MIS 연구의 향후 과제와 전망: 기술적 연구관점에서

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이재규 (Jae Kyu Lee)
Graduate School of Management
Korea Advanced Institute of Science and Technology

Reflection of MIS Research

- Scientific approaches to non-Scientific problem
  - Obvious theory to common people
  - Complex analysis
  - Never ending exploratory study with limitations
- Do MIS practitioners use our research findings?
  - Too irrelevant hypothesis to the manager's decision
  - Too late - Live in the past to collect data
- Technology Research
  - Hard to survive in the real world

Evolution of Information Systems Research

- ***Liang and Chen, PACIS 2003***
  - ***Survey of 3,841 IS papers during 1980-2001***
- **Distribution and Trend of IS Research Topics**
  - **Categories:**
    - **Human;**
    - **System;**
    - **Technology and Analysis Model;**
    - **Management;**
    - **Research Methodology and Theory**
- **More Human, less System related publication as time goes**
- **Many Technology Adoption Model applied recently.**

Table 2. Distribution of research topics in different stages

	Human		System		Technology & Analysis Model		Management		Research Methodology and Theory	
	Paper counts	%	Paper counts	%	Paper counts	%	Paper counts	%	Paper counts	%
1980~1984	85	18.0%	231	49.0%	38	8.1%	65	13.8%	52	11.0%
1985~1991	398	17.2%	1027	44.4%	262	11.3%	414	17.9%	212	9.2%
1992~1998	740	20.9%	1358	38.4%	467	13.2%	595	16.8%	378	10.7%
1999~2001	531	26.6%	670	33.6%	283	14.2%	327	16.4%	186	9.3%

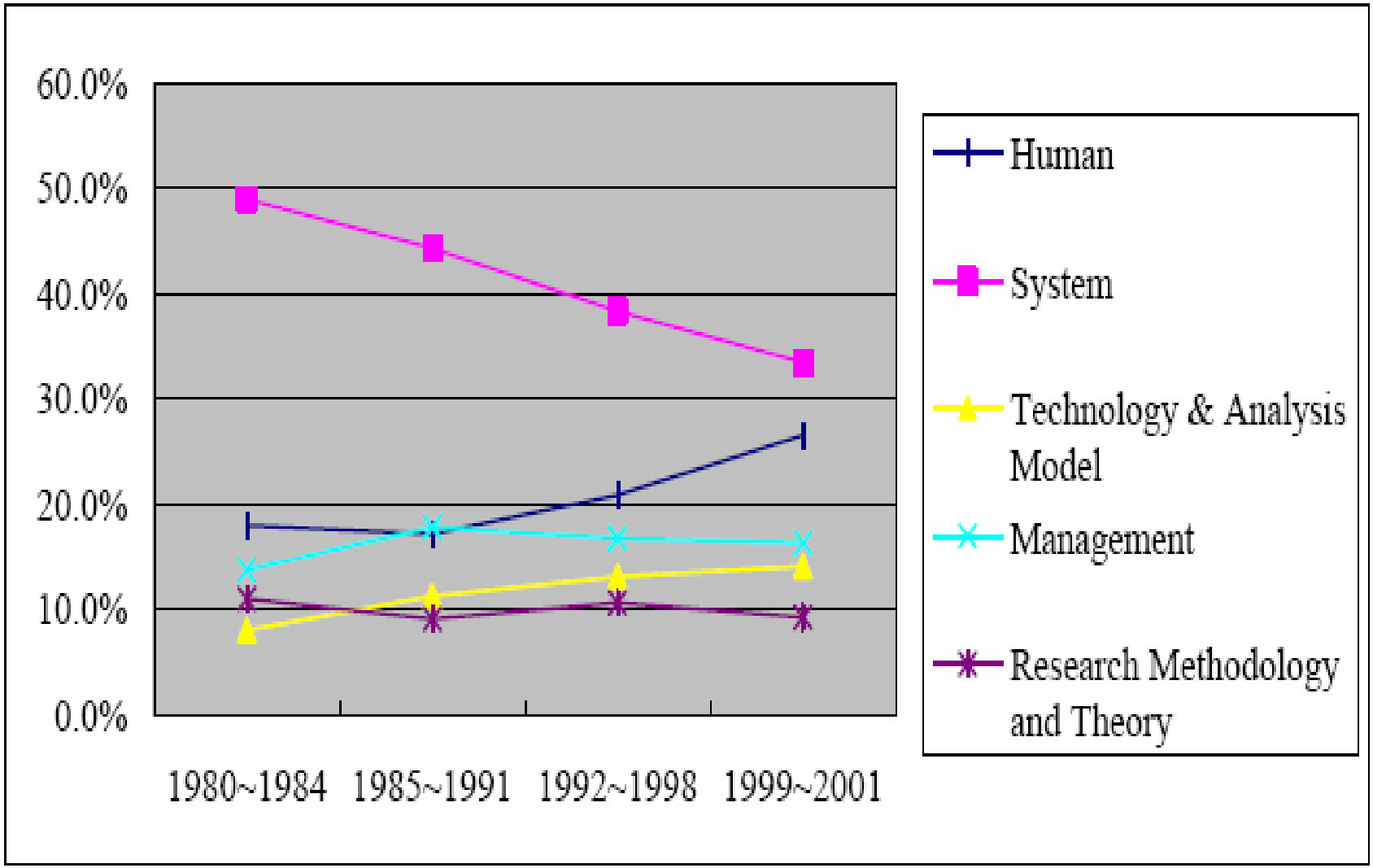


Figure 2. Trends in five research areas

Two Major Trends in IS Evolution

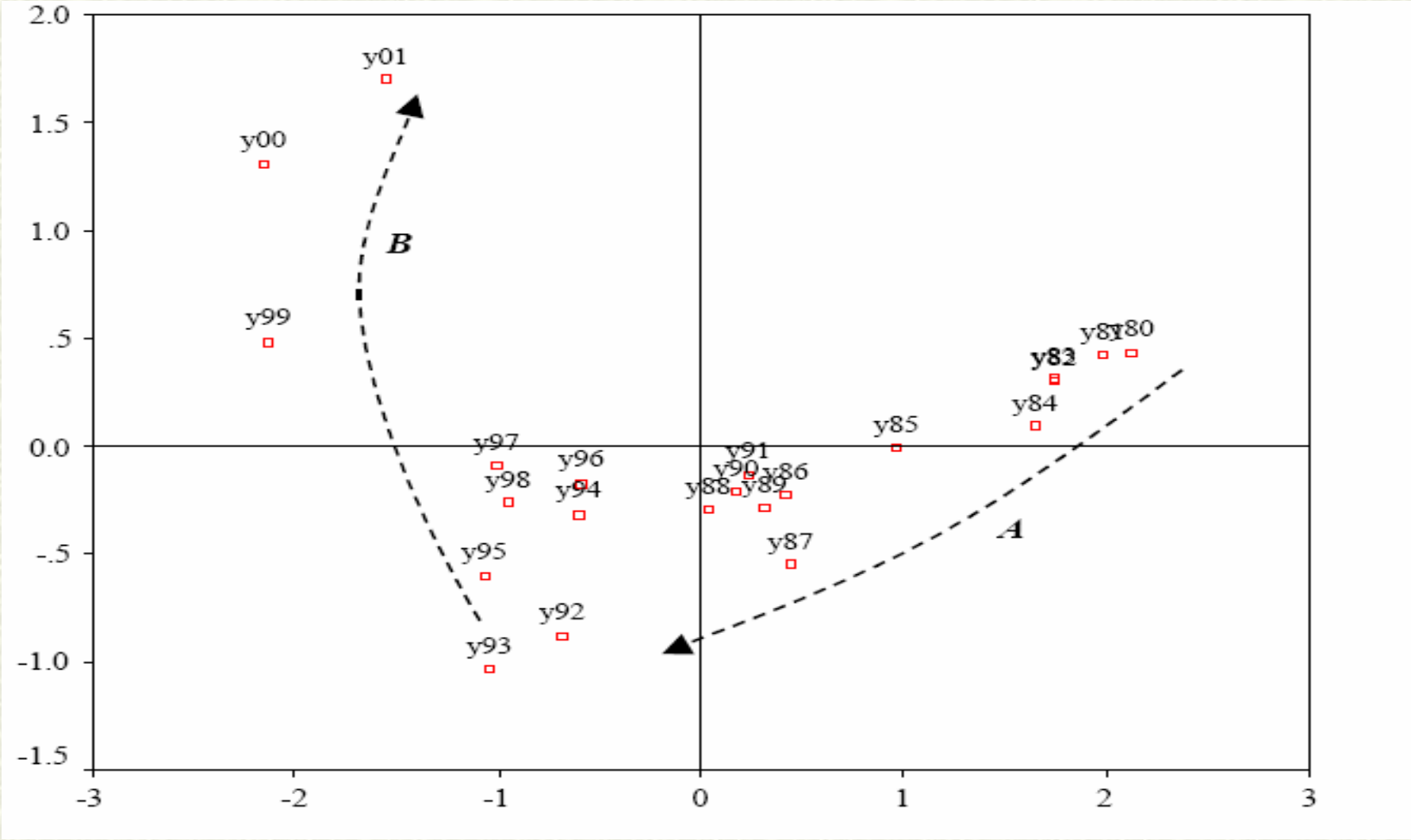


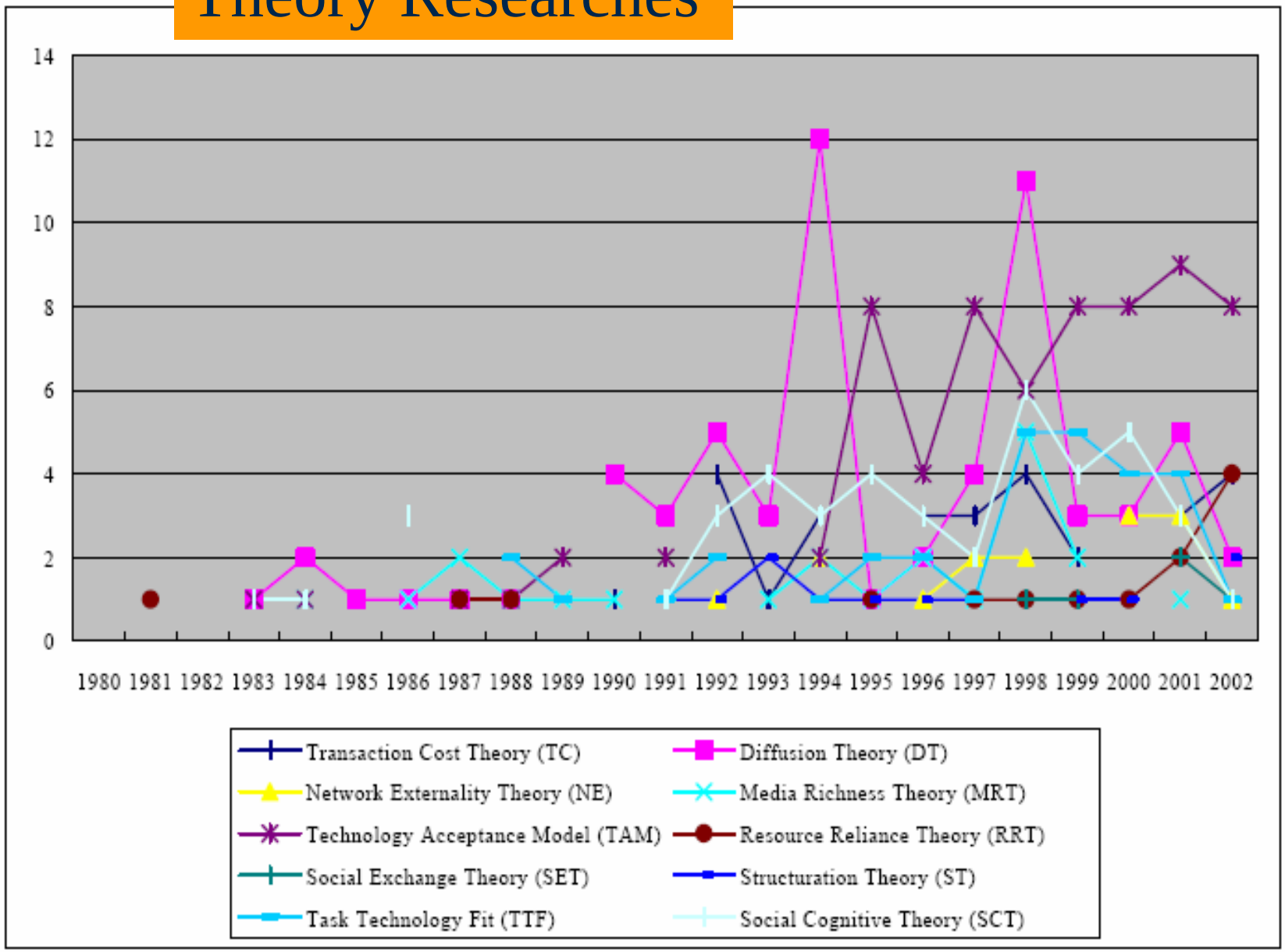
Table 3. Major driving forces behind the trends.

Trend A			***Trend B***		
Rank	Themes	Diff.	Rank	Themes	Diff.
1	System Design Issues	+73	1	Applications in Industries or Functions	+109
2	DSS/ESS/EIS	+66	2	DSS/ESS/EIS	-64
3	Methodologies/Philosophy	+63	3	Technology Infrastructure	+60
4	Managerial Issues	+56	4	Theories	+53
5	IS Performance Evaluation	+55	5	Organizational Resource / Knowledge Management	+39
6	New Software Technologies	+41	6	Perception and Attitudes	+38
7	Intelligent Systems	+40	7	New Software Technologies	+37
8	Telecommunication Systems	+35	8	Methodologies/Philosophy	+34
9	Analytical Models and Tools	+33	9	Managerial Issues	+30
10	IS Strategic Planning	+33	10	Group Support	+29

Theories in IS Research

- Transaction Cost Theory
- Diffusion Theory
- Network Externality Theory
- Media Richness Theory
- Technology Acceptance Model
- Resource Reliance Theory
- Social Exchange Theory
- Structuring Theory
- Task Technology Fit
- Social Cognitive Theory

Theory Researches



Desperately Seeking the IT in IT Research – A Call to Theorizing the IT Artifact

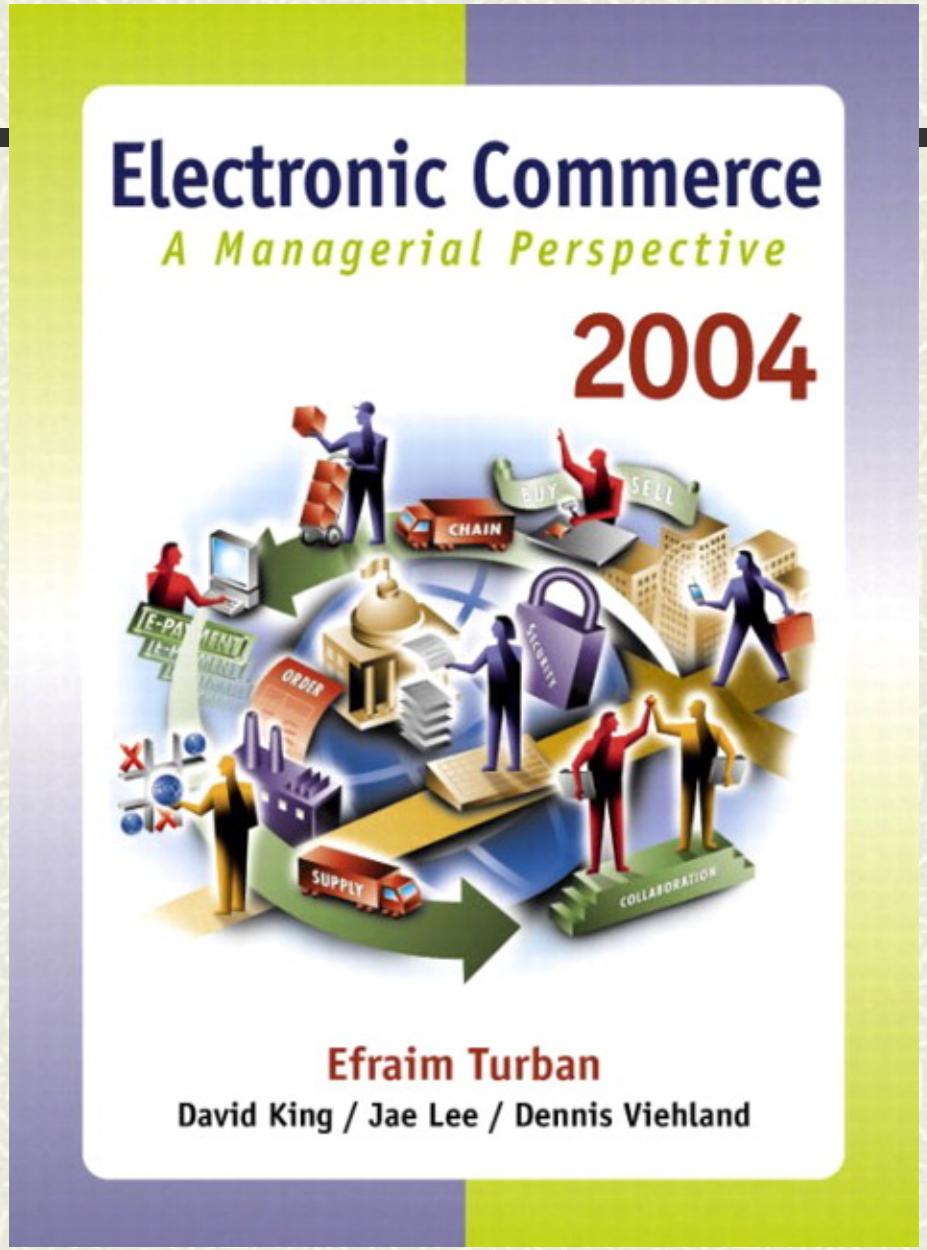
- Orlikowski and Iacono, ISR, 2001
- Table 1.
- Classification of Articles in ISR (1990-1999)
  - Nominal View
  - Computational View
    - Algorithm; Model
  - Tool View
    - Labor Substitution Tool; Productivity Tool; Information Processing Tool; Social Relations Tool
  - Proxy View
    - Perception; Diffusion; Capital
  - Ensemble View
    - Development Project; Production Network; Embedded System; Structure

MIS Technology as Design Science

- Hevner, March, and Park [MISQ, 28, 1, 2004]
  - Seven Guidelines
    - Design as an artifact
    - Problem Relevance
    - Design Evaluation
    - Research Contribution
    - Research Rigor
    - Design as a Search Process
    - Communication of Research

EC Research: A Taxonomy and Synthesis

- Urbaczweski, Jessup and Wheeler, OCEC, 2002
- Table 1 [p.268]
- Organizational
  - Overview; Adoption; Strategy
- Economic
  - Industry Structure, Asset Ownership, and Governance;
    Adoption and Distribution of IOS Value;
    Electronic Market Intermediaries;
    Cost of acquiring information
- Technical
  - Agents; Data Integration; Security; Transaction Settlement; Digital Retailing;
- Others
  - Societal; Behavioral; Legal



EC Research

Online Appendix

www.prenhall.com/~turban

How to define EC publication?

- Journals under the title of EC
- EC topics in IS Journals

Taxonomy
by the Bottom Up Approach

27 Journals in EC and MIS

- Communications of the ACM
- Decision Sciences
- Decision Support Systems
- Electronic Commerce Research
- Electronic Commerce Research and Applications
- Electronic Markets
- e-Service Journal
- European Journal of Information Systems
- Information & Management
- Information Resources Management Journal
- Information Systems
- Information Systems Management
- Information Systems Research
- International Journal of Electronic Commerce
- Internet Research
- Journal of Electronic Commerce Research
- Journal of Interactive Marketing
- Journal of Internet Banking and Commerce
- Journal of Internet Commerce
- Journal of Management Information Systems
- Journal of Organizational Computing & Electronic Commerce
- Management Science
- MIS Quarterly
- Quarterly Journal of Electronic Commerce
- The Information Society
- World Wide Web

Findings (1)

- Emerging Platforms
  - Web Services; Semantic Web; Ubiquitous Computing, RFID
- Agent research in many applications popular
  - eMarketplace, purchase support, B2B, m-Commerce, and auctions
  - ***Performance of agents and limitation to adoption problematic***
  - Agent in the context of Semantic Web Services emerges
- Trust in multiple contexts popular
  - Consumer, security, B2B partnership, fraud regulation

Findings (2)

- CSF and Strategy for each subject in EC will sustain.
  - Evaluation metrics and evaluation of performances
  - Association with the Balanced Scorecard
- Pricing schemes of eChannels and Comparative behavior and performance will sustain.
- Areas of low publications than expected
  - Internet Ad; Public B2B; ePayment
- Blurred Boundary with Information Systems
  - Groupware; Workflow; EDI; Security; Outsourcing Policy; Development platform and strategy
- Blurred Boundary with Management Practices
  - Consumer behavior; Pricing; CRM, SCM

Findings (3)

- Complex Auctions and Market Mechanisms – the interest of Computational Economics by Computer Scientists.
  - Experimental simulation needs to be complemented by the ***empirical studies*** and the ***attitude of decision maker's delegation.***
- Connectivity with SMEs a common social issue for high propagation of EC.
- Privacy, Digital Right Management, and Trust – the primary policy issues.

Agenda Revisited

- Recent Publications in ECRA 2002-3
  - Electronic Commerce Research and Application
  - http://icec.net
- Recent International Conference on Electronic Commerce
  - ICEC 2003, October, Pittsburgh

ECRA Perspective

Volume 1 and 2 during 2002-2003;
46 Papers

Technology Oriented

- Agents Applications 14
  - Special Issue (7)
- Web Services 4
- Personalization 3
- M-commerce 3
- Collaboration / Nego 3
- Semantic Web 3
- Web Design 2

TOTAL 29

Strategy and Behavior Oriented

- Electronic Marketing 4
- Pricing 3
- Trust 3
- Supply Chain and B2B 2
- eConsumer Behavior 2
- Organizational 2
- Auction Market Mechanism 2
- Economic Impact 1
- eGovernment 1
- Cultural Context 1
- Adoption 1

TOTAL 22

ICEC 2003 Perspective

- ICEC 2003
  - International Conference on Electronic Commerce, Oct 2003, Pittsburgh
    - Chair: Norman Sadeh at Carnegie Mellon U.
- Tracks
  - Technology 20
  - Management 18
  - Practitioner/Strategy 12
  - Law and Policy 9

ICEC 2003 Perspective

- **Technology** **20**
  - Auction 6
    - Combinatorial Auction
  - Agent 4
    - Security; Negotiation
  - Automated Mechanism and Agent 3
  - Web Service Configuration (1) 2
    - Semantic Web and Agent (1)
  - M-Commerce 2
  - Multi-attribute Supply Chain Negotiation 1
  - B2B Integration 1
  - Electronic Payment 1

Strong Computational Economics Research by Computer Scientists

Stage of Research Life Cycle?

Stages of EC Research

- Develop Technology Platform
- Develop Applications
- Build Business Strategies and Measure Effectiveness
- Build Public Policy as Social Environment

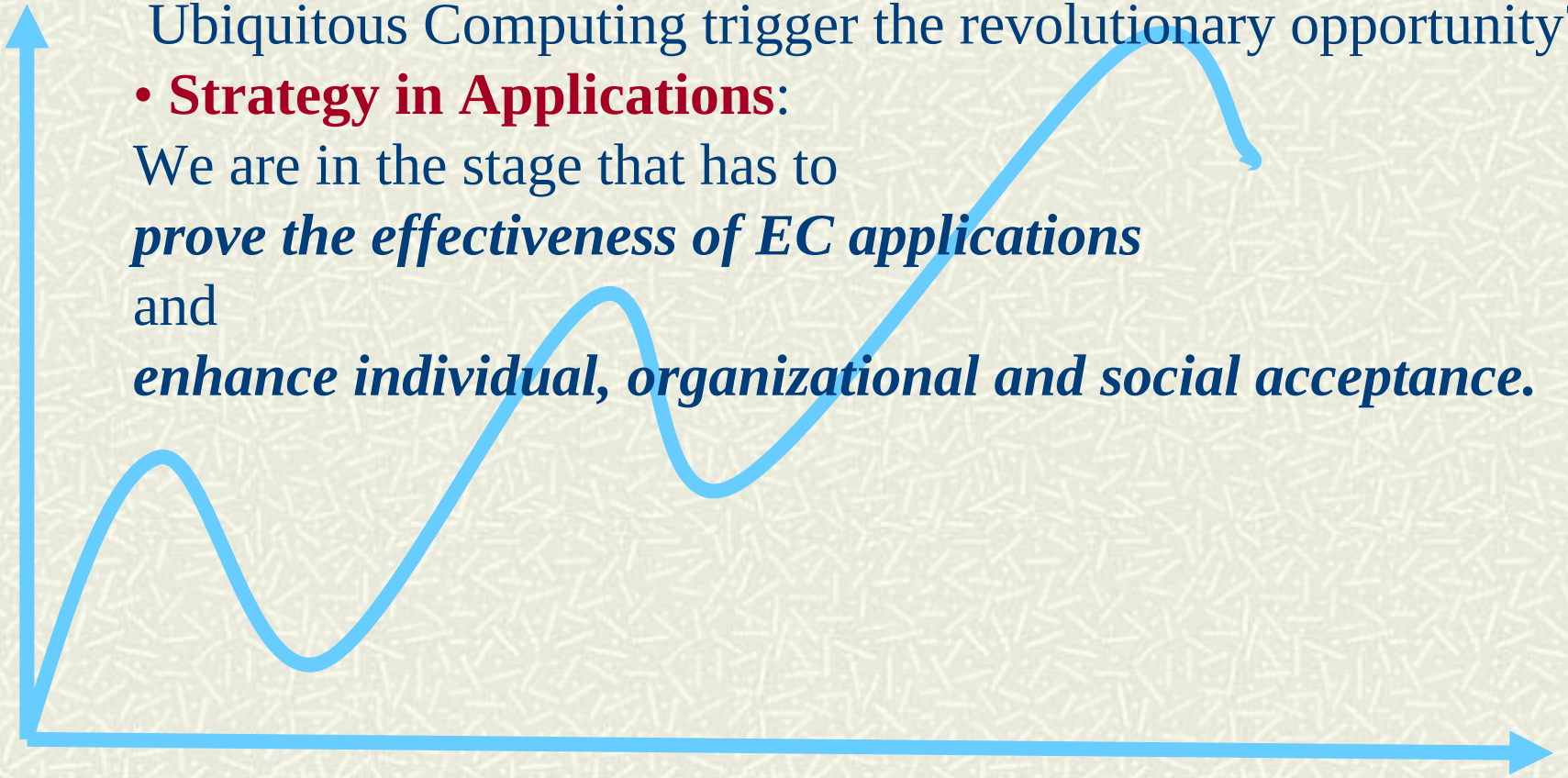
How to create the next waves?

- **Technology:**

Will the Semantic Web Services and
Ubiquitous Computing trigger the revolutionary opportunity?

- **Strategy in Applications**:

We are in the stage that has to
prove the effectiveness of EC applications
and
enhance individual, organizational and social acceptance.



Concluding Remark

- Relevance to the real world problem
  - Do we know the problem?
- Importance to Industry as well as academia
  - Do we know what is important problem?
- Contribution to the prosperity of IT Industry
  - Research should not be an intellectual hobby.
- Eternal (General) or Stepping Stone
- Do not lose the real problems
  - Remember the ups and downs of OR
  - Recall the medical community
- Technology is innnovator, but transient.