# Cultural attributes influencing collaborative IT Services delivery
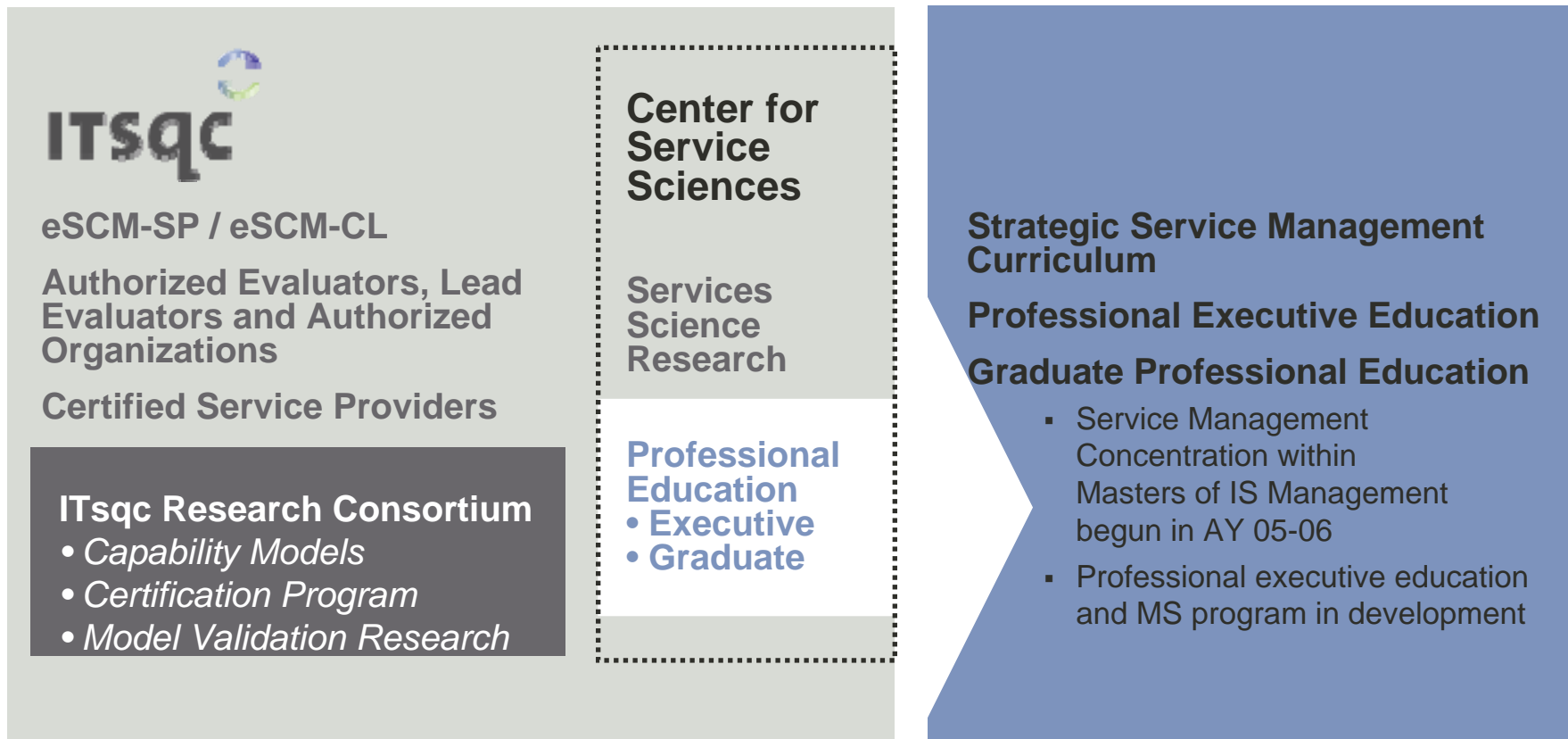
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Carnegie Mellon University
April 29, 2007

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Mark Paulk, Jeff Perdue

See: http://itsqc.cmu.edu/downloads

ITSqc
**Carnegie Mellon**

# Carnegie Mellon established a services science center, ITSqc, in 2000

**ITSqc**

**eSCM-SP / eSCM-CL**

**Authorized Evaluators, Lead Evaluators and Authorized Organizations**

**Certified Service Providers**

**ITsqc Research Consortium**
- *Capability Models*
- *Certification Program*
- *Model Validation Research*

**Center for Service Sciences**

Services Science Research

**Professional Education**
- **Executive**
- **Graduate**

**Strategic Service Management Curriculum**

**Professional Executive Education**

**Graduate Professional Education**
- Service Management Concentration within Masters of IS Management begun in AY 05-06
- Professional executive education and MS program in development

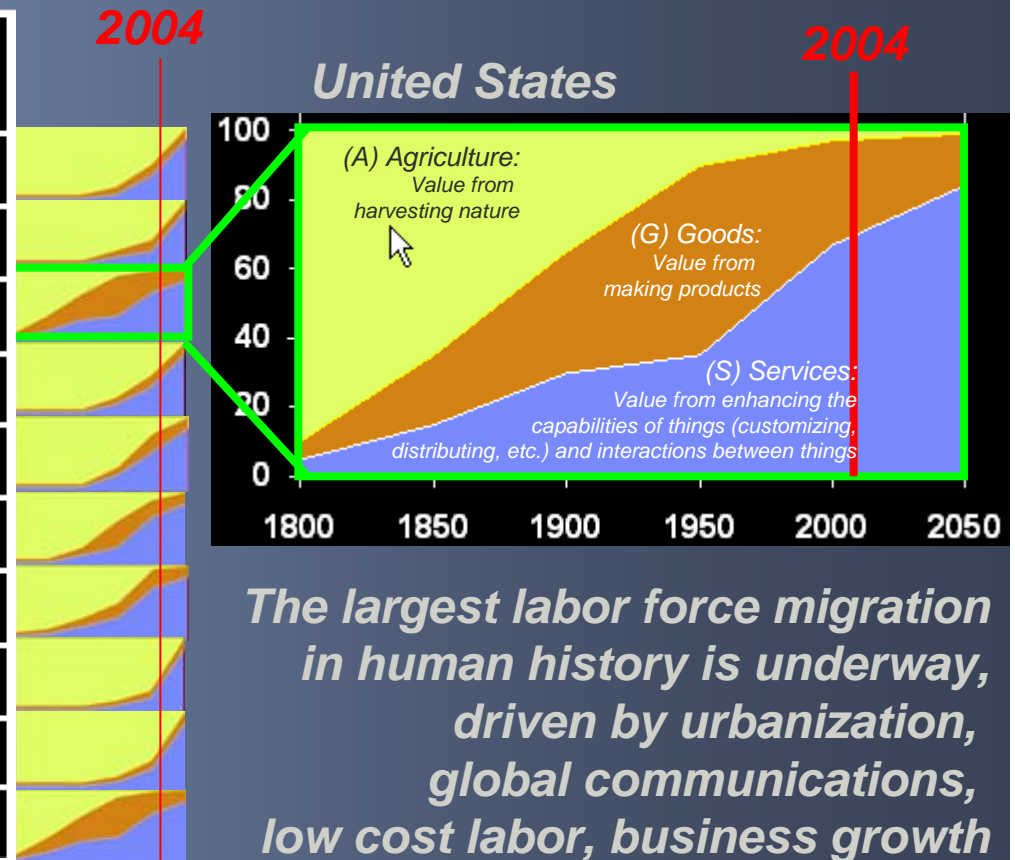# The world is becoming a service system.

**Top Ten Nations by Labor Force Size**
*(about 50% of world labor in just 10 nations)*
*A = Agriculture, G = Goods, S = Services*

| Nation | % ww Labor | % A | % G | % S | 25 yr % delta S |
|--------|-----------|-----|-----|-----|-----------------|
| China | 21.0 | 50 | 15 | 35 | 191 |
| India | 17.0 | 60 | 17 | 23 | 28 |
| U.S. | 4.8 | 3 | 27 | 70 | 21 |
| Indonesia | 3.9 | 45 | 16 | 39 | 35 |
| Brazil | 3.0 | 23 | 24 | 53 | 20 |
| Russia | 2.5 | 12 | 23 | 65 | 38 |
| Japan | 2.4 | 5 | 25 | 70 | 40 |
| Nigeria | 2.2 | 70 | 10 | 20 | 30 |
| Banglad. | 2.2 | 63 | 11 | 26 | 30 |
| Germany | 1.4 | 3 | 33 | 64 | 44 |

**>50% (S) services,** >33% (S) services

**2004**

**United States**

*(A) Agriculture: Value from harvesting nature*

*(G) Goods: Value from making products*

*(S) Services: Value from enhancing the capabilities of things (customizing, distributing, etc.) and interactions between things*

**2004**

1800  1850  1900  1950  2000  2050

*The largest labor force migration in human history is underway, driven by urbanization, global communications, low cost labor, business growth and technology innovation.*

Source: IBM Corporation, used with permission
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# Sourcing

IT-enabled sourcing uses IT as a key component of service delivery or as an enabler for delivering services, e.g:

- Credit card transaction processing,
- Infrastructure support,
- Payroll processing,
- Healthcare benefits enrollment,
- System access/ID verification,
- Medical images interpretation.
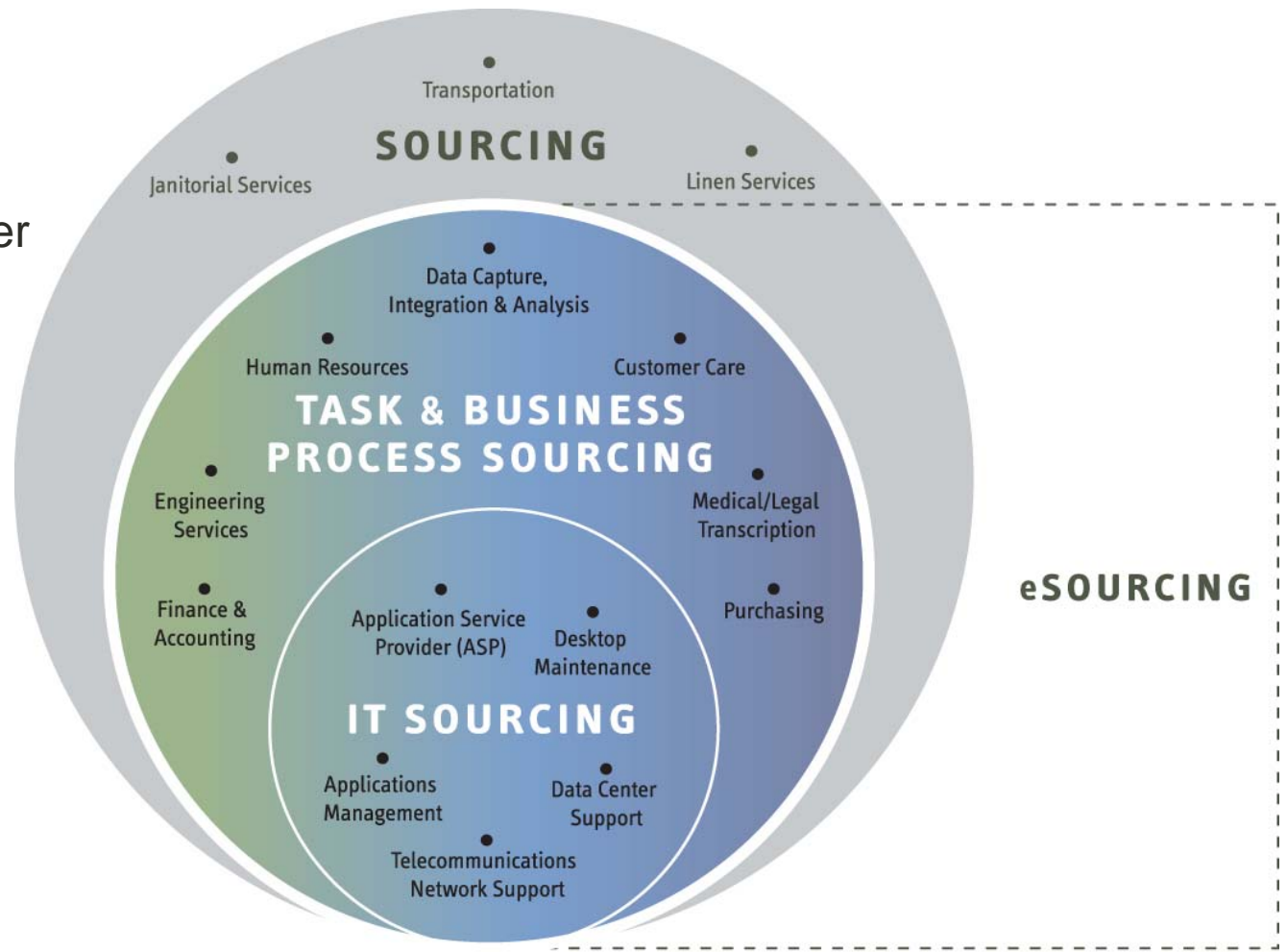
# The eSCM-SP and eSCM-CL are designed to be complementary Models, addressing both sides of a sourcing relationship
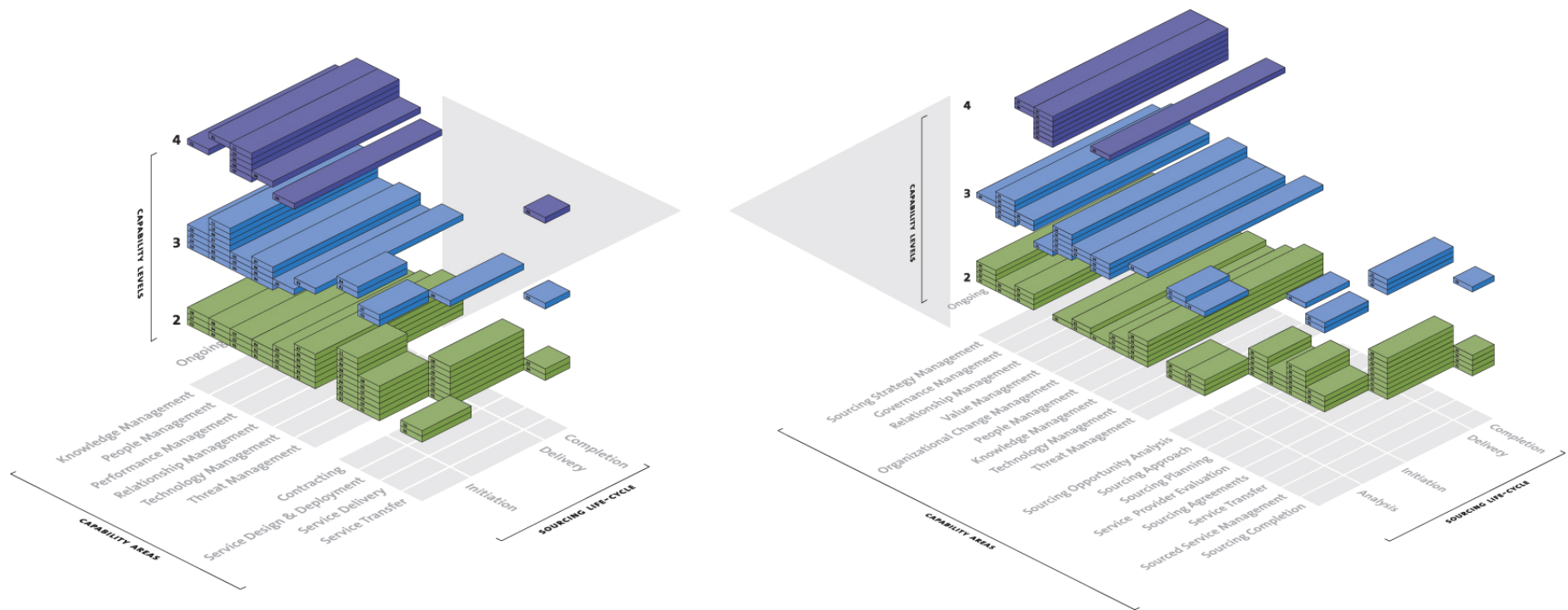
# Sample of Organizations Involved in eSCM-SP and eSCM-CL

## Client Organizations
- American Express
- BEA Systems, Inc.
- Boeing
- BP
- Carnegie Mellon University
- Children's Hospital of Pittsburgh
- CIBC
- DaimlerChrysler
- General Motors
- L'Oreal
- Marconi
- Mellon Financial
- PNC Bank
- University of Pittsburgh Medical Center
- Others (under NDA) •

## Service Providers
- Accenture •
- BearingPoint
- CA •
- CEI America
- DBA Engenharia de Sistemas (DBA) •
- Deloitte •
- Dornier Consulting
- EDS •
- Hewlett-Packard •
- IBM Global Services •
- iGate
- Phoenix Health Systems •
- Satyam Computers, Ltd. ••
- T-Systems
- Others (under NDA)

## Advisors & Consultants
- evolv partners
- Outsourcing Institute •
- TPI •
- Others (under NDA)

## Standards, Audit & Education
- COPPE, Federal University of Rio de Janeiro •
- Federal Government Process Improvement Working Group
- Government Accountability Office (Formerly General Accounting Office) (USA)
- IT Services Management Forum (itSMF-UK & USA •)
- STQC •

## Evaluation for Certification Authorized Organizations
- COPPE / Federal University of Rio de Janeiro
- Integrated Systems Diagnostics (ISD)
- Trimentus
- Underwriters Laboratories (UL)

•• Demotes ITSqc Consortium membership

# eSCM Adoption and Certifications

## Adoption activities are underway globally

- Asia Pacific (Australia, China, India, Philippines, Singapore, South Korea)
- Europe (Czech Republic, France, Germany, Netherlands, Portugal, Russia, Spain, Switzerland, U.K.)
- North America (Canada, Mexico, USA) and South America (Argentina, Brazil, Chile, and Costa Rica)

## Current Provider Certifications

- IBM Global Services, Strategic Outsourcing, Buenos Aires, Argentina
- Frontline Outsourcing (Asia) PTE LTD, Singapore
- SK C&C, OS Infra Business Division, South Korea
- IBM Global Services India (IGSI), BTO Operations and IBM-Daksh, a wholly owned subsidiary of IBM, (Bangalore), India
- LG CNS Infrastructure Service Center (ISC), South Korea
- Nipuna Services Limited, Hyderabad and Bangalore, India
- Accenture Services Pvt. Ltd., Bangalore, India

## Education and training

- Executive education for clients and service providers about models and methods with more than 2000 professionals trained in eSCM-SP in 43 countries as of 2006

## Publications and Community Involvement

- More than 25,000 copies of Models downloaded from the web,
- Mapping and measurement technical report downloads exceed 10, 000 copies
- Capability determination methods, and data are made available to business communities and researchers via our website (http://itsqc.cmu.edu)
- Addressing needs for co-certification in quality standards community

# Early Research about the eSCMs

**Case Studies**

- Accenture, India
- LG, Korea
- Nipuna (Satyam), India
- Five under NDA

Adoption and impact of best practices capability models for SP and their Clients (Hefley, Hyder, Slaughter, Siegel)

Reducing effort and improving integration for quality diagnostics - comparing results and reuse opportunities between ISO 9001-2000, ISO 20000 and eSCM-SP (Siegel and Hickey)

**Other topics**

Developing statistical sampling approaches to support large-scale assessment efforts (Northcutt and Paulk)

Pitfalls in statistical thinking for service providers - measuring quality and improvements with appropriate approaches (Paulk, et al.)

**Current publications**

- INFORMS 2006
- IBM Systems Journal
- Sloan Industry Studies Annual Conference

**Carnegie Mellon**

# Case study example

## Setting

- Large offshore service delivery center
- Financial and HR services
- Implementation of the eSCM-SP v2 with the goal of achieving an eSCM certification

## Research questions

- Implementation outcomes
    - What factors influence knowledge transfer during the assimilation of a capability model?
    - How does the transfer of knowledge affect the timeliness of the assimilation of a capability model?

- Performance outcomes
    - How does implementation of the eSCM-SP impact performance?
    - What categories of performance are affected by the eSCM-SP?

## Implementation times were reduced when:

- Team members were more experienced
- Personnel rotated across teams
- Practices were compatible with existing methodologies like CMMI or SW-CMM

# Research Objectives

**Cultural attributes clearly influence IT Service Delivery, but little literature to inform impacted organizations.**

**Research Objectives:**

1. **Identification of a comprehensive set of cultural attributes**

2. **Categorization/creation of a conceptual framework for studying effects of cultural attributes and use of collaborative technologies**

3. **Design and carry-out case studies of implementations of culturally adaptive technologies to support high quality IT Service Delivery (U.S., Europe, Latin America, and Asia/Pacific).**

# Distributed work Issues

**Strategic issues: when, to whom and how, work allocation.**

**Communication issues: distance, time zone difference, infrastructure support, distinct backgrounds, lack of informal communication.**

**Coordination complexity**

**Cultural issues: power distance, individualism vs. collectivism, attitude towards time**

**Geographical dispersion: supplier support, access to experts, practices that need face-to-face communication**

**Technical issues: information and artifact sharing**

**Knowledge management: slow communication, poor documentation, tacit knowledge, repositories, weak knowledge transfer**

**Source: adapted from Hefley, Sourcing Management, 2007**

# Cultural differences

**Geert Hofstede (2002) identified five views:**

- Power distance
- Collectivism vs. individualism
- Feminity vs. masculinity
- Uncertainty avoidance
- Long-term vs. short term orientation

**Edward T. Hall (1976) identifies two dimensions:**

- High context vs. low context cultures,
- Poly-chronic vs. mono-chronic cultures.

Source: adapted from Hefley, Sourcing Management, 2007

# Important categories of attributes

**Relevant cultural attributes observed anecdotally and from literature include:**

**Organizational:** hierarchy, formality, social protocols, work ethic, values

**Individual:**
- gender,
- geographic locale,
- ethnic membership/identity,
- religion,
- communication skills (verbal and written - which native language)

**Technology:**
- role/importance of non-verbal cues
- color usage
- physical factors (what can be seen)
- symbols

# Communication considerations

**Communication type:**
- Formal: for routine coordination, formal specifications or inspections or meetings.
- Informal: in the face of changes, informally captured requirements or out-of-date documents.

**Tom Allen, 1977: The frequency of communication among engineers decreased with distance. Even 30 meters distance (same building or floor) is like miles away.**

**Some activities (e.g., requirement elicitation) depend more on communication than others (e.g., testing).**

**Communication patterns: more with local and less with remote people.**

Source: Hefley, Sourcing Management, 2007

# Sourcing Coordination Trends

**Clients tend to pull the outsourcing relationship toward a**

- hierarchy structure,
- characterized by informal mutual adjustment

**Service providers tend to pull the relationship toward a**

- market structure,
- characterized by
  - standards,
  - plans, and
  - formal mutual adjustment.

Rajiv Sabherwal. July 2003. The evolution of coordination in outsourced software development projects: a comparison of client and vendor perspectives. *Information and Organization*, Volume 13, Issue 3, 153-202.

Source: Hefley, Sourcing Management, 2007

# Communication means

| Synchronous | Asynchronous |
|---|---|
| **Phone, video conference, Net meeting, E-chat, Instant Messaging** | **E-mail, voice-mail, discussion list, on-line calendar** |

| Synchronous & Asynchronous |
|---|
| **Document sharing, distributed Configuration Management (CM) systems, file transfer, remote access**<br><br>**Special tools such as distributed blackboards, intelligent CM systems, experience browser** |

Source: Hefley, Sourcing Management, 2007

# Example of difference in customs



A typical cultural misunderstanding

Nancy: We're going to have to schedule time for debugging on Saturday.

Vijay: I see.

Nancy: Can you come in Saturday?

Vijay: Yes I think so.

Nancy: That's great.

Vijay: Yes. Saturday's a special day, did you know?

Nancy: How do you mean?

Vijay: It's my son's birthday.

Nancy: How nice. I hope he enjoys it!

Vijay: Thank you, I appreciate your understanding.

The question is: who will be coming in on Saturday?

Source: GARTNER report on change management

Source: Hefley, Sourcing Management, 2007