 2008, and many outsourcing relationships are still struggling or broken up all together. Root causes of this not-so-rosy situation are complex, and stakeholders are still trying to draw good lessons from the experiences.

From an IT practitioner's own experiences, the presenter will try to understand the challenges an IT Outsourcer would face. The analysis and comments are mainly focused on the required skillsets of the development team that an IT Outsourcer would need to bring to the partnership. Given the current state of the Vietnamese IT industry as well as the preparation of its workforce, it is the presenter's hope to contribute into the serious discussions of how to prepare for a strong IT industry, in which outsourcing is a crucial component.

OUTSOURCING PARTNERSHIP: THE CHALLENGE	The Global Search For Talent
The Challenges of Building Capacities and Skill Sets for an IT Outsourcing Partner APEC Symposium on Improving Market Access for ICT Outsource Hanoi- 2008	 A study presented (in 2006) to the U. S. National Academies the nation's leading advisory groups on science and technology suggested that more and more research work at corporations will be sent to fast- growing economies with strong education systems, like China and India. Also, it stated: "multinational corporations were global shoppers for talent" (NYT February 16, 2006) Its applicability to IT R&D
1 Hoang Nguyen Pacific Links Foundation Oct. 2008	2
Is Low-Cost Still A Factor?	Expectations
Is Low-Cost Still A Factor? • "Cheap labor" advantages of offshore outsourcing are on the way out	Expectations •The "Partnership" model
•"Cheap labor" advantages of offshore outsourcing are	
 "Cheap labor" advantages of offshore outsourcing are on the way out 	 The "Partnership" model Roles of a solution provider To be able to take part in the full (and complex) development cycle process
 "Cheap labor" advantages of offshore outsourcing are on the way out Contributing the (local) talents Cutting cost by raising the efficiency of the development 	 The "Partnership" model Roles of a solution provider To be able to take part in the full (and

Do SW Development the Right Ways	Can We Make It?
•The <i>impossible</i> triangle: Time - Cost - Quality	Current state of the industries: The talent pool
 Know our weaknesses using the industry's benchmarks and norms. 	The "still developing" IT industries of some developing countries
 Know our strengths and the competitors' on the "Cost" issue. 	•The well accummulated knowledge base of the global IT industry
 The Challenges are still on "Quality" and "Time" 	 Benefits of a young workforce
 Survive (and exploit) the "Interdependencies" 	
	6
Where The IT Industry Is Small	Thank You For Your Attention.
Where The IT Industry Is Small •Focus on Quality, Quality and Quality	Thank You For Your Attention.
	Thank You For Your Attention.
 Focus on Quality, Quality and Quality Specialization (coupled with effective education & 	Thank You For Your Attention. Your Thoughts and Comments?
 Focus on Quality, Quality and Quality Specialization (coupled with effective education & training) of our IT workforces 	
 Focus on Quality, Quality and Quality Specialization (coupled with effective education & training) of our IT workforces Strength of Cooperations/Alliances: Coopetition. Building for the Future: The IT industry alone 	



Economic Cooperation

2008/SMEWG/SYM/014 Agenda Item: 7.2

The necessity of a collaboration tool in outsourcing projects, a case study with EPM

Purpose: Information Submitted by: Vietnam



APEC Symposium on Improving Market Access for ICT Outsource SMEs Hanoi, Vietnam 27–29 October 2008



A collaboration tool in outsourcing, a case study with EPM

Outsourcing Centre Management: A Summary

Phases		Activities	We	Client	
Project identification		Initiation		Í	
Requirements		Planning	Ĩ	Í	
Design	5	Execution	Í		
Test plans	(Reporting	Í		
Coding & unit testing System testing		Monitoring	ĺ	ĵ	
Integration		Delivery	j		
Implementation		Approval		Í	
		Closure	Í		
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A collaboration tool in outsourcing, a case study with EPM

Collaboration in outsourcing

- Multiple partners take part in project.
- Communicate by phone, mail, chat
- Daily report, weekly report, productivity report (Excel)
- Track progress realtime is necessary
- \rightarrow Need a collaboration tool that is used in both side.
- EPM is a solution !!!

A collaboration tool in outsourcing, a case study with EPM

A collaboration tool in outsourcing, A case study with EPM

- Theoretical Approach
- Applying EPM System

A collaboration tool in outsourcing, a case study with EPM

Theoretical Approach

Influence from IBM Rational Unified Process (RUP)

- Use Case-oriented: Functional Requirements are firstly mapped into Package/STRQ/FEAT/UC
 - STRQ (Stakeholder Request): general requirement at high level
- FEAT (Product Feature): product is break-down into concrete features
- UC (Use Case also called Software Feature): how user and system interact when accessing to FEAT

Sample...

 Requirement change, work-load estimation & human resource management, planning & progress checking, quality control, discussion management, etc... are internally managed based on the project's requirements "tree" STRQ/FEAT/UC

 When necessary, project management reports are mapped back into partner's requirements structure in order to submit to partner





Applying EPM system

- Entire Project Monitoring System
 - Copyright by EVSoft Co. Ltd., 2006-2008
 - Based on PMBOK methodology
 - Providing environment for both side
 - > Supporting efficient project management tasks with low cost
 - > Customizable in order to adapt to different partner's software development process
 - Support multiple languages



EPM process based on PMBOK methodology



Plan: Initialize a plan schedule, tasks and assign to members
 Do: Execute the tasks and update result status
 Check: check the progress based on each task, generate reports

Action: manage human resource, tasks, schedule and re-cycle new plan



A collaboration tool in outsourcing, a case study with EPM

Mapping EPM functions with PMBOK's knowledge areas

Project Ir	Process Groups Knowledge Area	Initiating	Planning	Executing	Controlling	Closing	osing
Project S	4. Project Integration Management		4.1 Project Plan Development	4.2 Project Plan Execution	4.3 Integrated Change Control		
	5. Project Scope Management	5.1 Initiation	5.2 Scope Planning 5.3 Scope Definition		5.4 Scope Verification 5.5 Scope Change Control		
Project T Project C	 Project Time Management 		6.1 Activity Definition 6.2 Activity Sequencing 6.3 Activity Duration Estimating 6.4 Schedule Development		6.5 Schedule Control		
	7. Project Cost Management		7.1 Resource Planning 7.2 Cost Estimating 7.3 Cost Budgeting		7.4 Cost Control]
	8. Project Quality Management		8.1 Quality Planning	8.2 Quality Assurance	8.3 Quality Control		1
roject Q	9. Project Human Resource Management		9.1 Organizational Planning 9.2 Staff Acquisition	9.3 Team Development			1
roject H	10. Project Communications Management		10.1 Communications Planning	10.2 Information Distribution	10.3 Performance Reporting	10.4 Administrative Closure	1
lanagen Project C lanagen	11. Risk Project Management		11.1 Risk Management Planning 11.2 Risk Identification 11.3 Qualitative Risk Analysis 11.4 Quantitative Risk Analysis 11.5 Risk Response Planning		11.6 Risk Monitoring and Control		ect verable leases
isk Proj roject P	12. Project Procurement Management		12.1 Procurement Planning 12.2 Solicitation Planning	12.3 Solicitation 12.4 Source Selection 12.5 Contract Administration		12.6 Contract Closeout	_

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A collaboration tool in outsourcing, a case study with EPM

EPM WorkItem Concept

- The smallest piece of work to construct complicated project plans
- Can be automatically generated based on a set of WI Templates in associating with requirements (STRQ/FEAT/UC)
- Can be assigned to a project member in order to process
- Quality can be checked based on the project regulation
- Status can be tracked real-time in order to build the whole plan/project progress report at any time
- ➡ EPM can be customized to support different software development processes from different partners thanks to the capability of freely defining WI Templates & WI-based Reports



A collaboration tool in outsourcing, a case study with EPM

Zoom-in for Project Management with EPM

- Working Environment
- Human Resource Management
- Work-load Estimation
- Planning & Progress Checking
- Requirement Management with Change
- Communication Management
- Quality Management
- Security Management

\mid A $\,$ collaboration tool in outsourcing, a case study with EPM $\,$

Working Environment

- EPM provides insite & outsite management environment & report
- Documents and source code sharing is not covered by EPM
- Testing environment is also not covered by EPM
- Data synchronization between development/testing tools with EPM can be automatically or manually



A collaboration tool in outsourcing, a case study with EPM

Human Resource Management

Project member roles

Project Manager (PM): plan, progress & report

- > Software Engineer (SE): architecture, design & code review
- Programmer (PG): code development & unit test
- Quality Assurance Staff (QA): integration test & performance test
- > Communicator: Japanese translating, customer communicating
- Sharing human resource with partner (mostly for outsourcing project)
 - Project members outside and inside should be able to easily collaborate
 - Checking & reporting working productivity of all project members
- Sharing HR information with partner/customer (mostly for man-day based maintenance project)
 - Project members as well as their working hours can be real-time checked in EPM system
 - Working productivity and quality of each member also can be checked at EPM system

Work-load Estimation

- WorkItem-based with requirements list (STRQ/FEAT/UC)
- Complexity of each UC/FEAT is estimated by 4 levels (simple, normal. complicated and verv complicated) for each Design, Coding and Testing phase (sample)
- Average man-day required to carry out each **UC/FEAT** WorkItem is calculated with "similar" project by EPM system
- Total work-load is calculated with the UC/FEAT list (with the complexity level) and average UC/FEAT Workltem man-day

Entire Project M	onitoring System	1	ñ.	14		🔪 - ST	quire RQ/FE omplexi	EAT/UC
from: 04/01/2008	to: 04/30/2	2008					mpien	ily iere
WorkItemTemplateN	ame Total	man-c	lay Av	erage				
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C.UC	76	167.5	35 🤇	.204 _	>			
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T.Exe.UC	44	58.67	15 1	.334				
Reg. & Text Case	Name (IP)		Complexity	Req Sce.FEA1	GUSpec.UC	AD JO FEAT	Cuc	Test TiPtan.UC
STRQ_NQ_WSee_01	107.00 B							
FEAT_HQ_MSale_01.01	売上入力							
FEXT_HQ_MSale_01.02				0.16	0.56	0.25	0.20	0.20
	本上編会		1	0.15	0.25	0.25	0.80	0.20
	売上編会 預り加工管理	_	2	0,15	0.26	0.25	0.30	0.20
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	預り加工管理		1	0.30	0.50	0.50	1.60	0.40
FEAT_HQ_REade_32.01 FEAT_HQ_REade_32.02 FEAT_HQ_RESde_32.03	通り加工管理 通り加工分力 通り加工介力 通り加工修正 通り加工除会		2	0.30	0.50	0.50	0.30	0.40
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御客馆和所当 購入実績研会 売掛管理(研 評意先台場の)

. 不讳管理

A collaboration tool in outsourcing, a case study with EPM

Planning & Progress Tracking

High-level Planning

- Normally used to discuss and agree with customer
- Constructed at FEAT level, with FEAT's WorkItem (concrete enough but not too detail)
- Activities duration are calculated as work-load estimation ▶ Sample

Detail Planning

- For carrying out the tasks that already agreed with customer Implementation of high-level plan, at UC level, with UC's
- WorkItem
- Registered into EPM system & assigning plan's WorkItem to project member for updating status & tracking progress
- Sample
- Plan Progress Tracking
- Real-time plan progress tracking based on the WorkItem status undate
- Man-day before/behind schedule calculating
- Progress report as customer request (sample)
- **Overall Project Progress Tracking**
- Number of FEAT completed by total FEAT
- Number of UC coded/tested by total UC Sample 100

MS Project/Excel Document

FEAT 01]
FEAT 02	L
FEAT 03	

Entire Project Monitoring System FEAT 01 -UC.01.01 50% (PG1) UC.01.02 70% (PG2) UC 01 03 100% (PG3) UC.01.04 100% (PG4) FEAT 02 UC.02.01 30% (QA1) UC.02.02 30% (QA2) FEAT 03 UC.03.01 -(SE1)



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Requirement Management with Change

- Requirements Management
 - Structures by STRQ/FEAT/UC tree
 - One STRQ is satisfied by a number of FEAT, one FEAT is satisfied by a number of UC
 - Change of STRQ level may affect to all related FEAT/UC (affect much to project scope)
 - Change of FEAT level may affect to only related UC (acceptable)
 - Change of UC level must be taken into account when executing the development phases (design, code, test)
- Philosophy of Requirement Change Management accepted by EVSoft
- Always keep the original requirements (for controlling the project scope) but accept requirement change
- Project scope change (duration, human resource, budget) must be estimated and notified to customer
- > Final project scope change (mostly man-day added) is re-calculated and reported to customer is necessary
- Above to ???
- EPM is our solution !!!



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A collaboration tool in outsourcing, a case study with EPM

Printy

plant.

- **Req. Management with Change (2)**
 - EPM DIERequest Concept
 - Defect: bug reported by customer
 - Internal Request (IR): EVSoft internal req.
 - additional requirement or change of
 - Requirement Change Process
 - from and confirmed with customer in many ways, but finally submitted to EPM as a DIERequest (ER)
 - associated with ER in order to manage the change scope
 - project members
 - WorkItems) is notified to customer and the progress can be tracked
 - Requirement Change Report
 - List of Enhancement Requirement related to each FEAT/UC (sample)
 - Status of each Enhancement Requirement
 - Total man-day provided to process
 - Enhancement Requirements

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Enhancement Requirement (ER): existing requirement

- Requirement change request can be received
- Related requirements (mostly FEAT/UC) are
- ems_are generated with related FEAT/UC and assigned to appropriate
- > The plan to process ER (based on related

Planning for Reg. Mgnt. with Change



A collaboration tool in outsourcing, a case study with EPM

Communication Management

- EVSoft's objective in Communication Management
 - To define the regulation and operate communications timely and correctly for all information occurred in the Project
 - > But, if necessary, flexible and appropriate communications will be acceptable according to the information security policy

Discussion Management

Name: Chus thực hện được bảo cảo Trá háng trong chức năng cấp phức lại phẩu Trá hàng (Pouss-Pousa)」送品位原用用行教能で、送品しボートが取行でき Au upprost.com/active/activ

Description : Do tái leu của chức năng Trá hàng (PD011+PD012) chua đây đủ và chức năng Trá hàng chua được thực tiến, nêm chua có đữ lêu, để thực tiến bảo các Trắ hàng trung chức năng Cập thức là phiếu Trá hàng (PD005+PD005)

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22

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Date & Time : 4/14/2000 1:42:20 PM

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道品機能の仕様実料を教えてくだれい。

Related items : FEAT_POS_02.02

- Caneral Discu

8 🎑 STRQ POS 02: Quản 🥥 Q305 : Chura thực

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Request from B TEAT_POS_02.00

OZ70 : Noutil

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Q316 : Tam dùng

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8- Car PEAT_POS_02.01

R PEAT POS 02.03

- Communication Methods
 - Meeting
 - Question & Answer (Q&A)
- Communication Control
 - Q&A can be carried out with EPM Discussion feature (supporting email notification)
 - > Or, follow the partner's communication standard flow (sample) and Q&A sheet (sample)
 - But, always keep communication log in EPM

- If necessary, EPM can support Special Q&A sheet export feature to export the discussion contents to a specific template
- When necessary, all communication log related to one requirement (STRQ/FEAT/UC/ER) can be easily retrieved from EPM

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Quality Management

EPM's objective in Quality Management

- Develop the system meeting to customers' requirements and to improve the customer satisfactions
- Detect as soon as possible the risk points that lead to "wrong system development"
- Quality Management is carried by 4 items

Review

- To confirm whether the outputs of each development phase have been developed correctly or not (even the system is not developed yet).
- Review can be at the Req Spec phase (with customer), at design phase (with out-source partner), at coding phase (internal), at integration test phase (with customer/partner)
- From experience, requirement change requests are mostly issued at Review. Depended on the related FEAT/UC already developed or not, these issues will be treated as requirement adjustment or enhancement requirement

Testing

- To check if the system (or a part of) has been developed correctly or not
- ÷., Unit Test at coding phase, by PG
- Integration Test & Performance Test at testing phase by QA
- Product Test at Delivery phase, at the customer's site, within customer's environment

Quality Control

- To analyze results from every Review or Test ÷.,
- Quantitative and Qualitative methods
- Decide the appropriate solutions to improve the quality

- Deliverv/Acceptance Testing
- To confirm with customer that the whole product has been developed correctly as customer's requirements

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Quality Control - Quantitative Method

- Number of TC/UC
- Bug discovery rate (number of TC test failed/total TC/UC)
- Testing productivity (man-day for testing 100TC)
- PG's bug rate
- PG's repeated bug rate
- Etc...

PG	Passed	Failed	%Bug	×1	×2	×3	×4
	2822	1032	27%	806	107	4	0
Đặng Hồng Quân	1184	191	14%	163	14	0	0
Dương Hồng Thái	678	193	22%	161	16	0	0
Trần Thị Thương	311	103	25%	83	10	0	0
Hà Thành	133	99	43%	76	10	1	0
Lê Khắc Chính	243	198	45%	121	34	3	0
Bùi Trung Dũng	160	185	54%	155	15	0	0





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Quality Control - Qualitative Method

Mostly for bug reported from partner/customer

Bug analysis process & result (sample)

	Input	Related Info	WI / Responsibility	Check Result	Conclusion ≕> Next Step or Create Defect Plan with Recovery WI	_
1/.	Other	Release		→ OK (i) not OK (ii)	→ <u>CO.1</u> : バグと判断されたら、DEReaはタイフを「Other」から「Defect」に変更する。 → Sbp 2 → <u>OO2</u> : バブではないと判断された場合 → お客様に間違いReleaseを提供したと理解される。 → <u>CL</u> . いReleaseを再成お客様に提供する。	
2/.	Defect	UC FEAT STRQ	R.FEAT R.UC SE1	• OK(1) not OK(2)	 ◆ Q1± バグが発生した原因は [Req Speed] フェーズではない。 ◆ Sbp3 ◆ G12 要求の付援はSEIの過去のせいで、正しくなかった。 ⇒ UDRFEAT/UDRUC/UDADFEAT/UDCUC/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDADFEAT/UDCUC/UDCUC/UDADFEAT/UDCUC/UDCUC/UDADFEAT/UDCUC/UDCUC/UDADFEAT/UDCUC/UDCU	
3/.	C1.1	UC FEAT STRQ	AD.FEAT SE2	• 0K(3) not 0K (4)	→ <u>C21</u> パグが発生した原因は [Req Sped] と [Design (設計)] フェーズではない。 → Sep 4 → <u>C22</u> Design (設計) は要求の仕様波科の通りに正しくなかった。 → UDAD FEAT UCUC/ UCITPENDC /TExcD	
4/.	C2.1	► UC FEAT STRQ	T.Plan QA1	→ 0K(5) not0K(6)	→ <u>C31</u> . パグが発生した原因は、「Req Spec」、「Design」、「Test Case design」フェースではない、 ● Seps5 ● <u>C32</u> テスト仕様書(Test Case)には、「Defedd」が現生するケースは作成されていない。 ● UC.00 / UDIT Pan.UC / TExe D	•
5/.	<u>C3.1</u>	TestLog UC FEAT STRQ	T.Exe QA2	→ OK(7) notOK(8)	→ C4.5 テスト操作(Test Execution) は正 しくなかった。 → UC10 / TExe D → C4.2 設計されたTest Caseの通りにテスト実行した時、テスト遅れがあった。 → UC10 / TExe D	
				X		27
						_

A collaboration tool in outsourcing, a case study with EPM

Security Management

- To be followed fully conditions for confidentiality defined in contract customer
- Information Management
 - Receiving and Creation
 - Respecting security level requested from customer/partner: "Strictly Confidential", "Confidential", "Confidential Company Intremal only", "Confidential Group only", "Important" Restriction un using portable media such as FD, CD-Rom, USB-Key etc.
 - Storage

 - Data or information stored with encryption. Not copy the information so much if unnecessary
 - Distribution
 - Electronic-data must be sent with password (if sending through the external network)
 - In case of using postal services or fax transmission, tracking and confirming of receiving is necessary.
 - Usage
 - In case of leaving the desk or going back home, confidential information shall not be kept on the desk or public space.
 - Prohibited to use lap-top PC in "project network zone" as customer/partner requested
- System Management
 - Common Issue: project data shall be stored in the shared file system. Not in the individual PC client
- Password
 - Password shall be difficult to guess by third parties.
 - · Password shall be controlled confidentially.
 - Prohibite to know other members passwords and use these passwords.
 - If the confidentiality of password can not be kept, password shall be changed time by time. · Prohibite to note the password on the paper.
- Anti-Virus
- Anti-virus system must be used at server as well as every project member PC
- Daily update virus database
- Other security issues

```
    Firewall is applied to protect access from outside
```



Screen shots



| A collaboration tool in outsourcing, a case study with EPM

Screen shots



A collaboration tool in outsourcing, a case study with EPM

Screen shots

Plan Name	Start date	Deadline	Description					Freeze	,									
Nov 2006	01/11/2006	30/11/2006	Detail plan for No	ovember 2006			100%	П	Role	~	1	٩	12	di.		81	1	1
Dec 2006	14/12/2006	31/01/2007	Detail plan for De	cember 2006			100%	п	Role		1	0	4			\$2	1	8
Jan 2007	05/01/2007	31/01/2007					100%	П	Role	~	0	0	-	1		8	1	11
Feb 2007	01/02/2007	28/02/2007					100%	П	Role		1	0	-	ah.		81	1	10
Ww 2007	02/03/2007	31/03/2007					100%		Role	~	42	0	4	1			1	11
Apr 2007	09/04/2007	14/04/2007					100%		Role		-	0	12				5	
Apr 2007 (2)	16/04/2007	20/04/2007					100%	Ē.	Dala	5	-	-	10		-	-	5	*
			A	Select week for report from	08/22/2007	Te -			-		teel neri				100	nerste	Benot	Exports
Apr 2007 (3)	20/04/2007	26/04/2007	from 20 to 26 Ap					1025	_			-						
fay 2007	04/05/2007	31/05/2007		Weekly report in Intal time working in we														
un 2007	01/06/2007	30/06/2007		Uner Hartun	Working Timeth		regress in			on Jacob			ran in pr	siles of the	an deer			We defee total
ul 2007	01/07/2007	31/07/2007		Tenh Thanh Dúng (SE)	70.73	+2.00					0.04					-		06(0%)
				Bia Trên Diảng (PG)	46.82	+ 0.00					0.00	ŝ.						02(0%)
Aug 2007	01/08/2007	31/08/2007	new features as	Trần Guang Sơn (PO)	68.18	-1.00					-1.0	0						10(175)
kug & Sep 2007 (bug fixing)	01/08/2007	30/09/2007	Bug fix reported	Fotal working time in week														
Sep 2007	01/09/2007	30/09/2007		Manday in week : 1.00 man Productiveness(total V		te, average t	ine to co	male for .	a warkite	m ldae	511							
				Userliane		CIIC	UBCB		840			ECUC			c :		ac	840
				Timh Thanh Dúng (SE)		0.000	8-0.00		5.0	10	0	. 6.00		5-0	75	1	0.00	0.0.00
				Bia Telin Dúng (PO)		0.0.0	0-0.00		0-0	00	0	0.00		2.1	82	0	1.00	0-0.00
				Trilin Guing Son (PG)		8-0.00	8-030		0-0			- 6.00		2-3	57		-940	8-0.28
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				Trinh Thanh Dúng (SE)	2/	0 (0%)	070(0%)		8/8(0%)		8/8/8	153	0	0(3%)		8/8(5	m)	818(05)
				Bia Trần Đứng (PO)	0.0	0.00%3	010(0%)		0/0(0%)		010(0	90)	0.	0(0%)		0/0.0	160	010(0%)
				Trần Quang Sơn (PG)	2/	0.07%.)	0/010%)		0/0(0%)		0/0(0	rk.)	0.	0(2%)		0/8(0	PK.)	0/0(2%)

	tool in outsourcind	







Economic Cooperation

2008/SMEWG/SYM/015 Agenda Item: 7.3

Moving up the value chain in the global context of software outsourcing process

Purpose: Information Submitted by: Vietnam



APEC Symposium on Improving Market Access for ICT Outsource SMEs Hanoi, Vietnam 27–29 October 2008

Moving up the value chain in the global context of software outsourcing process

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Contents

- Risks and Strategies in the Global Offshore Outsourcing Process
- Supply Chain
 - Automotive Industry: An Illustration
 - IT Industry
- Competitive Edge
 - Customer Perspective: Battle of the IT Supply Chains
 - Outsourcing Vendor Perspective: Moving up the Value Chain
- Critical Factors in Supply Chain
- An Approach: Moving up the chain via Q factor

2

Offshore IT Outsourcing Trends

- Global scale: the whole business process instead of discrete pieces of work
 - By InformationWeek 500 list of business technology innovators
 - 2004: 43% do offshore IT outsourcing
 - **2007: 67%**
 - According to the consulting firm NeoIT
 - **75%** of the world's 2000 largest companies
 - Offshore: Current 20% may scale up to 40% of their IT budget
- Cost: still the most important factor
- More collaborative client-provider relationship
 - Result-based contracts
 - More critical work to be outsourced: e.g. Business process outsourcing (BPO)
 - BPO in InformationWeek 500: 17% (2004) vs. 40% (2007)

3

Risks for Clients

- Outsourcing more critical work → How to foster new IT leaders [system work, company knowledge]??
 - Teradyne: architecture design, project management, etc. (20%)
 - HCL: infrastructure, desktop support, application development (80%)
- Better vendor management skill
- Reverse effect from outsourcing destinations
 - Talent shortage
 - Rising wage + high employee attrition
 - Attrition: 12% or more among IT service providers
 - E.g.: Infosys (lost 11,000 out of hired 30,964 in 2007); TCS (3,200 among 12,500 in a single quarter)
 - Providers: Keeping up human resource and work quality with the growth of business

Strategies of Clients

- From technical level to broader business outsourcing process
 - Clients providers: comparative (even absolute) advantage in different segments of value chain

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- Result-based outsourcing contract: shorter, more incentives
- Closer relationships with offshore providers
 - Helping the vendors to keep *skilled and experienced* workers
- Work allocation: sharing more information with vendors
 - Client: high value-added services
 - Vendor: low-level services but *moving up*
 - Difficult decision on "core" and "external" parts??
- Employee and outsourced worker: blur distinction
 - Outsourcing is still better than hiring!!

Global Offshore Outsourcing Process

Synergy of the two sides: client and provider

How outsourcing providers, especially SMEs, utilizes this trend for their own sakes?? ↓

An answer: analyzing the supply chain of clients and moving up the chain appropriately by minimizing the reverse risks of clients

6

Supply Chain

- Traditional (GM, Ford): price-based sourcing
 - Revealing as little information as possible
 - Avoid losing edge to the suppliers
- Automotive supplier partnership: Win-Win
 - Toyota, Honda
 - Manufacturers and suppliers: long-term commitment
 - Improving each other's capabilities
 - Collaborating openly on lowering costs + raising overall performance
 - Competition:
 - not Toyota vs. GM
 - Toyota's supply chain vs. GM's supply chain



Supply Chain

- IT industry: the same competition style will hold??
 - 1st tier IT suppliers start to increasingly outsource pieces of their own projects
 - The process keeps going until there is a multi-tier IT supply chain
- Often, supply chain is close to "value" chain



- The higher level in the chain, the more power and value-added innovation a company possesses
 - Companies, especially SME, are encouraged to move up the chain for
 - Better skills, technology, bargaining power
 - More experience on large scale projects
 - Cost cutting via economy of scale

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Competitive Edge on Client Side

- Focusing only on "core" technology
 - "Comparative advantage" principle
 - More critical works are outsourced
 → Difficult decision: which parts are core, which parts could be outsourced
 - \rightarrow Nurturing IT leaders of their own
- Slimming the management workload
- Taking advantage of their suppliers
 - More freedom in selecting suppliers among many
- "Collaboration": a must for any success in the globalization process
 - Dynamic organization instead of conglomerate structure

Competitive Edge on Vendor Side

- Improving skills and experiences
- Flexible among various clients
- For SMEs, big projects are important
 - Possibility of high value-added services
 - Economy of scale
- "Collaboration": a must for any success in the globalization process
 - SMEs act as satellites of the big client (Tier 1 or 2)
- The higher level in value chain, the more competitive a company
 - "Moving up the supply chain"

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Critical Factors

- Software: specific type of manufacturing products
 - Software development: parallel with manufacturing
 - Complying all major critical factors for success

• Key performance indicators:

 Quality [Q], C [Cost], D [Delivery], S [Security] and S [Service]



- Measuring business activity
- Offshore outsourcing: C is still the main goal
- Competition: mainly considering within these 5 indicators

Critical Factors • QCD can be used in various environment: Supply chain Engineering Benefits of QCD:

- Straight forward
- Applicable to both simple and complicated processes



- Q: best defined as the no. of errors within a process of the chain
- C: obviously important \rightarrow via internal inventory control and accounting
- D: timeliness of software delivery w.r.t an agreed schedule

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Critical Factors

- QCD metrics:
 - Directly related to the measurement of supply chain activity
 - Valuable mechanism into finding areas for improvement
- QCD strength and weakness:
 - Strength: simple and best method for the environment in which information and physical flows
 - Weakness: not the best method for certain service industry such as IT consulting

An Approach For Vietnamese SMEs in IT industry Mainly quality assurance and simple application development Low-tech: human-based testing Cheap and labor-consuming works Problems/concerns in supply chain of [Japanese] clients: Software quality [Q]: delivered not as good as expected Common to the world's software industry Outsourcing at the lowest parts in the software chain

Cost [C]: utilizing cheap labor in Vietnam



- Resolving reverse effects on clients' risks
 - Talent shortage: via top-ranked academic institutions in Vietnam Quality vs. quantity
 - Rising wage + high employee attrition • Working environment and promotion
 - Keeping up human resource and work quality with the growth of business
 - Working environment and culture in the firm
 - Technology and expertise
- An approach:
 - Focusing on Q factor of the whole supply chain
 - Climbing the chain appropriately
 - R&D for more advanced technology: international collaboration Academic institution (JAIST, IoIT), outsourcing provider (IoIT) and industrial partners (NANO, ...) in Japan
 - Applying world-level technology into a particular clients' concern

An Approach

- Japanese IT market:
 - 2nd largest single market in the world
 - Industry-based economy sector is large compared with the U.S
 - Embedded software: priority
 - Quality: major concern for all businesses
- Typical software chain: involving people, process and technology
 - Outsourcing may span all 3 areas
 - Unlike US and European businesses, Japanese companies currently outsource mainly in technology area
 - People: language barrier
 - Process: different working environment and culture?

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An Approach

- Technology aspect in software chain
 - New ideas/application projects, data analysis etc.
 - Project management
 - Architecture design, system design
 - Application development
 - Quality assurance: testing, verification
 - Maintenance: infrastructure, desktop support etc.
 -
- Automatic software quality-enhancing tool
 - Quality assurance activity in the chain, specifically code development
 - Static code analysis: MISRA-C based code checker
 - Run-time unit testing: JUnit-like dynamic testing

An Approach

- Static code analysis: catching post-compile violations
 - MISRA-C: embedded software programming standard
 - Making source code safer and more comprehensible
- Run-time unit testing: catching possible run-time errors
 - Weaving the testing code right at the module to be checked
- In the future, moving up the chain
 - Evaluating quality of system and architecture design
 - How??
 - Availability of technology??
 - Willingness of information sharing from clients??
- 19

Conclusion

- New era of IT offshore outsourcing: *globalization*
- Supply chain
- Attaining competitive edge:
 - Client perspective
 - Outsourcing provider
- Critical performance indicators on value chain
- An approach for SMEs
 - Ensuring Q factor in the higher levels of supply chain

References

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