

1. What is a Service? (and Course Overview)

Bob Glushko (glushko@sims.berkeley.edu)

Services Science Lecture Series (INFO 290-16) - 16 January 2007

1. Plan for Today's Lecture

- Introductions
- What is a Service?
- Lecture Series Overview
- Course Requirements and Administrivia

2. Today's Lecture - What is a Service?

- The Economist: “Services are anything sold in trade that cannot be dropped on your foot”
- Most people understand (or think they do) what makes something a *product* or *goods*:
 - Goods are things that can be owned, traded, and distributed to different places at different times without changing their identity
- But there is much less agreement about the definition of *service*:
 - Intangible
 - Perishable
 - Experiential
 - Co-produced between the service provider and service consumer

3. News: "Service sector" growth slows ..



HOME NEWS MARKETS TECHNOLOGY **JOBS & ECONOMY** PERSONAL FINANCE

Service sector growth slips

December's ISM index edges lower, but decline in line with Wall Street's estimates; prices-paid component rises, new orders fall.

January 4 2007: 12:33 PM EST

NEW YORK (Reuters) -- Growth in the service sector slowed in December, following a less-than-expected rise in factory orders the previous month, reports showed Thursday, pointing to a slackening economy.

- http://money.cnn.com/2007/01/04/news/economy/ism_services.reut/index

4. News: Hotel Industry Consultants Had a Good Year

HVS International reports strong demand for its services in 2006

Jan 10, 2007
H&MM Week In Review

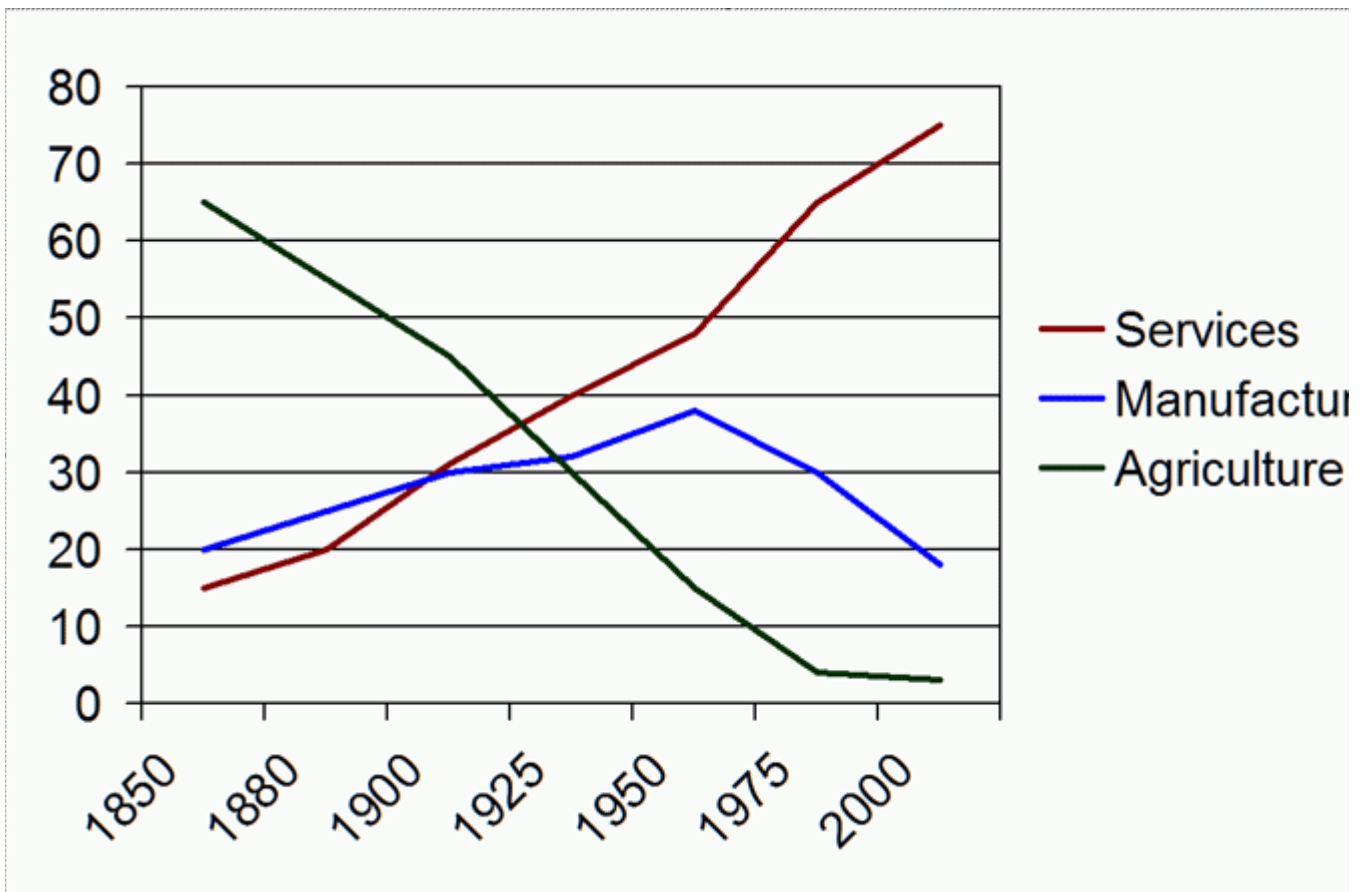
Hotel & Motel
MANAGEMENT
Week in Review

Steve Rushmore, President and Founder of HVS International, the leading global hospitality services and consulting firm, proudly announces that 2006 proved to be another successful year. Worldwide, the firm was involved in nearly 3,000 hotel assignments.

“In the New York office alone,” Rushmore explains, “we were engaged in more than 700 consulting and service assignments, exceeding 2005’s total of just fewer than 650, and 500 the year before.”

- <http://www.hotelmotel.com/hotelmotel/article/articleDetail.jsp?id=397108>

5. Services as a Category for Economic Analysis



- Structural theories of economic development distinguish:
 - Primary sector: Agriculture & extractive industries
 - Secondary sector: Manufacturing ("goods")
 - Tertiary sector: Everything else (let's call it all "services")

6. But A "Residual" Definition Isn't Very Useful

- Service sector is >70% of GDP in US and other developed countries
- > 52% in developing countries
- Fastest employment growth is in service sectors:
 1. Professional & business services
 2. Health & education services

3. Leisure & hospitality services

7. Tangible v. Intangible Goods

- Intangible goods have all of the economic characteristics of tangible goods, but no physical dimensions or spatial coordinates
- Intangibles have always existed, but have become far more economically significant because of dramatic innovations in information technology
- Examples: Software, Music, Legal documents...

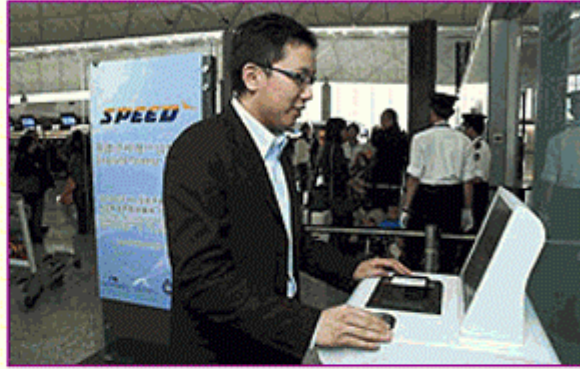
8. News: "Self-Service" Speeds Up Airline Travel

January 5, 2007

Aviation

Simplified air-travel trial launched

A six-month trial has been launched at the airport to simplify passenger travel by integrating airport, immigration and airline processes in real time, offering travellers a range of benefits.



Speedy check: Travelers can enjoy a simplified air journey with SPEED, as its kiosk can recognise biometric information saved in a special card to whisk them through security clearance.

The trial - jointly run by the Airport Authority, Immigration Department and Cathay Pacific - will end on June 30. Hong Kong permanent identity card holders, who are frequent flyers between Hong Kong and London, will be invited to participate in the trial.

- <http://www.news.gov.hk/en/category/lawandorder/070108/html/070108en>
- <http://www.selfservice.org/>

9. Self-Service

- The category of "Self-service" has grown dramatically because of technology innovation
- In "Self-service" a service provider takes an activity formerly performed by an employee and allows/requires the customer to do it, generally to

reduce costs

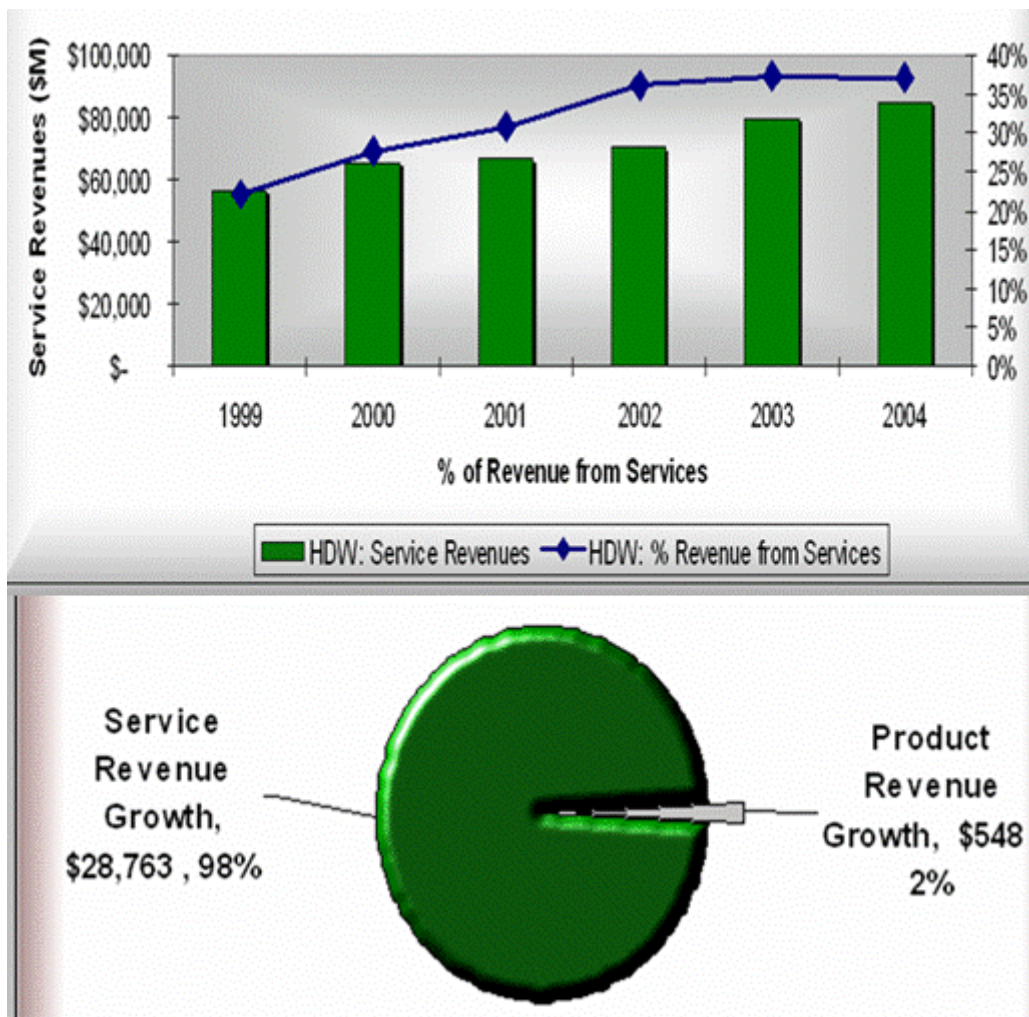
- The customer might do the same work done previously by the employee, using the same facilities or equipment (e.g., laundromat, cafeteria)
- But more often the employee has been replaced with an automated system involving software and/or equipment (e.g., ATMs, kiosks, touch tones -> IVR, web sites for commerce, tracking, etc.)
- Self-service allows for 7-day, 24-hour services and this flexibility and convenience is valuable to customers

10. News: Cisco Systems "Servicifies" its Products

The image is a screenshot of a news article from eWeek.com. The header includes the eWEEK.com logo and navigation links for ENTERPRISE NEWS & REVIEWS, NEWS, REVIEWS, OPINIONS, CASE STUDIES, TOPICS, and INDUSTRIES. Below the header, the word 'Infrastructure' is displayed in a dark blue bar. The main headline of the article is 'Cisco: Not a Network Box Seller Anymore?' in large blue font. The author is Paula Musich, and the date is December 13, 2006. The article text states: 'Cisco Systems may end up being thought of as a software company, five years from now, rather than a networking box supplier, if its network-is-the-platform strategy is successful.'

- <http://www.eweek.com/article2/0,1759,2072285,00.asp>

11. The Trend Toward Services for Hardware Firms



12. Software as a Service

- Significant amount of enterprise or "packaged" software is being transformed from an installed product to a hosted service (CRM, HR, BI are significant sectors, Supply Chain and ERP are coming)
- Instead of installing the software on a local machine, the customer pays on a subscription or per use basis to access the functionality using a Web browser
- Many "deployed" software applications have become hybrids with a significant hosted or "vendor-managed" S-as-a-S component

13. News: Microsoft Offers "Software As A Service"

Microsoft To Offer Software-As-A-Service CRM This Summer

Hosted CRM already is available through Microsoft business partners, but the company plans to directly sell an offering it's calling Microsoft Dynamics CRM Live.

By [Mary Hayes Weier](#)
InformationWeek

Jan 10, 2007 09:00 AM

Microsoft will offer its customer-relationship management product via a software-as-a-service (SaaS) model, but interested customers will have to wait until summer. The company will announce today it's starting to preview its next-generation CRM product to business partners, and expects to have it available for purchase in the third quarter.

- <http://www.informationweek.com/news/showArticle.jhtml?articleID=196802441>

14. News: Web APIs Enable the "Programmable Web" and Service "Mash-ups"

Programmableweb

[Home](#) [Blog](#) [Mashups](#) [APIs](#) [Developers](#) [Share](#) [Learn](#)

Quick Stats

Total Mashups
144

Total APIs
356


Mashups/Day
2.98

First time here?

[Click for an overview](#)

Keeping you up to date with the latest on mashups and the new Web 2.0 APIs

January 13, 2007

<h4 style="margin: 0;">Mashup of the Day >></h4> <p style="margin: 0;">The Found Bin</p>  <p style="margin: 0;">★★★★★</p>	<h4 style="margin: 0;">Newest Mashups >></h4> <p style="margin: 0;">The Found Bin</p> <p style="margin: 0;">NOTAM Ace</p> <p style="margin: 0;">Food Tube</p> <p style="margin: 0;">Adding Tags to MyBlogLog</p> <p style="margin: 0;">Atpic Maps</p>
<p style="margin: 0;">See: Dashboard /Popular Matrix</p> <p style="margin: 0;"> Learn: How-To</p> <p style="margin: 0;"> Do: Share</p>	<p style="margin: 0;">Vast.com</p> <p style="margin: 0;">Mandelbrot Fractal</p> <p style="margin: 0;">Exp ...</p> <p style="margin: 0;">TravellersPoint</p>

- <http://www.programmableweb.com/>

15. Web Services

- Web Services -- with a capital "S" -- generally means a particular set of specifications for doing service-oriented integration with XML documents as the "payload" that conveys the information required by the service interface
- But a "web-based service" -- with a lower-case "s" -- can be defined as any functionality that is invoked and delivered by XML documents

- Almost any service can be implemented to use documents as interfaces (request and response)
- A "mashup" of information from different services is accomplished through services requested via web APIs

16. Web Services {and,vs} Service Oriented Architecture


- Web services are an important physical architectural idea and a set of standards and techniques
- Service Oriented Architecture is a conceptual architectural perspective and design philosophy to think about "what a business does" in more granular terms so that a business can be a mix of core, internal functions that it does itself and outsourced ones provided by other businesses
- MBAs and CIOs talk about SOAs, software architects and developers talk about web services

17. News: Amazon.com "Productizes" its Web Services



Evolving Amazon's services into products

Developing internal Web services is easy; the hard part is bringing them to market

By [Jon Udell](#) 
October 04, 2006

The announcements from Amazon Web Services LLC just keep on coming. The latest news flash is FBA (Fulfillment by Amazon), which will make Amazon's warehouse, its customer service, and its pick, pack, and ship machinery available to sellers.

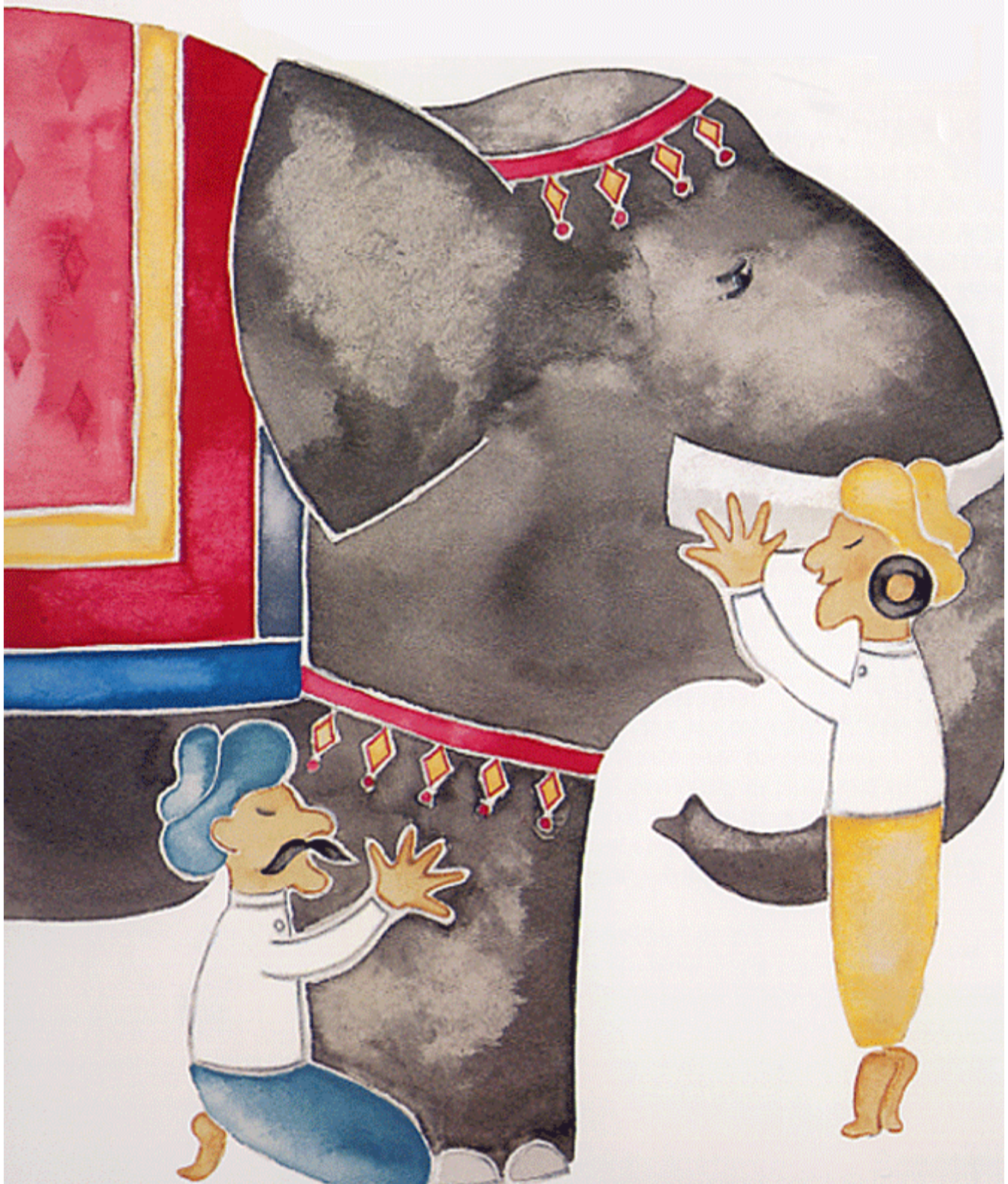
- http://www.infoworld.com/article/06/10/04/41OPstrategic_1.html

18. News: IBM Standardizes Consulting as "Service Products"

The screenshot shows the IBM Global Services website. The top navigation bar includes the IBM logo, 'North', and 'IBM Glc'. Below this is a menu with 'Home', 'Products', and 'Services & industry solutions'. The main content area features a sidebar with categories like 'IBM Global Services', 'IT services', 'Application services', 'Business consulting', 'Business processes', 'Business issues', 'Industries', 'Training', 'Conferences & events', 'Services A-Z', and 'IBM Global Services search'. The main article is titled 'New IBM service products ease information management and storage of data' and includes a 'Summary' section. The summary text reads: 'IBM unveils first service products for end-to-end information management'. It also lists 'Published: 19Oct2006' and 'Industry: Cross-industry'. Below the summary are links for '* Related reports & papers' and '* Related services & products'. The article body begins with 'ARMONK, NY — IBM, the world's leading provider of information technology services, today announced new service products to help businesses better manage information and increase the performance of their database- and storage-related infrastructures. Designed by'.

- <http://www-935.ibm.com/services/us/index.wss/summary/imc/a1025796?cntxt=a1002583>

19. Defining "Service" -- Like the Blind Men "Defining" the Elephant?



20. So What Is a Service?

- The only thing all these services have in common is that they all involve:

- A Provider
- A Client / consumer / requestor
- An Interface -- the *published* or *public* or *implicit* description of what the service does and how to request it
- A transformation of (some aspect) of the inputs to the service to create the outputs
- This framework encompasses both human and computational/automated providers and consumers

21. A New Design Framework for Services

- Rather than focus on categories for service classification, it is more useful to emphasize dimensions or factors of service design that use the abstract characteristics of services
- A service design chooses the extent to which each dimension or factor is relevant, and how the extent or intensity of the factor is allocated between the service provider and service consumer
- Some dimensions are only relevant when providers and consumers are people, while others concern the extent of technology and capital and can apply to services that don't involve any people
- (This work is being done with Christo Sims and Lindsay Tabas)

22. Dimensions of Service Design - Human Factors

- *Knowledge/Expertise*: How much knowledge or expertise must the service provider and service consumer possess in order to accomplish the service offering?
- *Knowledge/Expertise*: How much knowledge or expertise must the service provider and service consumer possess in order to accomplish the service offering?

- *Cognitive Capacity*: How much intelligence, as opposed to knowledge, must the service provider and service consumer possess in order to accomplish the service transformation?
- *Physical Capacity*: How much physical effort are required of the service provider and service consumer?
- *Knowledge/Expertise*: How much knowledge or expertise must the service provider and service consumer possess?
- *Emotional Intensity*: To what degree will the service offering require intense emotional experience on behalf of the service provider or service consumer?
- *Time Intensity*: How much of the provider's and consumer's time is required?

23. Dimensions of Service Design - Technology & Capital Factors

- *Technology & Capital Investments*: Which technologies and other fixed-capital resources must the service provider and service consumer control?
- *Disposable Resources*: Which resources are consumed in carrying out the service and which party must supply them?
- *Encoded Information*: What encoded information is required and which party must supply it?

24. Some Implications and Hopes About this Design Framework

- Instead of trying to fit services into categories, these design dimensions can serve as facets that enable more nuanced comparisons between services
- It should be easier to recognize similar design challenges and identify reusable design patterns

- We might be able to use the dimensions to assess the capabilities of service providers
- But we're not there yet... stay tuned!

25. Lecture Series Overview

- 15 lectures: Foundations (4), Industry Perspectives (5), Emerging Technologies and Issues (6)
- 4 UC Berkeley faculty, 1 other academic, 1 consultant, other speakers from range of small/big/startup/established firms

26. Course Administrivia

- Sign up for "ssmelec" mail list by sending mail to "majordomo@sims.berkeley.edu" with body "subscribe ssmelec"
- For credit, you must attend at least 11 of next 14 lectures (or 12, if you missed this one); SIGN UP SHEET
- For credit, you must write a short term paper (approximately 3000 words) by May 7 on a topic approved by April 10