

# Global Information Systems:

## Introduction and Assumptions (1)

Prof. Dr. Jan M. Pawlowski  
27.10.2010



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# Where I am from...



# Global Information Systems, University of Jyväskylä (JYU)

## Focus area

- Global Information Systems (GLIS)
- Knowledge Management & E-Learning**
- Internationalization / Globalization; support of globally distributed groups
- Cultural aspects for learning and knowledge management
- Support through Information and Communication Technologies
- Standardization, Quality Management and Assurance for E-Learning
- Adaptive Systems

## Projects

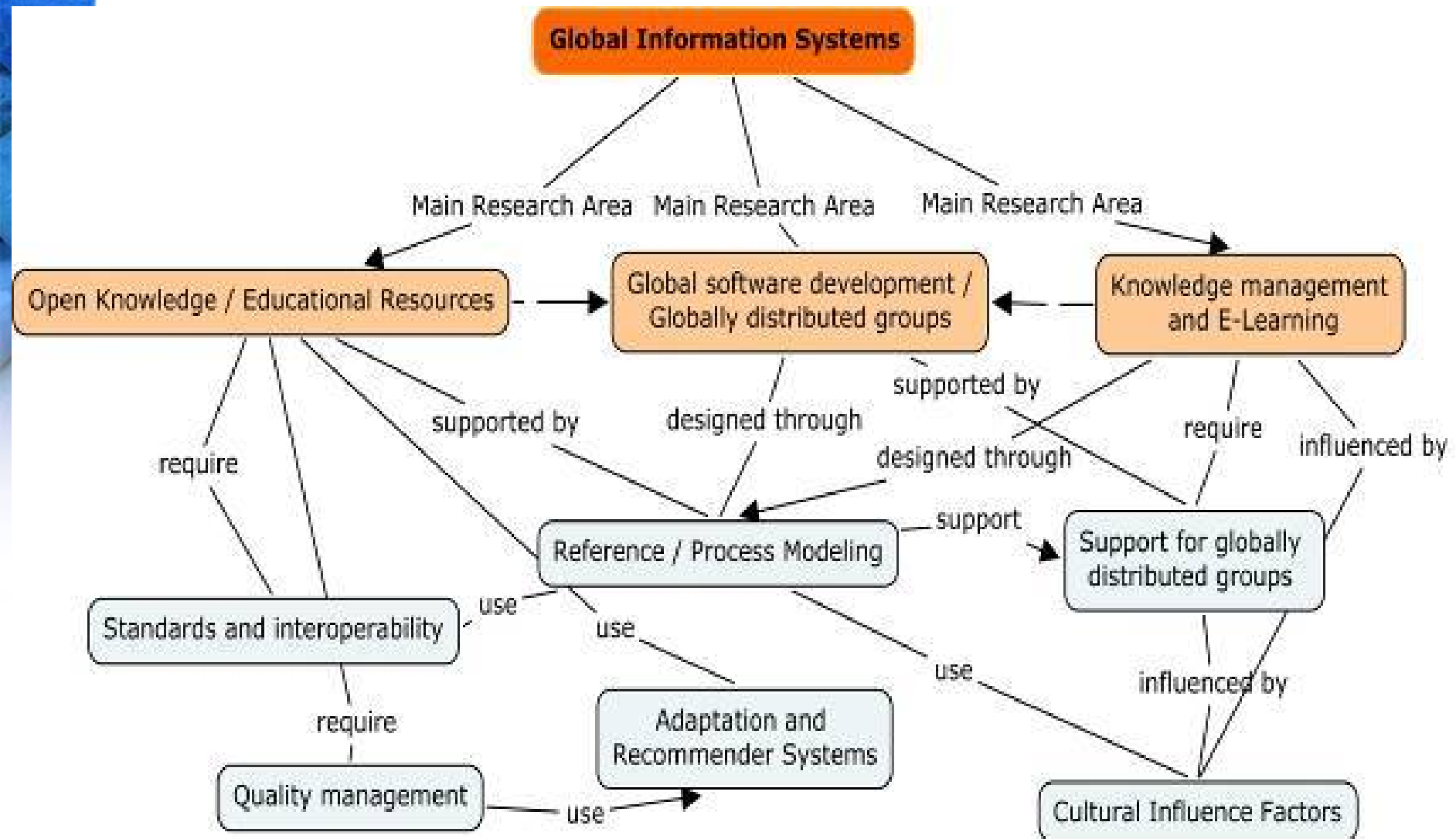
- OpenScout: Management education in Europe and North Africa as application field for open content
- COSMOS / Open Science Resources: Exchange of Scientific Content
- ASPECT: Open Content and standards for schools
- iCOPER: New standards for educational technologies
- Nordlet: Nordic - Baltic community of Open Educational Resources Exchange
- LaProf: Language Learning Open Educational Resources for Agriculture



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# Global Information Systems





# The team



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# Contents

## Motivation

- Introductory Scenario
- Expectations

## Global Information Systems

- Definition and Scope
- Examples
- Questions, problems, opportunities

## Outlook on the Course



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[Source: <http://www.english.com/>]



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[Source: <http://www.english.com/>]



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[Source: <http://www.english.com/>]



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[Source: <http://www.english.com/>]

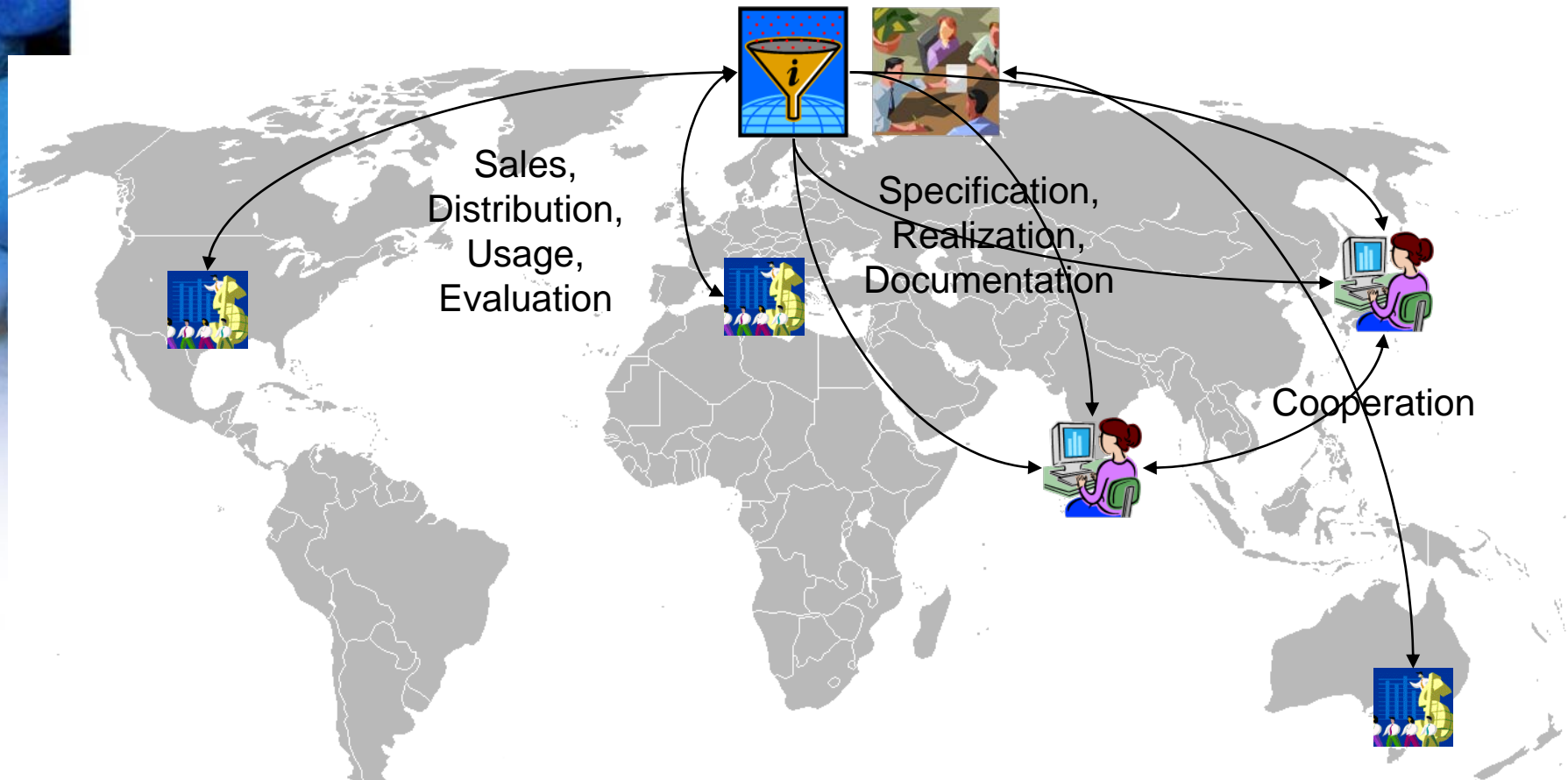


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# A First Scenario

Project Idea &  
Management



Source: [<http://commons.wikimedia.org/>]



# Sample: yahoo.co.kr

Windows Internet Explorer

http://kr.yahoo.com/

Google

Datei Bearbeiten Ansicht Favoriten Extras ?

Google Los geht's! Lesezeichen 636 blockiert Rechtschreibprüfung Senden an Einstellungen

Startseite (M) Feeds (3) Drucken Seite

야후!를 시작페이지로 | 익스플로러7 야후! 최적화버전 다운로드 | 야후!홈 의견하기

**YAHOO! KOREA**

거기 동영상 이미지 지식 사전 뉴스 쇼핑

추천: 미스코리아 출신 아나 - 같은웃 입은 스타 실시간: 1 번양군 편지 539

뉴스 홈 스포츠 연예 재테크

[조선] "변실라, 신정아와 노골적 연애편지 약100통 주고받아" 폭 당측... 노대통령 '진노'! 고교수학여행, 중국서 집단 성매매 '충격' 이슬업이 겪은 '추한' 일본아구! 선정성 논란, 광천화 물매가 문제

동성 중인 민주노총 간부 흥기에 질려 중상 박근혜, 5년 후 기약하나?... 흥피에 심경 밝혀 박성호 "박근혜 배신 미안해 속의금 500만원" 이상우 "발달장애 아들 위해 '인간극장' 출연"

» 서울 (26°C) 구름조금 · 2007대선 · 김금희토성당 · YTN Live

금융 급락? 테마주는 '독야청청'! "당분간 1700~1900" 추가

오늘의 추천 콘텐츠

비행중 날개꺾는 초음속 폭격기

수입 중고차 값의 진실

참으로 정그러운 사마귀 기생충 살아있는 듯 빚겨지는 신비한 옷 불가사의 자연지형, 몇개는 가짜 일인4억 아카펠라 밴드 록음악

연도날보다 정교하고 날카로운 실 언론에 소개된 식당 맛있는 이유 비타민C, 지방 합쳐치면 암발생? 30·40대, 뇌졸중으로 사망가능

야후! 콘텐츠 순위

실시간 인기 검색어

1 번양군 편지 539

2 광천화 키클으면 771

3 라운즈 아들 NEW

4 신정아 NEW

5 처제안 과거 760

6 자두 친동생 424

09월10일 18시22분

갈때까지 간(?) '막장' 검색어

1 '더 순결한19' 더 막나가도 돼?

2 막장커를, 임신부 치고 뽕소네!

3 박영수의 거성소, 막달 토크쇼?

4 막가파 네티즌, 왜 이지경일까

한층 더 안전한 로그인 : 로그인 신규회원 가입

메일 블로그 금융

야후! 코리아 Gmarket

소중한 분들께 전하세요

쇼핑 가격비교 패션쇼

옥션 GS이슬 G마켓 인터파크 OTTO 동대문닷컴 옥션수석 신세계몰 이마트 롯데mall GSestore 빌라리리 삼성몰

LG디오스 50%할인중 트랜치코트 신상19,800 블루패패 25,000원일 침구 플랫 반값39,900 OTTO패션 Hit 500

7일미백&보습 첫구매사은품 지산리조트시즌권특가! 리틀방버터2,900원무료

헌트키즈 85% Hot Sale 한가위상품대전-Point 적립!

야후! 인사이드

야후! 온라인 패널 모집

로봇청소기·음식쓰레기 처리기들 드립니다

닌텐도, 백화점상품권 공짜

꾸러기 영파약방

좋은 학부도 되는 법 나누고 배우보세요

좋은 부모 되기 완전정복

야후! 디렉토리

뉴스 신문, 스포츠 방송 TV프로, 드라마 여가 게임, 자동차 엔터 음악, 영화 경제 쇼핑, 금융 건강 질병, 다이어트

» 더보기

이벤트

· 지마켓 추석 이벤트

· 제시카키친 리부추천

· 로봇청소기를 받아라

· 인기있는 신제품

http://kr.yahoo.com/r/p/fo

Internet 100%



# Sample: yahoo.de

Yahoo! Deutschland - Windows Internet Explorer

http://de.yahoo.com/

Datei Bearbeiten Ansicht Favoriten Extras ?

Google Los geht's! Lesezeichen 636 blockiert Rechtschreibprüfung Senden an Einstellungen

Yahoo! Deutschland Startseite (M) Feeds (3) Drucken Seite

Yahoo! Mail: Ihre Kommunikationszentrale Yahoo! als Startseite Y! Clever: Wie viele Geräte dürfen an eine Steckdose?

## YAHOO! DEUTSCHLAND

Web Bilder Video Lokale Suche Shopping mehr

Suche:  Web-Suche

☒ Das Web ☐ Seiten auf Deutsch Seiten-Einstellungen

**Autos**

Chat

Clever

Dating

Finanzen

Flickr NEU!

Groups

Grußkarten

Horoskope

Lifestyle

Lokale Suche

Mein Yahoo!

Mobile

Movies

Musik

Reisen

Shopping

Spiele

Sport

TV

**Alle Y! Services**

**Yahoo! Magazin**

**"Bereue nichts"**

Renn-Rentner Michael Schumacher hat auch ein Jahr nach dem Rücktritt keinerlei Sehnsucht nach einem Comeback. » Mehr

- Aktuelles aus der Formel1
- Michael Schumacher im Netz

 Renn-Rentner Schumi "bereut nichts"

 Ballack: Comeback-Zeitpunkt ungewiss

 Neues vom Dino-Killerasteroiden

E-Mails lesen: Anmelden Gratis E-Mail: Registrieren

 Mail  Messenger  Wetter

 Musik  Lokale Suche  Movies

**Auf der IAA vom 13.-23. September Halle 6**



Anzeigen - Ihre Meinung

**Die neue kommerzielle Suche ist da!**

 Werbung regional schalten

Anzeigen in Minuten live stellen. Schon ab 5 Cent pro Klick.

» weitere Infos

**Yahoo! Trends**

Die beliebtesten Konzert-Tourneen!

- LaFee**  
Die 'Jetzt erst recht' Tour 2007
- Revolverheld**  
Rocken bundesweit!
- Gentleman**  
Reggae-Vibes aus Deutschland
- Gogol Bordello**  
Das Gipsy Punk Ensemble live!

» Weitere Konzerttipps

**Gefunden: Beliebte Suchen zum Thema Herbst**

- Oktoberfest**
- Basteln**
- Wellness**
- Winterreifen**

**Nachrichten** Sport Wirtschaft

**Abgeschoben**

Pakistan weist Exministerpräsident Sharif aus

- Frankfurt: Angriff auf Rabbiner offenbar antisemitisch
- Sarkozy mit Merkel zusammengetroffen
- Teheran will Uran-Anreicherung fortsetzen
- Schrecksekunde bei 50 Cents MTV-Auftritt
- Fast zwei Dutzend Nadeln im Körper

» Mehr: Nachrichten | Panorama | Unterhaltung | Videos

Börse: DAX: 7431 (-0.07%) TecDAX: 906 (-0.53%)

Aktienkurse:  Suchen

**Top Angebote**

 Top Hardware von Dell

Desktops von grundlegender Funktionalität bis zu ultimativer Leistung bei dell.de

 Das reinste Sparadies!

Mallorca supergünstig: Hotel\*\*\*, Flug & 7 Tage schon ab € 187. Expedia.de

 Jetzt mit FONIC nur 9,9ct/Min

...& SMS\* in alle dt. Netze zahlen. Ohne

Werben mit Yahoo!

- Search Marketing
- Sponsored Links
- Media Sales
- Händlerintegration

Weitere Services

- Handy
- Jobs
- Immobilien
- Lotto

Fertig

Internet 100%

# What can you expect?

- Analyze and evaluate management and development problems in globally distributed organizations
- Decide whether an information system should be build in an international environment
- To identify differences in culture in general, in management and communication
- To design and develop systems to be used in a international context
- To evaluate systems' adaptation and adoption



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# Course Organization

- 26.10.: Introduction
- 02.11.: Global Information Systems: Framework and Design Approaches - Groupwork
- 09.11.: Cultural aspects (1)  
Group work: Initial ideas
- 16.11.: Cultural aspects (2)  
Requirements analysis
- 23.11.: Presentations
- 30.11.: Globally Distributed Teams
- 07.12.: Localization and Internationalization
- 14.12.: Final presentations (mandatory!)
  
- Special Lectures: tba
- Case Study



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# Approach

## Course outline

- Lecture
- Guiding Questions
- Discussion
- Assignment / Case Study & Presentation
- Examination

## Interaction & Discussion

- Preparation: Slides, readings & recent papers
- Preparation (2): Questions on Papers
- Questions: E-Mail, Forum, Skype (jan\_m\_pawlowski)



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# Important notes

- Register for one group in Korppi
- If you decide not to do the course, unregister until 24.11.2010
- Exam: 50%, Case Study 50%
  - Both have to be passed





# Your expectations?

- Why did you choose this course?
- Which experiences do you have in the field?
- Which issues would you like to discuss?



# Characteristics

- Economical, organizational, technological factors
  - Strategy and management of globally distributed processes
  - Communication in distributed teams
  - Coordination of geographically distributed processes
  - Technical infrastructure
  - Usability
  - Cultural issues
  - Domain specific issues
  - ...
- 
- Decisions: Outsourcing (Organization), Offshoring (Location), ...
  - Competencies: Management, cooperation, cultural issues



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# Definitions

- Global Software Development (GSD):  
Developing software in geographically distributed teams
- Global Information Systems (GLIS) are  
systems produced and/or used in a global  
context
- $GSD \subseteq GLIS$



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# Motivators (Sangwan, 2006)

- Limited trained workforce
- Differences in development costs
- Shorter production life-cycle through shift models
- Technological advancements
- Closeness to target markets



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# Some facts on outsourcing (1)



	Buyers					Providers	
	Today			2004	2002	Today	
	OVERALL	ONSHORE	OFFSHORE	OVERALL	OVERALL	ONSHORE	OFFSHORE
<b>Satisfied</b>	78%	81%	62%	74%	69%	84%	86%
<b>Neutral</b>	7%	11%	30%	16%	8%	16%	7%
<b>Dissatisfied</b>	15%	8%	8%	10%	23%	0%	7%

[Source: DiamondCluster 2005: Global IT Outsourcing Study

<http://diamondconsultants.com/PublicSite/ideas/perspectives/downloads/Diamond2005OutsourcingStudy.pdf>]



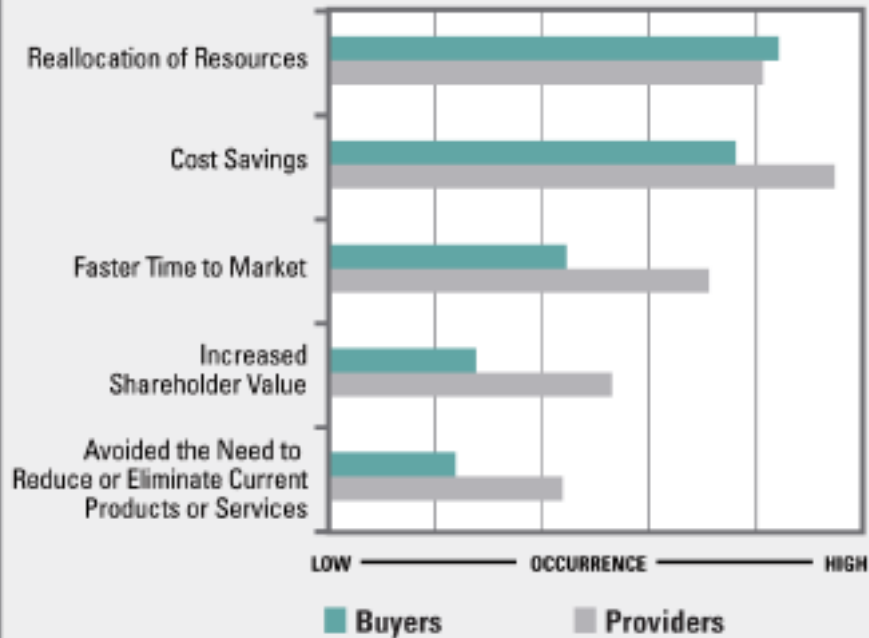
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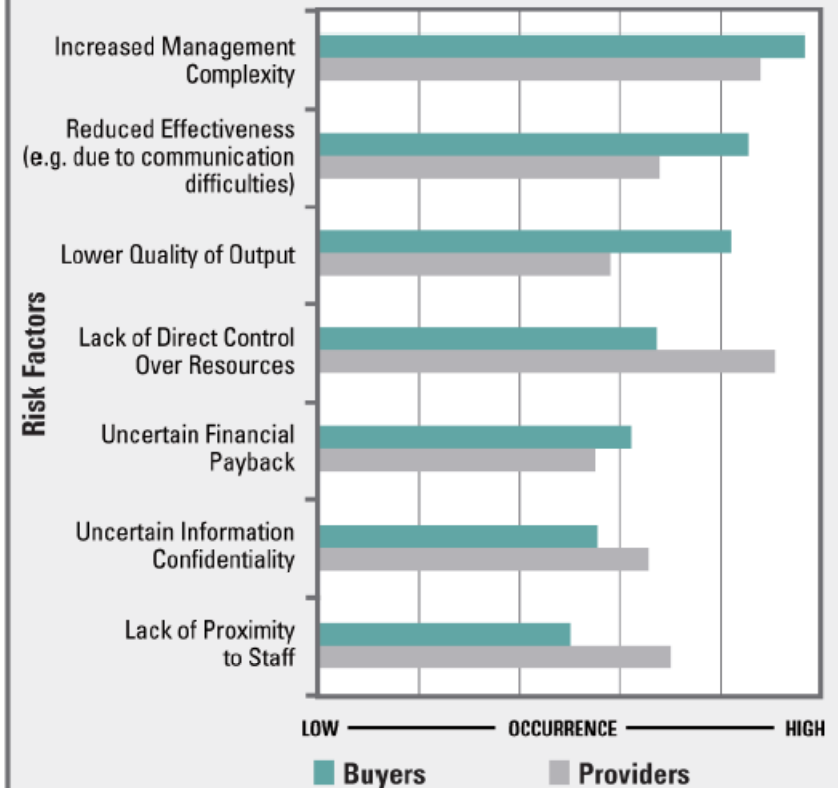


# Some facts on outsourcing (2)

## OUTSOURCING BENEFITS



## PRIMARY CONCERNS



[Source: DiamondCluster 2005: Global IT Outsourcing Study

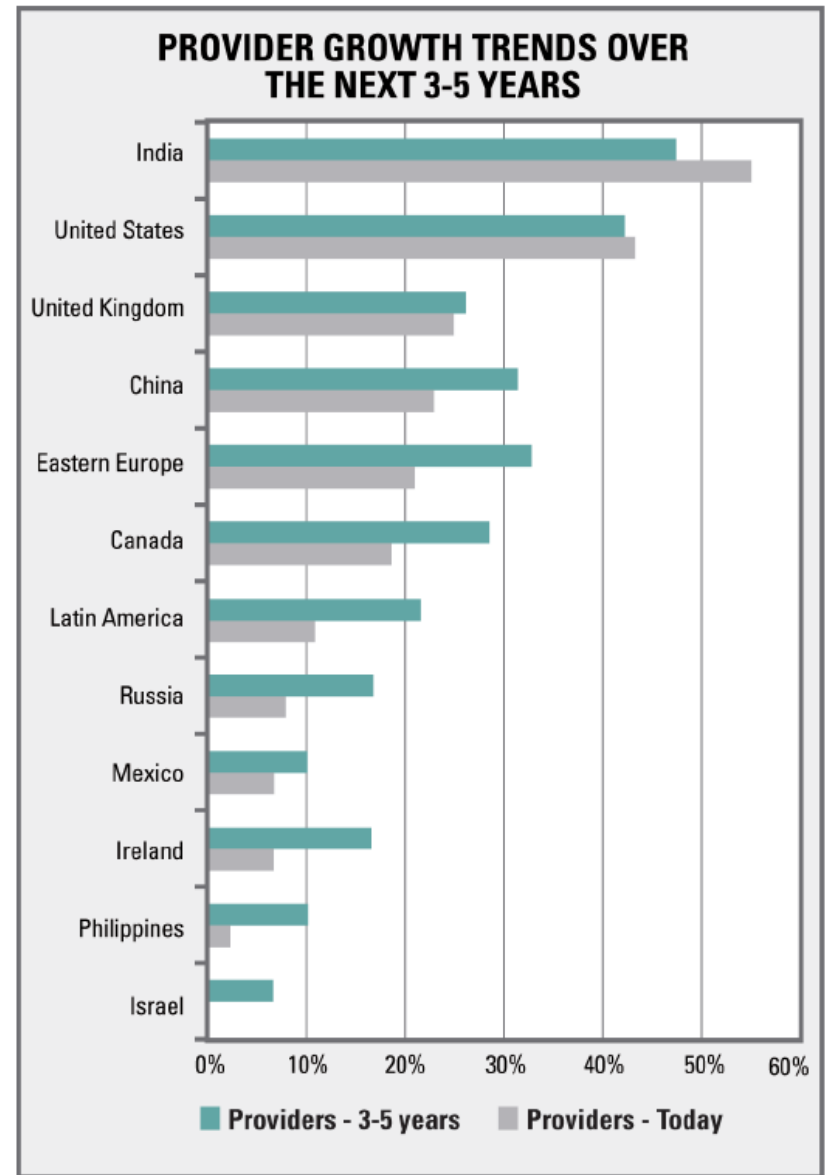
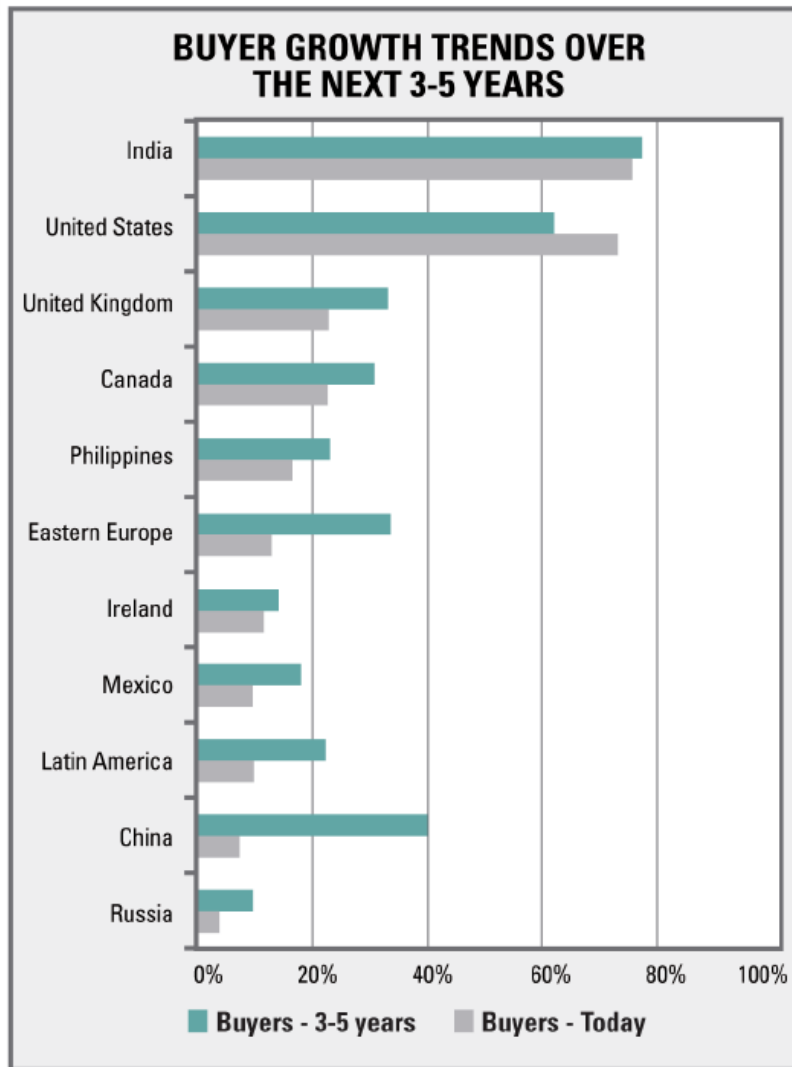
<http://diamondconsultants.com/PublicSite/ideas/perspectives/downloads/Diamond2005OutsourcingStudy.pdf>]



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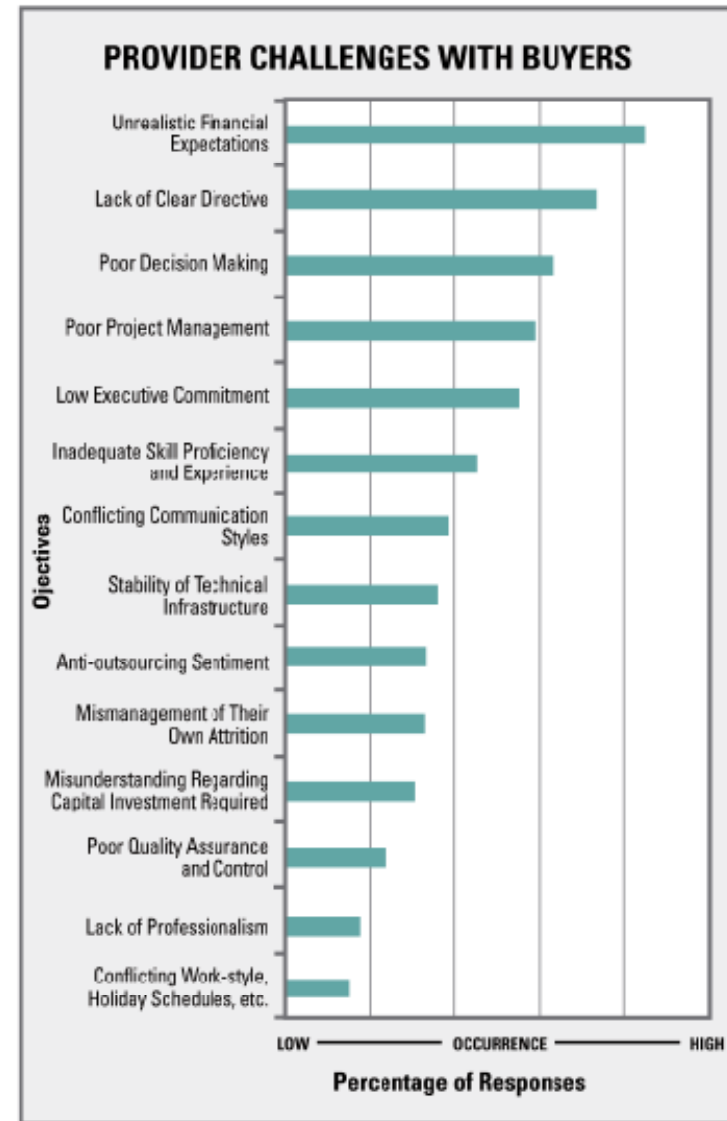
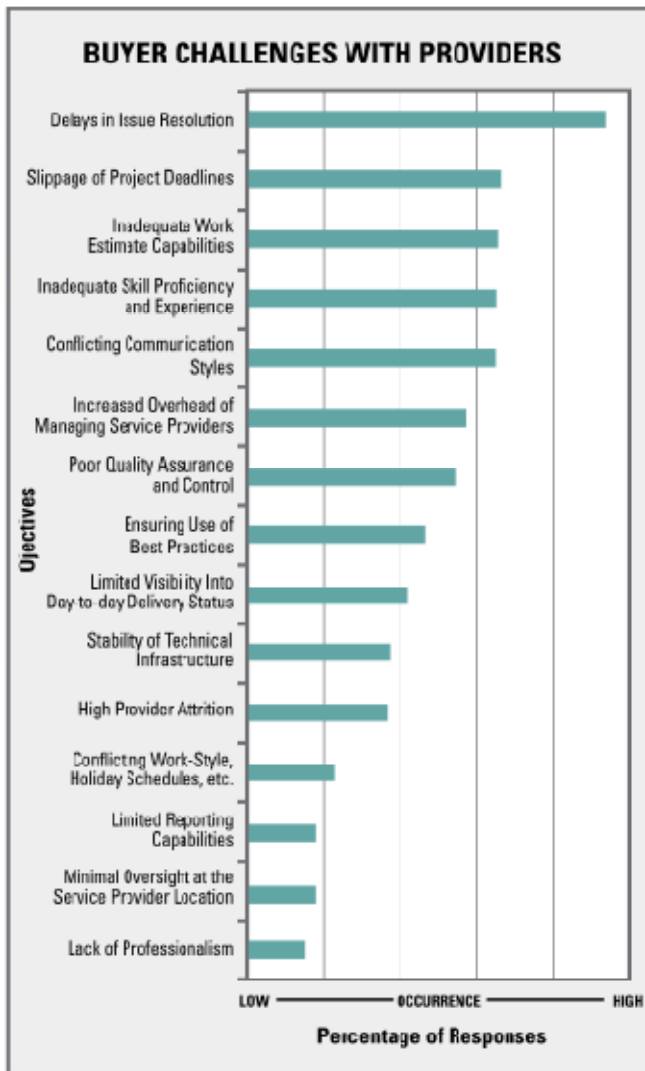
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# Some facts on outsourcing (3)



# Some facts on outsourcing (4)

[Source: DiamondCluster 2005: Global IT Outsourcing Study  
<http://diamondconsultants.com/PublicSite/ideas/perspectives/downloads/Diamond2005OutsourcingStudy.pdf>]



# Influence Factors

- CARMEL (1999)
  - Geographical dispersion
  - Loss of communication richness
  - Coordination breakdown
  - Loss of team awareness
  - Cultural differences



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# Influence Factors

## EVARISTO (2003)

- Trust
- Level of dispersion
- Type of stakeholders
- Type of projects
- Synchronicity
- Complexity
- Systems methodology
- Perceived distance
- Policy and standards
- Culture



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# Success Factors

- SANGWAN et al. (2006)
  - Reduce Ambiguity: e.g., processes, management, design
  - Maximize Stability: e.g., design specifications, informal communication
  - Understand dependencies : e.g., temporal, functional, technical
  - Facilitate coordination: e.g., guidelines, standards, meetings
  - Balance flexibility and rigidity: e.g., working culture, decision making



# Lessons Learned - 1

## (Prikladnicki, 2003)

- ❏ Project management and, in particular, risk management need additional effort and steps
- ❏ The existence of a well-defined software development process is responsible for many advantages in distributed projects
- ❏ Knowledge management stimulates the information sharing and stimulates the learning from experience
- ❏ Requirements engineering is the main challenge for the software development process point of view



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# Lessons Learned - 2

## (Prikladnicki, 2003)

- The planning phase is important to organize and manage the distributed projects properly
- The investment in recruiting and training global teams can minimize the difficulties related to the nontechnical dimension
- Tools can act as a facility in the distributed interaction
- Distributed Software Development is a maturity process



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# Sample scenarios (by location)

- Offshore outsourcing of software development / programming
  - Main aspects: coordination, communication
- Software development for multiple markets / countries / cultures
  - Main aspects: Culture, systems / interface design



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# Key Concepts: Enterprise Unified Process

## Development Disciplines

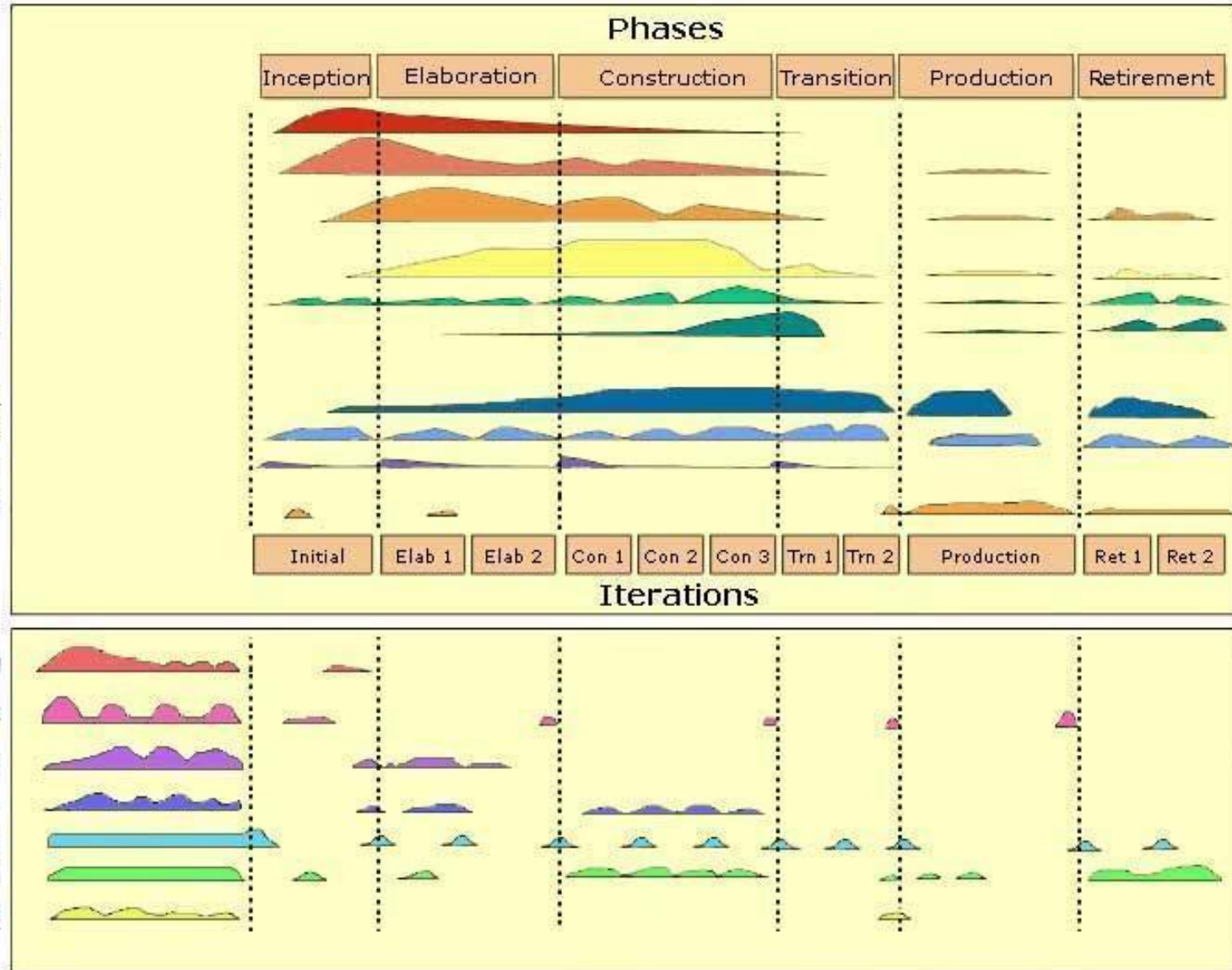
Business Modeling  
Requirements  
Analysis & Design  
Implementation  
Test  
Deployment

## Support Disciplines

Configuration and Change Mgmt.  
Project Management  
Environment  
Operations & Support

## Enterprise Disciplines

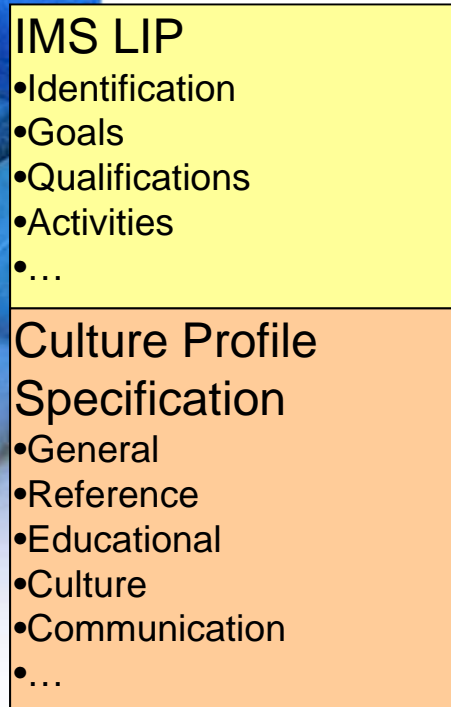
Enterprise Business Modeling  
Portfolio Management  
Enterprise Architecture  
Strategic Reuse  
People Management  
Enterprise Administration  
Software Process Improvement



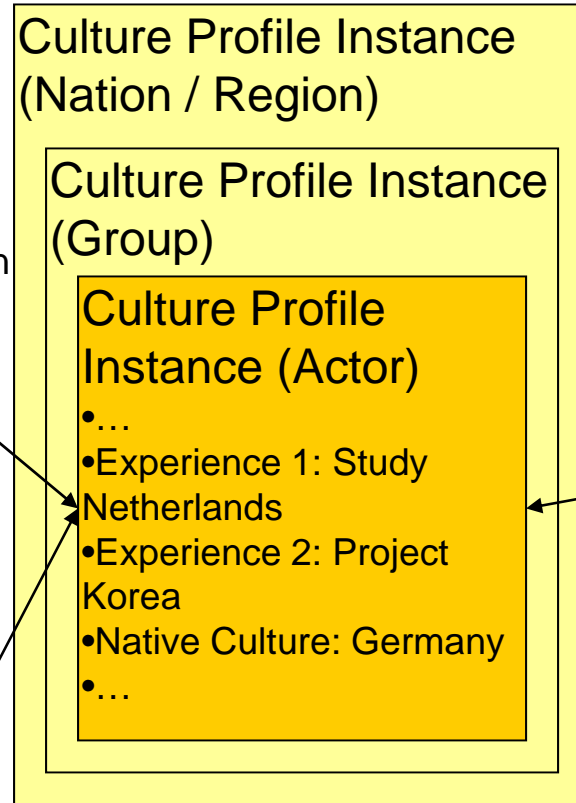
Copyright 2003-2005 Scott W. Ambler



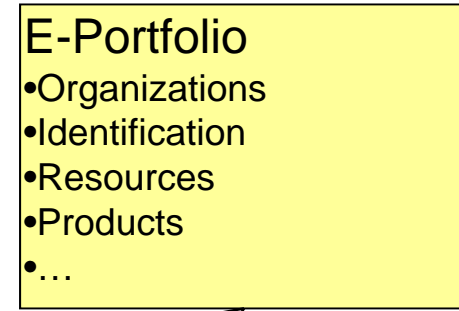
# Key Concepts: Culture Profiles



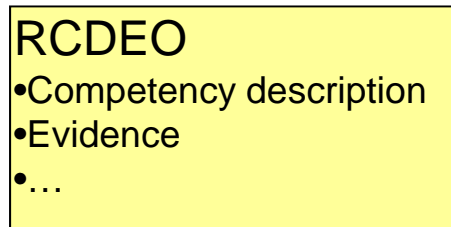
Instantiation



Contains Characteristic

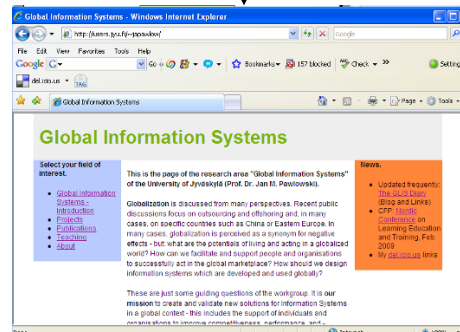


Contains Product



Defined Culture Competencies

Presentation



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# Key Concepts: Distributed teams

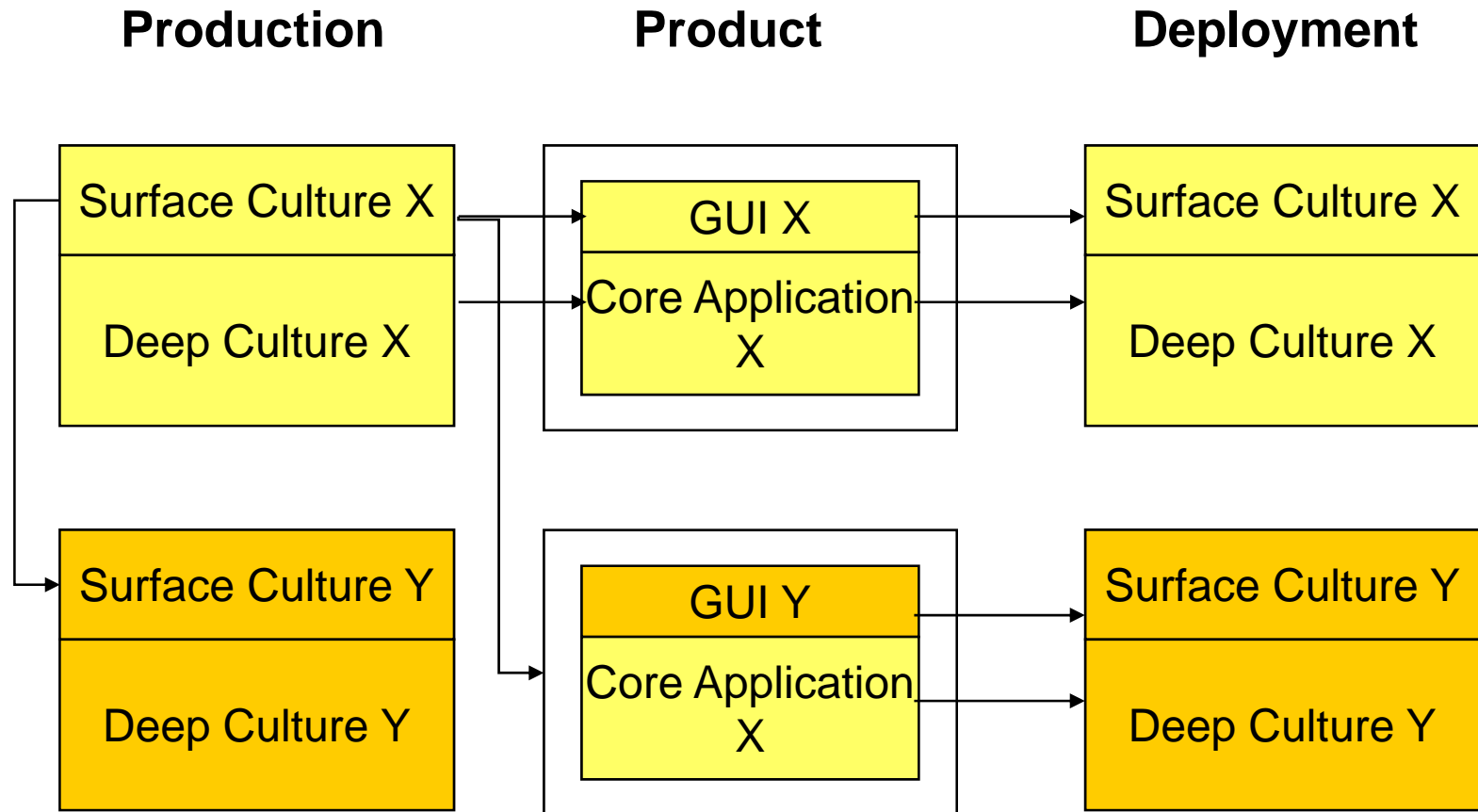
- Managing cultural differences (see L3)
- Considering adjustment to calculate productivity and potential difficulties
- Phases of cultural adjustment
  - Enthusiasm
  - Conflict Stage
  - Integration Stage
  - Adaptation Stage



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# Key Concepts: Internationalization



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# Summary

- Wide field with a variety of approaches
- Different scenarios leading to different solutions
- Some influence factors are common to all approaches, e.g.,
  - Communication / coordination
  - Stakeholder
  - Infrastructure / systems architecture
  - Culture



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# Questions

- How can global software development processes be classified?
- Which factors influence factors affect the development process?
- Which advantages / disadvantages do you expect from a distributed development process?



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# References

- **Prikladnicki R, Audy J, Evaristo R (2003): Global software development in practice lessons learned. Software Process: Improvement and Practice, 8(4):267–281**
- Sangwan, R., Bass, M., Mullick, N., Paulish, D.J., Kazmeier, J. (2006): Global Software Development Handbook, Auerback Publications, 2006. ISBN: ISBN:0849393841
- Karolak, D.W. (1998): Global Software Development: Managing Virtual Teams and Environments (Practitioners)- ISBN-10: 0818687010
- Avgerou, C. (2002): Information Systems and Global Diversity, Oxford University Press, Oxford, 2002. ISBN-10: 0199240779
- [GSD 2004] Proceedings of the 3rd International Workshop on Global Software Development, Co-located with ICSE 2004, Edinburgh, Scotland, May 24, 2004 (available for download)
- **Kruchten, P.: Analyzing Intercultural Factors Affecting Global Software Development – A Position Paper, In: [GSD2004], pp. 59-62**



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# References

- ❏ Carmel, E. (1999): Global Software Teams: Collaborating Across Borders and Time Zones (High Performance Cluster Computing) - ISBN-10: 013924218X
- ❏ Garton, C., Wegryn, K. (2006): Managing Without Walls: Maximize Success with Virtual, Global, and Cross - Cultural Teams, MC Press, US, 2006.
- ❏ Äijö, T., Kuivalainen, O., Saarenketo, S., Lindqvist, J., Hanninen, H. (2005): Internationalization Handbook for the Software Business; The Model of Internationalization Paths & Internationalization Workbook, Centre of Expertise for Software Product Business, 2005.
- ❏ More references will be listed in each lecture



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- **<http://users.jyu.fi/~japawlow>**



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