

## Scenarios in Future

(Source: Ok, 2003)

- Tom Cruise in *Minority Report*: Hand Gesture tracking
- "Have your objects called my objects?"
- Sensors in toothbrushes, Locating, Adjusting temperature of smart shirts, Intelligent cart, Coke refills (CRM), Intelligent garbage & garbage cans
- VC Integration among Organizations
  - Raw materials, Manufacturing, Logistics, Usage, Disposal, Recycling, ...
- "Is the refrigerator talking to grocer's computer?"
- Chips in bridges: Weighing, Detecting cracks

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## Motivation

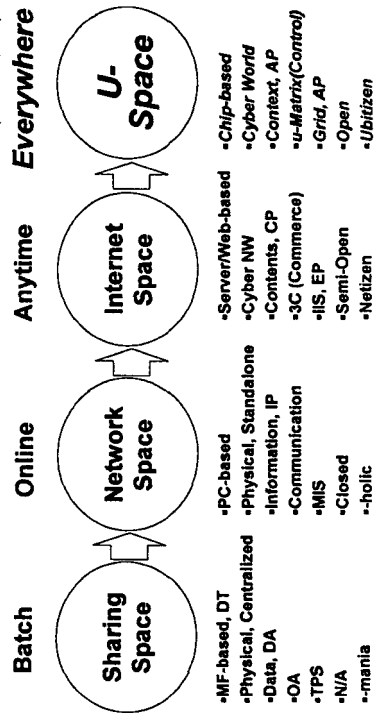
- Research Background
  - Ubiquitous ← Mobile ← ILIN (CVOITS) ← Tcom
  - B2B ← Logistics mediation
- Issues
  - Technology: Speed (GIS CD), Interface, Contents
  - Field refusal: Step by step, Info/Supplement, Gov support
- Opportunities to Discuss
  - Research
  - Business

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## Computing Revolution

(Source: Ok, 2003)



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## Grid Computing

(Source: Ok, 2003)

- A Form of Distributed Computing
  - Coordinating and sharing computing, application, data, storage, or network resources
  - Coined by Prof. Ian Foster of Chicago U. in 1998
- Origin
  - Control of electronic beam from - to + pole
  - Bridging the gap bet. Web & NGI
- Paradigm Shift
  - Neural Internet Network ← Web
  - Horizontal ← Vertical
  - Depth: cf) Ubiquitous Computing for Width

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## Introduction



- **Origin**
  - Mark Weiser (52-99): Xerox PARC CTO
  - *Ubique* in Latin = Everywhere (遍在하는)
- **Similar Terms**
  - Ubiquitous Network/IT
  - Pervasive/Nomadic/Wearable/Disappearing Computing
- **Characteristics**
  - Everywhere, Mobility
  - w/o Awareness w/ Awareness tech: e.g., Speedpass of Mobil, Intelligent cart of Wal-Mart

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## Components

(Source: Oh, 2003)

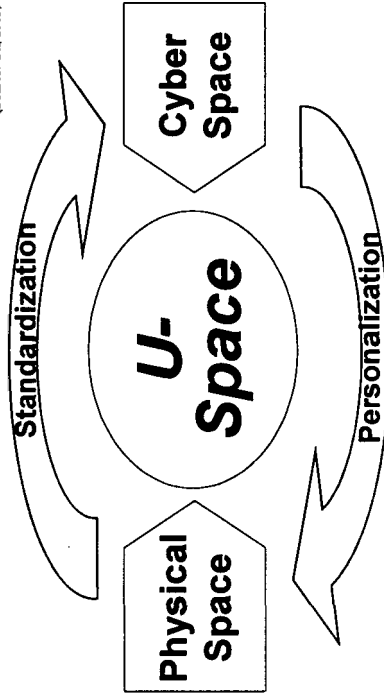
- **Ubiquitous Platform**
  - Chip: Context Awareness, Embedded tech, Appliances
    - ✓ Color code, RFID shoes & Chip floor of GT Aware Home
    - ✓ Tooth phone of Media Lab, Europe, ...
  - Terminal: Barrier-free, v-Recognition, Technology fusion
    - ✓ Responsive window, Easy Access of PRL, Smart wear of Philips & Levis
    - ✓ Dasher, Virtual keyboard, ...
  - Comm platform: NFC, Internet, Satellite, ...
- **Ubiquitous NW**
  - Connection: P2P → P2M → M2M
  - VPAN: e.g., Office Space + Car Space + Home Space + ...
- **Ubiquitous Applications**
  - New Market: Home electronics, Automobile, Services, ...
  - Business/Commerce, Digital Home, Health Care, Traffic, Industry, Education, Environment, Gov, ...

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## Mergence

(Source: Oh, 2003)



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## Augmented Reality

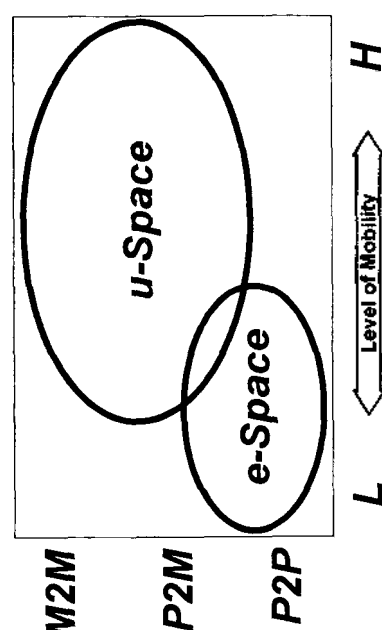
- **Standardization**
  - Front-end
  - u-Chip: TI e.g., Sensor, RFID tag, SoC, AutoID, MEMS, ...
  - Mobile NFC-based (WiFi, Bluetooth), Protocol, ...
- **Personalization**
  - Back-end
  - u-NW: RFID + Mobile + Broadband + ...
  - PAN, GPS, IPv6, ...
- **Ubiquitous Interface**
  - bet. Physical & Cyber spaces: cf bet. NWs of Internet
  - HCI, HTI, TCI, ...

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# Revolution of Comm

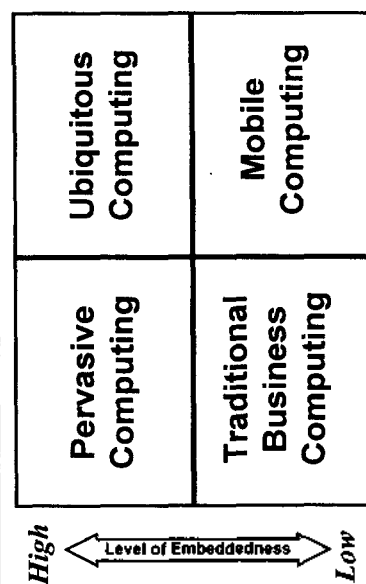
(Source: Oh, 2003)



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# Dimensions



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# History

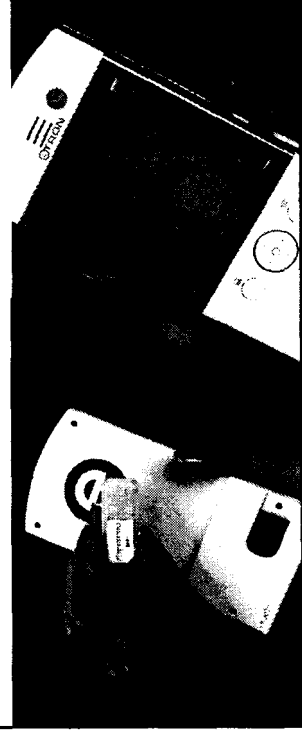
(Source: Oh, 2003)

- 84: Sakamura, TRON Project
- 88: Weiser of Xerox PARC CTO coined *Ubiquitous Computing*
- 94: HP, Cooltown Project (Tim Kindberg of Internet&MobileSystemsLab)
- 95: SETI@home Project: GRID
- 95: MS, Easy Living Project (Connecting Phones via Voice Recognition)
- 96: MIT Media Lab, *Affective Computing, Things that think*
- 96: IBM, *Pervasive Computing*
- 99: NRI, *Ubiquitous Network*
- 99: P2P e.g., Napster, Messenger
- 01: IBM, Blue GRID (Connecting worldwide Data Centers & Servicing eBiz)
- 01: Accenture, *Ubiquitous/Silent Commerce (Human → Object)*
- 02: MS, SPOT (Smart Personal Object Technology)
- Berkeley, *Smart Dust (Auto Sensing + Comm Platform)*
- Frontier Research, *Invisible Mobile*
- CS Lab, *Oxygen*
- Aware Home of Georgia Tech: info on Home, Residents, ...
- EU, *Smart Its Project*

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# Ubiquitous Communicator



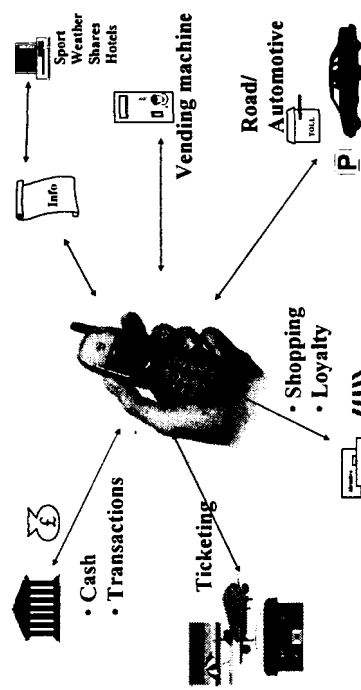
(Sakamura, 2003)

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# u-Biz Arena

(Source: BT celnet)

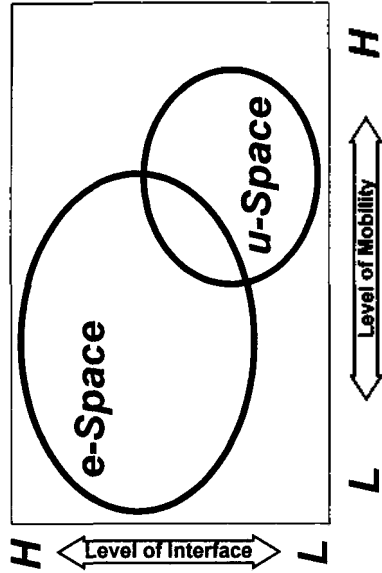


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# Service Environment

(Source: Oh, 2003)

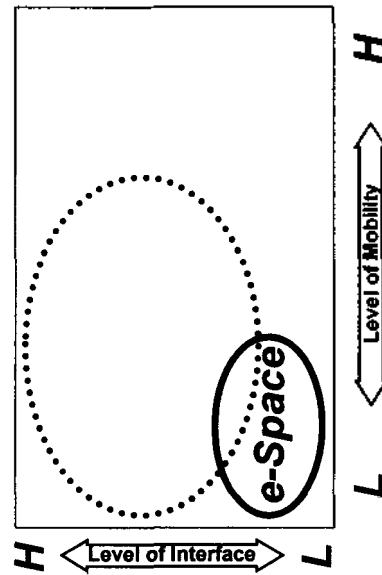


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# Environment: Past

(Source: Oh, 2003)

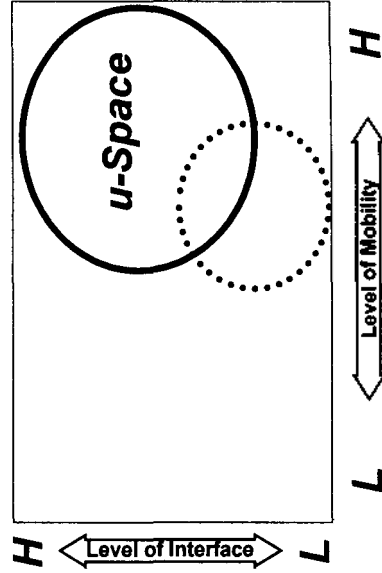


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# Environment: Future

(Source: Oh, 2003)

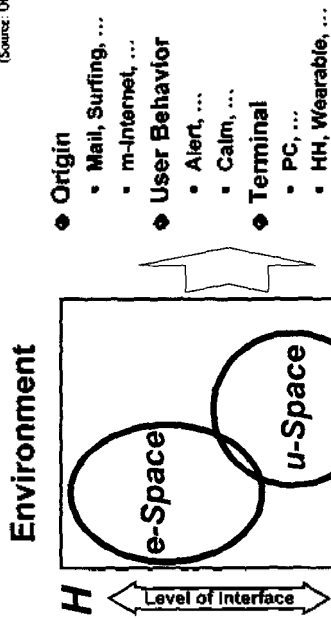


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# Distinction from e-Biz

(Source: Oh, 2003)



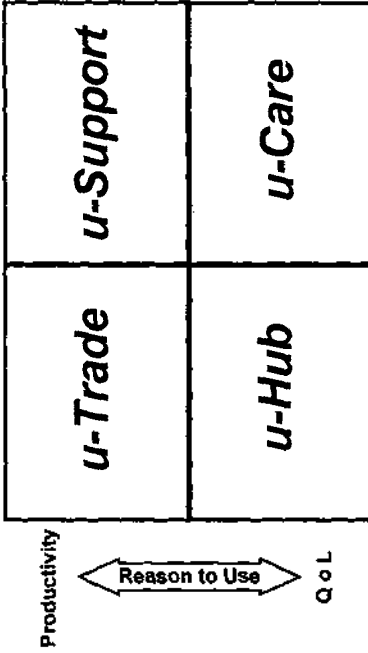
Not 3C → The u-Matrix

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# The u-Matrix

(Source: Oh, 2003)

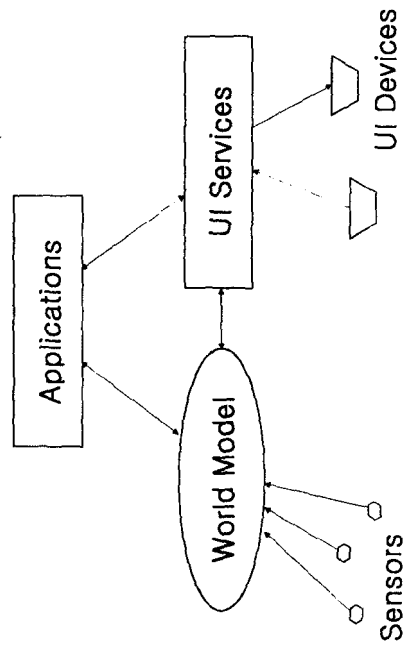


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# MS: How EasyLiving Works

(Source: research.microsoft.com)



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# HP Cooltown

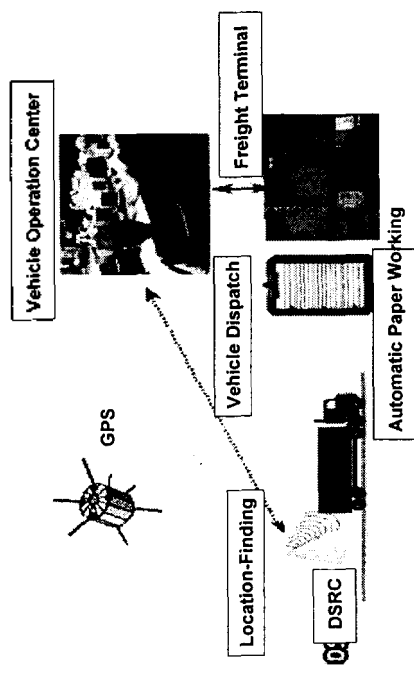
(Source: cooltown.hp.com)



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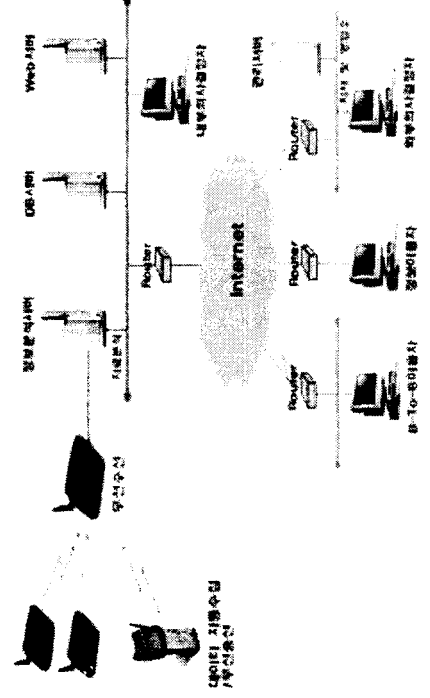
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# FFM of Rotterdam



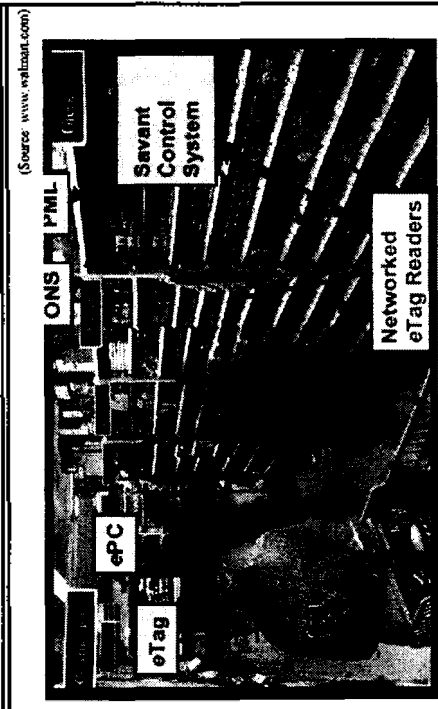
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# u-LMS of McKesson



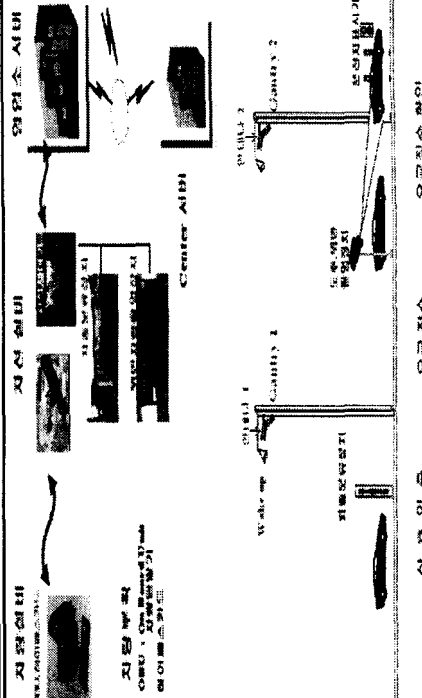
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# Wal-Mart: Auto-ID System



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# ETCS of Firm D



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# geocaching.com

**GEOCACHING**  
The world's largest treasure hunt

Geocaching is a new outdoor recreational activity involving the use of handheld GPS receivers to find hidden containers called "geocaches" or "caches" that are hidden by other geocachers around the world.

Geocaching.com is a free website that provides a database of geocaches and a platform for geocachers to communicate with each other.

Geocaching.com is a registered trademark of Geocaching.com LLC. All rights reserved.

# NTT DoCoMo

- **Vision: MAGIC**
  - **M: Mobile Multimedia**
  - **A: Anytime, Anywhere, with Anyone**
  - **G: Global Mobility Support**
  - **I: Integrated Wireless Solution**
  - **C: Customized Personal Service**
- **R&D in Technology**
  - **Network: ALL-IP, OPS, ATM, Ubiquitous IP Network, ...**
  - **Wireless: Adaptive Array Antenna, EMC, ...**
  - **Media: Wireless 3D, Security, ...**
  - **Interface: Intelligent Agent, Wearable device, ...**

# Value Chain in u-Space

(Source: Oh, 2003)

The diagram illustrates the Value Chain in u-Space, showing the flow of value from Context to User through various service layers:

- Context** (Input)
- Appl. Provider** (Application Provider)
- Network Service** (Network Service)
- Terminal** (Terminal)
- User** (User)

Supporting the main chain are **Advertisers** and **Vendors**. The **Advertisers** layer includes **Financial Service** and **System Suppliers**. The **Vendors** layer includes **System Suppliers**.

# Paradigm of u-Services

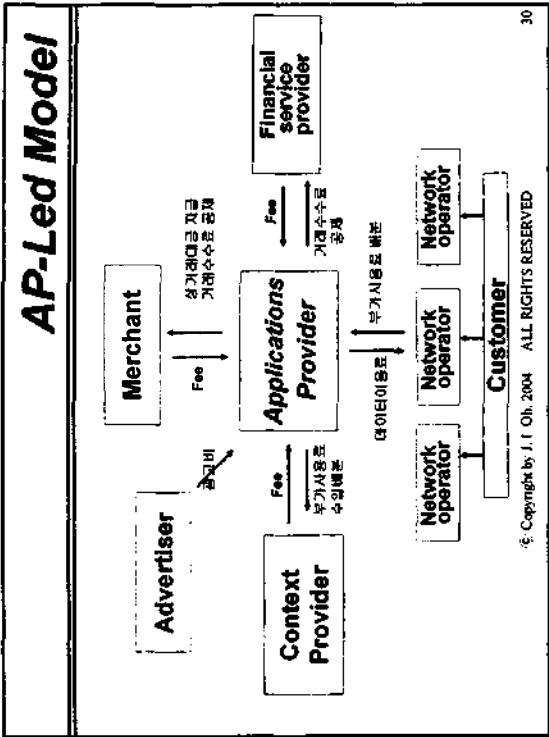
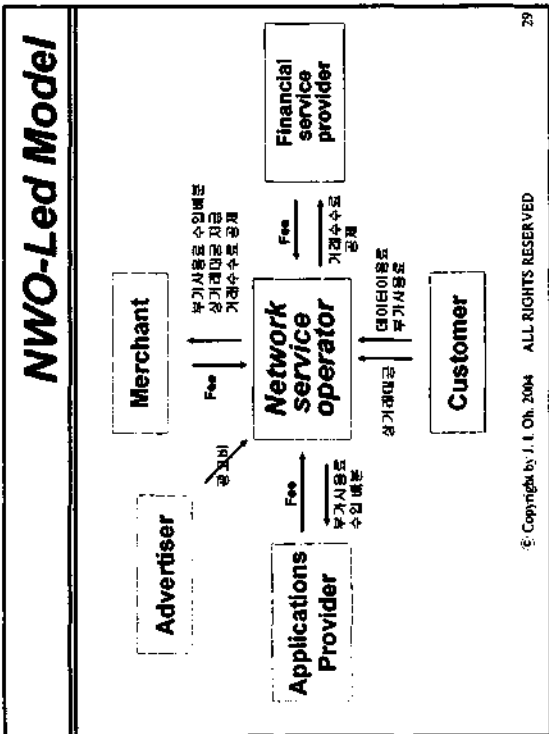
(Source: Oh, 2003)

The diagram illustrates the Paradigm of u-Services, showing a 2x2 matrix of services and their characteristics:

Productivity	Transactions Payment/Advertising Finance Entertainment	ITS/Telematics Telemetry FFA/Remote support v-Conferencing
	Community UMS Realtime chatting File sharing	Digital home Healthcare Managerial Assistance Education Security

Characteristics and Dimensions:

- Reason to Use** (Horizontal Dimension)
- Way to Use** (Vertical Dimension)
- Spot** (Left side)
- Continuous** (Right side)
- Q o L** (Bottom side)



### 비즈니스 시대 대비하자

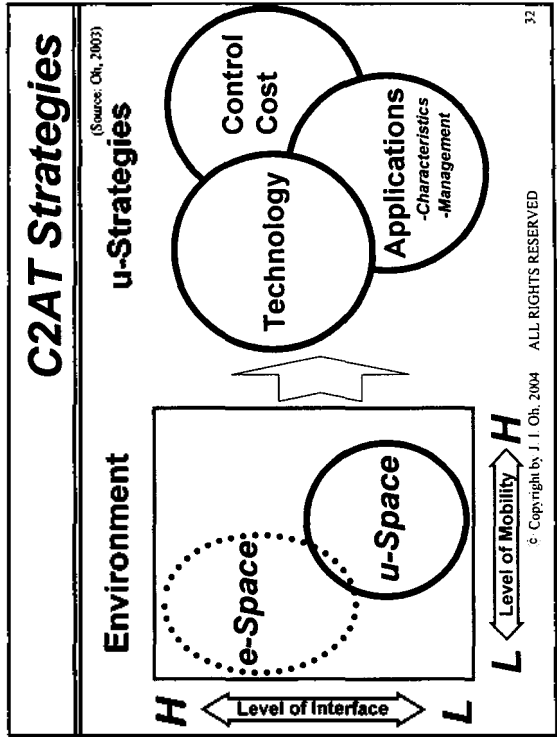
#### 시론

통신 시대가 들어간 것은 사실이다. 그러나 통신 시대의 진정한 시작은 언제부터인가? 그것은 통신이 단순히 정보를 전달하는 수단이 아니라, 비즈니스의 핵심 요소가 되는 순간부터 시작된다. 특히, 이동통신의 발달은 비즈니스의 패러다임을 완전히 바꾸어 놓았다. 이제 비즈니스는 어디서든, 언제든, 누구든 가능해졌다. 이는 기업에게 새로운 기회를 열어주었지만, 동시에 새로운 도전을 요구한다. 어떻게 하면 이 기회를 최대한 활용할 수 있을까? 어떻게 하면 이 도전을 극복할 수 있을까? 이 글에서는 이러한 질문에 대한 답을 찾아보기 위해, 비즈니스 시대를 대비하는 방법에 대해 살펴보려 한다.

#### 오제인

오제인(오제인)은 한국에서 가장 먼저 인터넷을 도입한 기업 중 하나이다. 그는 인터넷을 통해 새로운 비즈니스 모델을 창출하고, 이를 통해 성공을 거두었다. 그의 경험은 우리에게 많은 시사점을 준다. 특히, 그는 인터넷을 단순히 판매 채널로만 보지 않고, 고객과의 관계를 강화하는 도구로 활용했다. 이는 오늘날의 비즈니스에 매우 중요한 교훈을 제공한다.

이 글은 오제인(오제인)의 경험을 바탕으로 작성되었습니다. 그의 성공 이야기는 우리에게 많은 영감을 주었습니다. 그의 경험은 우리에게 많은 시사점을 준다. 특히, 그는 인터넷을 단순히 판매 채널로만 보지 않고, 고객과의 관계를 강화하는 도구로 활용했다. 이는 오늘날의 비즈니스에 매우 중요한 교훈을 제공한다.





## Issues

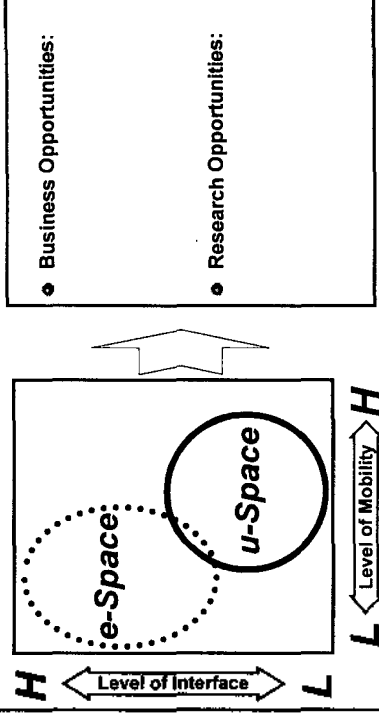
(Source: Oh, 2003)

- **Control**
  - User & NW: Always connected, Barrier-free Interface, Light weight, ... ←→ Privacy
  - More Terminals Connected: Mobile, IPv6, ...
- **Cost**
  - Richer Poorer: e.g., Chip, Terminal, Application, ...
  - Critical Mass
- **Applications**
  - Bigger Contents: Broadband Connection, ...
  - Social: u-Divide, u-Holic
- **Technology**
  - Sensing tech, Power, ...
  - No SA, ...

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## Opportunities



● Business Opportunities:

● Research Opportunities:

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## Conclusions

- **Hot u-Space: Strategic Weapon**
  - Creation of New Businesses
  - Differentiation: e.g., CS, CRM
  - u-Transformation: Innovation, VC Integration, Tech fusion
  - Better QoL: e.g., Endoscope, Accidents, ...
- **The u-Matrix**
  - Evolution of u-Services
  - Strategic Mapping Tool: Opportunities & Threats
  - Bricks-and-Mortar, Clicks-and-Mortar, True Play
- **C2AT Strategies**
  - Control, Convenience, Cost, Applications, Technology
  - u-Transformation, u-Government

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