

U-Cities:

Vision, Model & Strategies

단국대학교 상경학부

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Five Areas of u-Cities

(Source: Oh, 2004)

Public Sector



Transport



Home



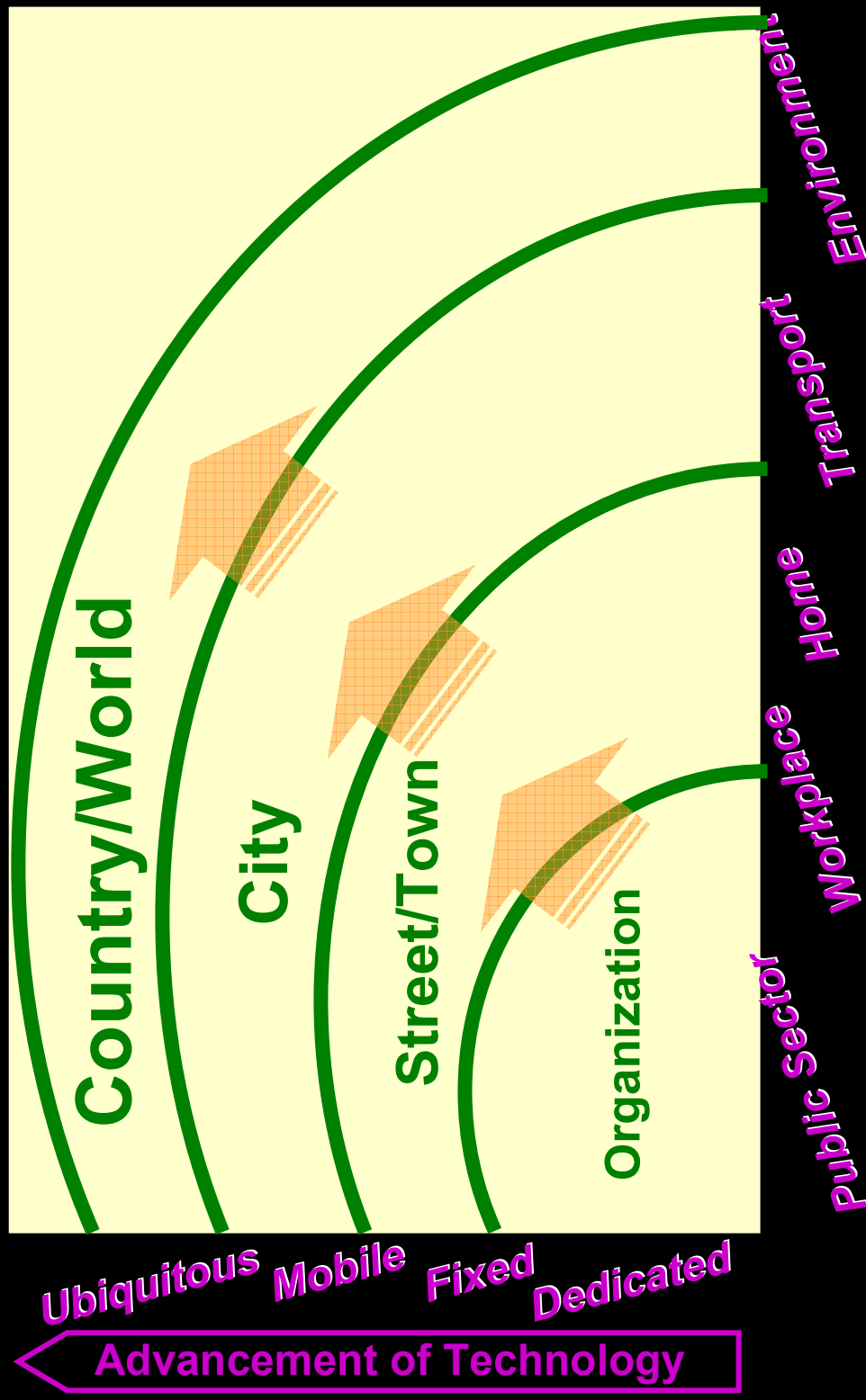
Workplace



Environment

Evolution of Digital Space

(Source: Oh, 2004)



Expansion of Space

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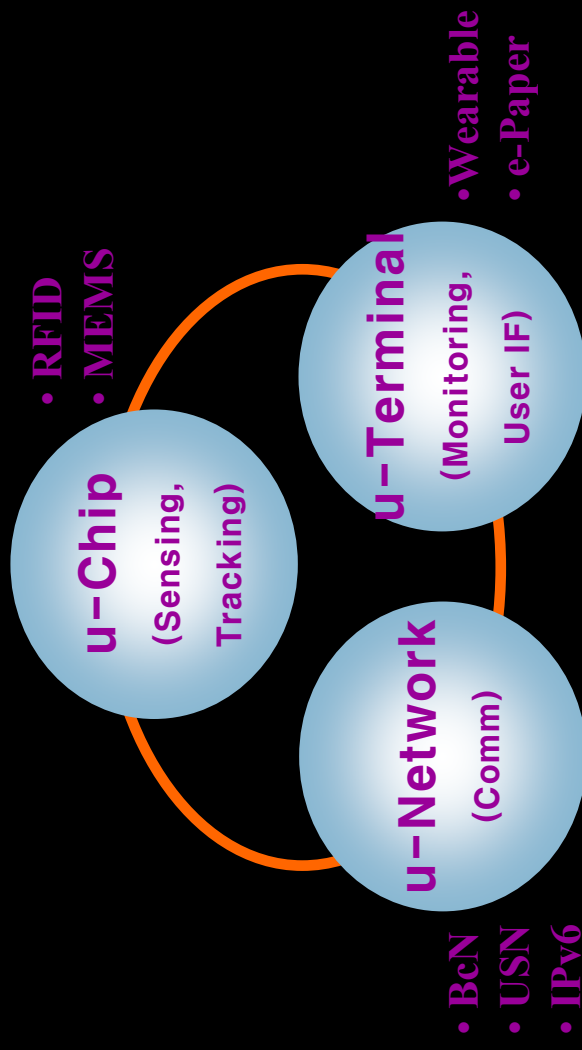
- 정보통신부: d-Home, ... cf) IT839
- 산업자원부: s-Conductor, Terminal, ...
- 과학기술부: R&D, ...
- 건설교통부: u-City, d-City, ...
- 지방자치단체: DMC, AS, JJ, SD, PJ, ...
- 기타:

Components

(Source: Oh, 2004)

• Ubiquitous Applications

• Ubiquitous Platform/Infrastructure



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)
- 95: MIT Media Lab, *Affective Computing, Things that think*
- 98: IBM, *Pervasive Computing*
- 99: NRI, *Ubiquitous Network*
- 99: P2P e.g., Napster, Messenger
- 01: IBM, Blue *GRID* (Conneting 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*

Computing Revolution

(Source: Oh, 2003)

Anytime Everywhere



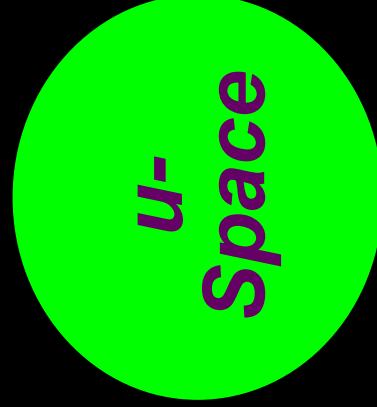
- MF-based, DT
- Physical
- Data, DA
- OA
- TPS
- N/A
- -mania



- PC-based, SA
- Physical
- Information, IP
- Communication
- MIS
- Closed
- -holic



- Server/Web-based
- Cyber NW
- Contents, CP
- 3C (Commerce)
- IIS, EP
- Semi-Open
- Netizen



- Chip-based
- Cyber World
- Context, AP
- u-Matrix(Control)
- Grid, AP
- Open
- Ubitizen

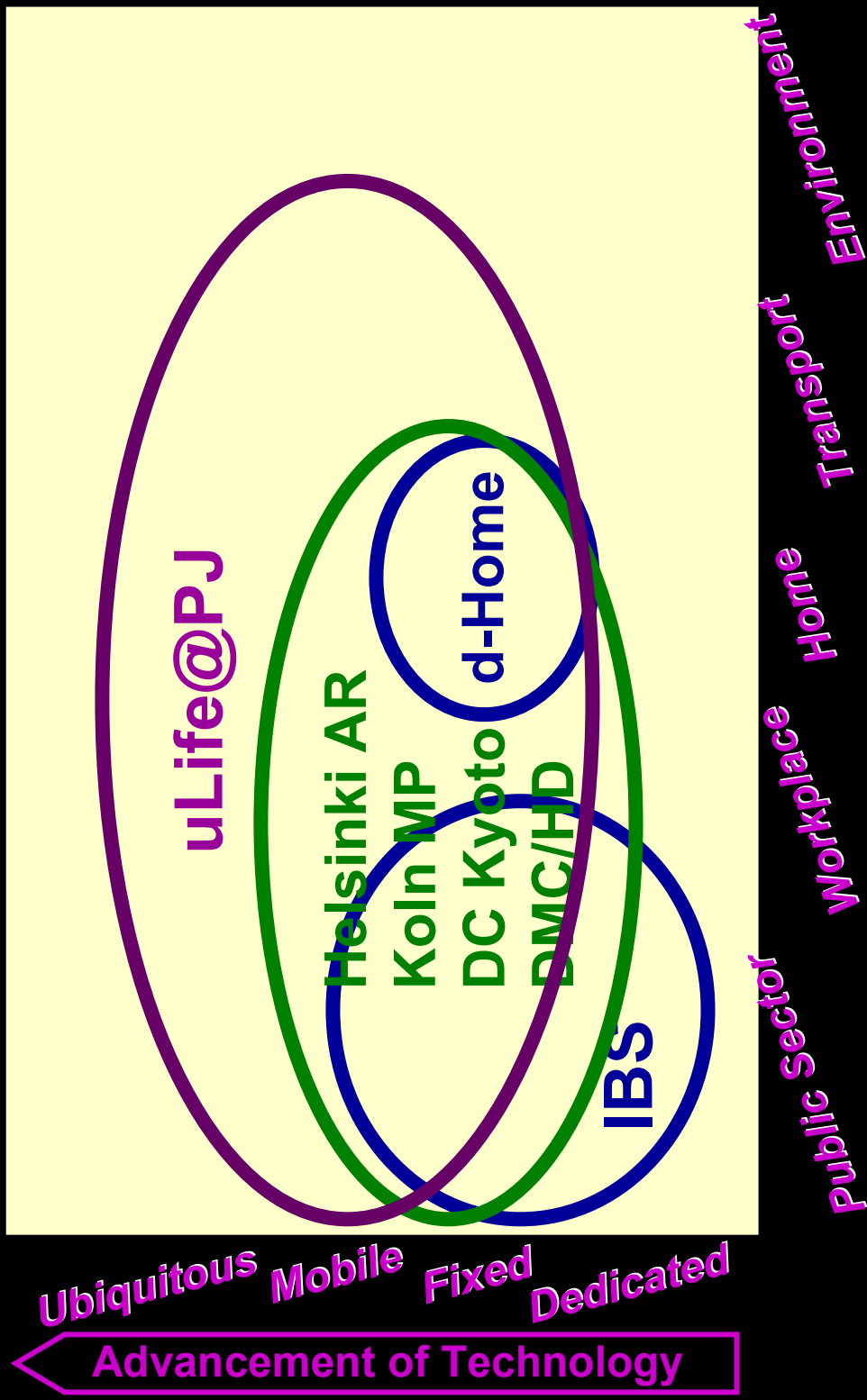
Grid Computing

(Source: Oh, 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*

Domain of Digital Space

(Source: Oh, 2004)



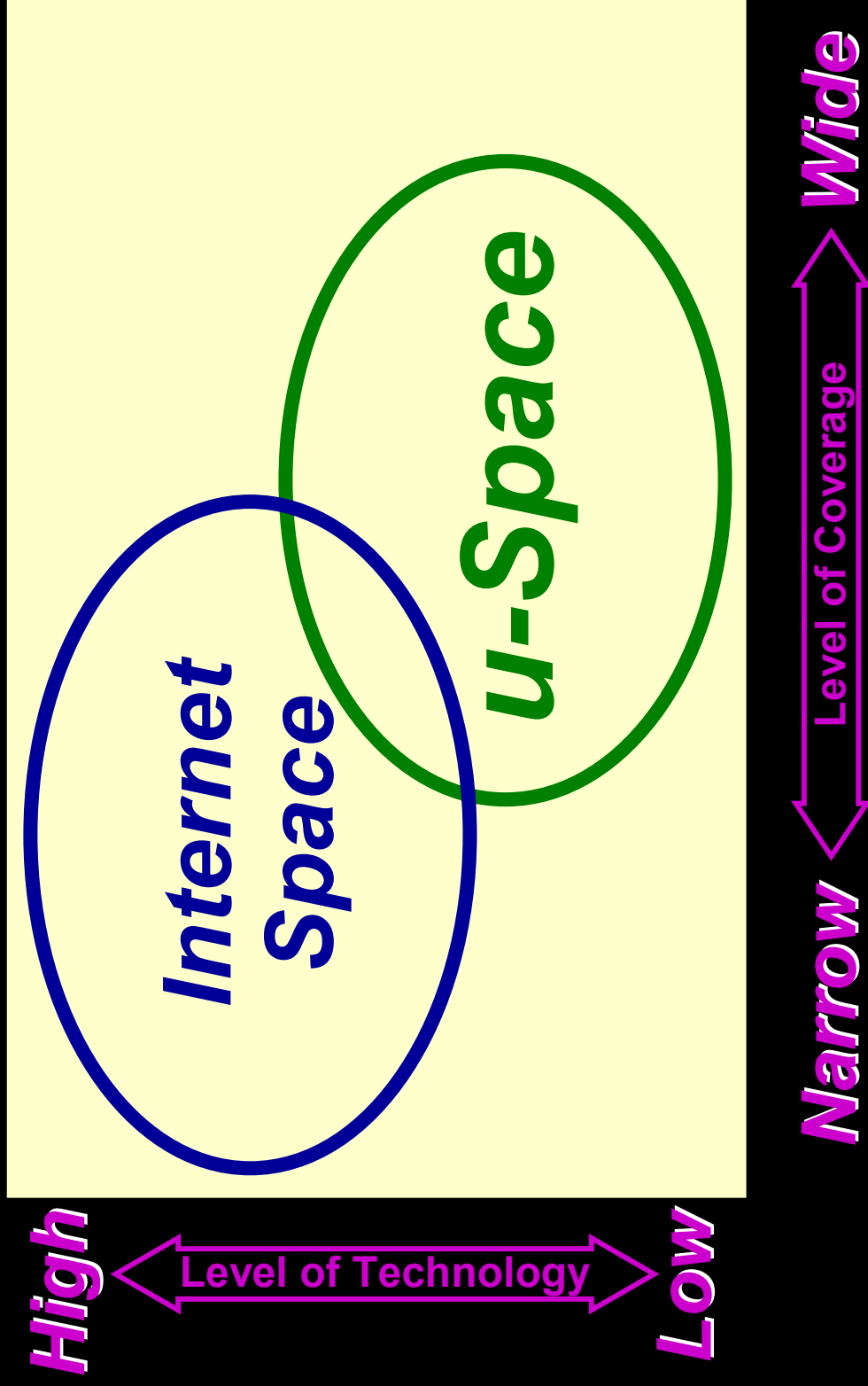
- **Flowchart**
- **International and Domestic Cases**
- **Environmental Analysis**
- **u-Vision**
- **u-Model**
- **u-Services**
- **u-Infrastructure**

Gaining Competitiveness

- **New Businesses**
 - e.g., GM OnStar, ...
- **Customer Satisfaction**
 - e.g., Wal-Mart Future Store, Hi-Pass, Endoscope, ...
- **Innovation**
 - u-Transformation, VC Integration
 - e.g., C Cosmetics, Firm D Freeway, ...
- **Better Well-Being**
 - e.g., Cooltown, EasyLiving, NTT DoCoMo, ...

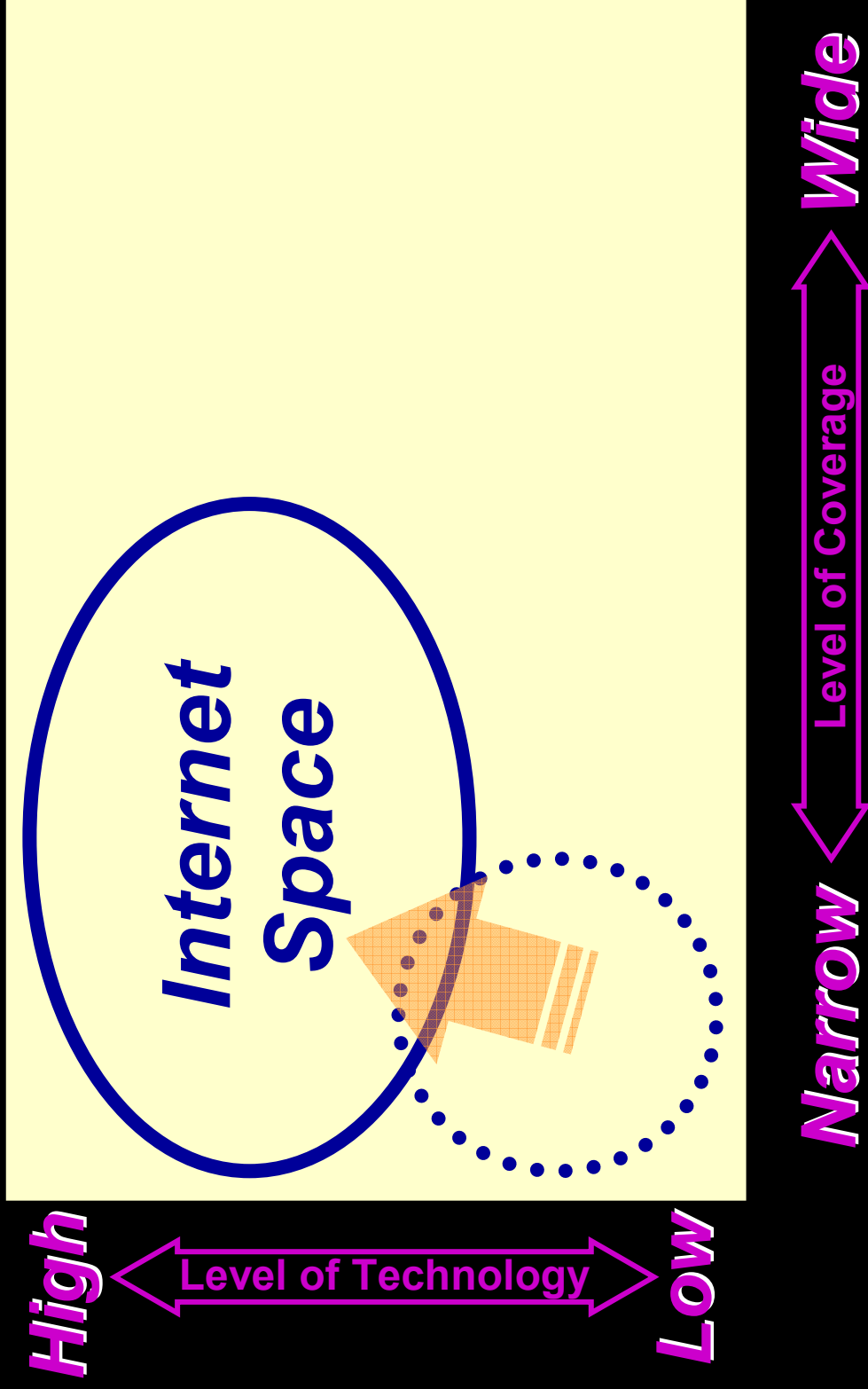
Service Environment

(Source: Oh, 2003)



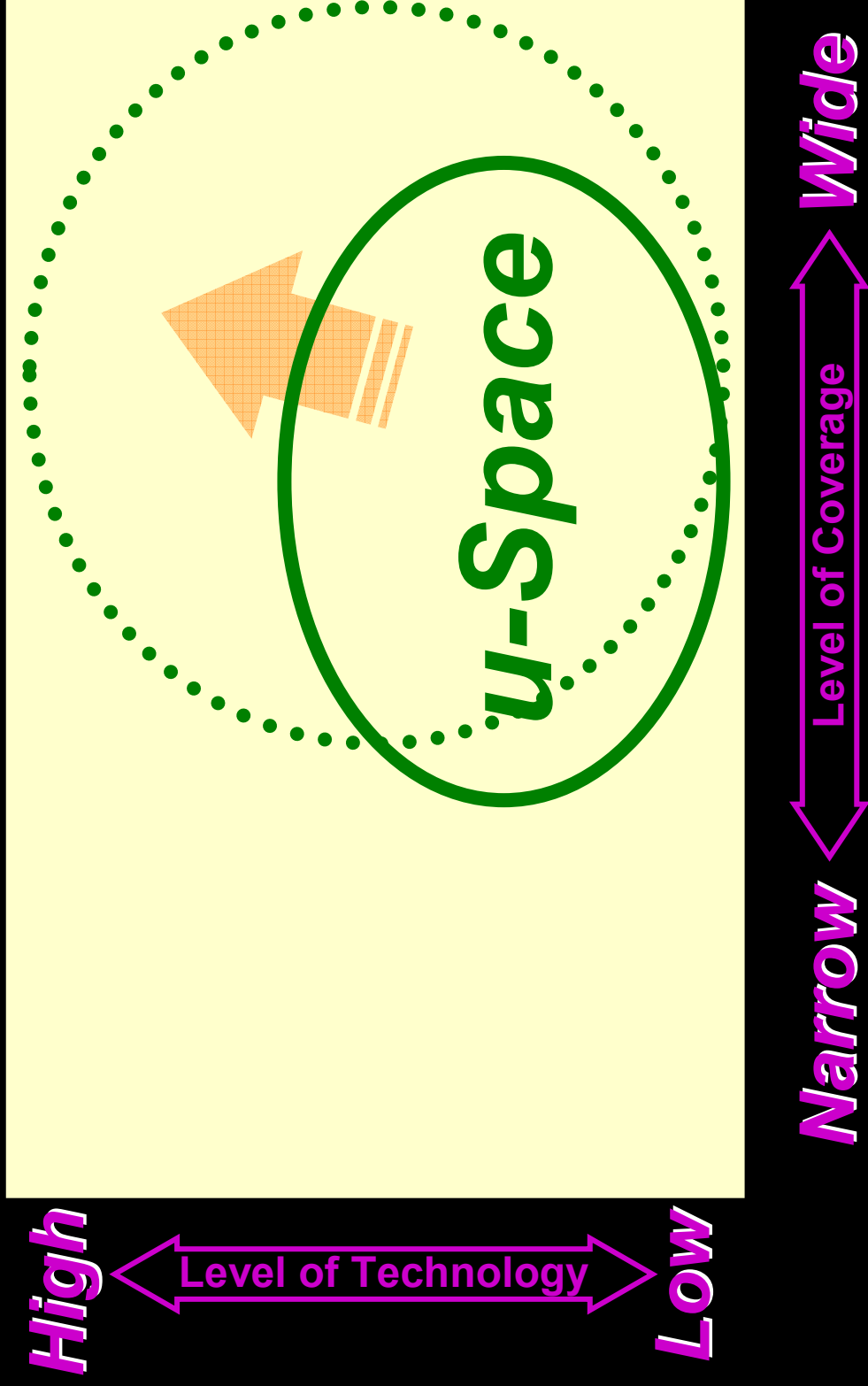
Environment: Past

(Source: Oh, 2003)



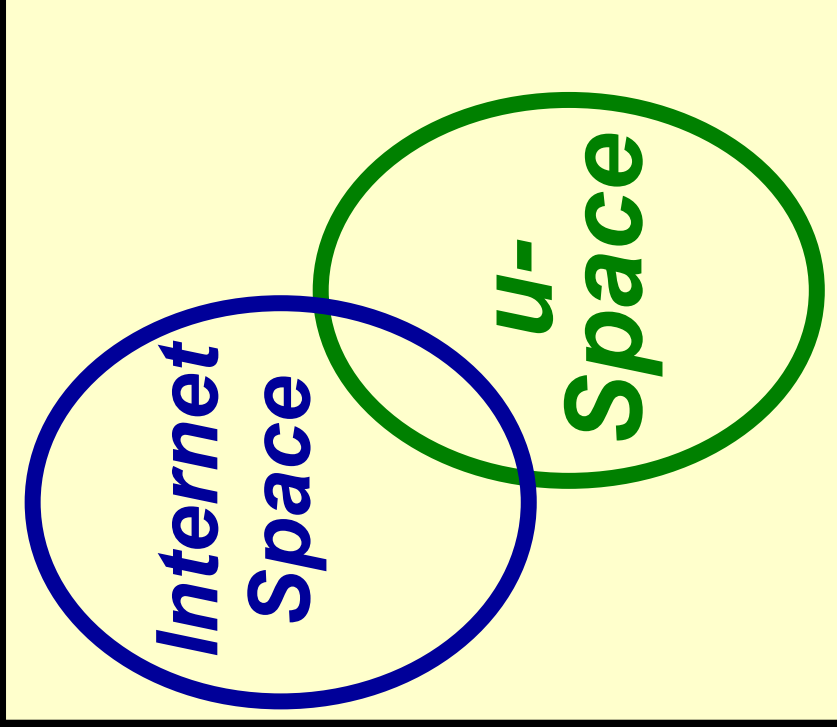
Environment: Future

(Source: Oh, 2003)



Distinction from e-Biz

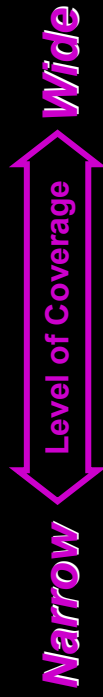
Environment



High



Low



(Source: Oh, 2003)

• Origin

- Mail, Surfing, ...
- m-Internet, ...

• User Behavior

- Alert, ...
- Calm, ...

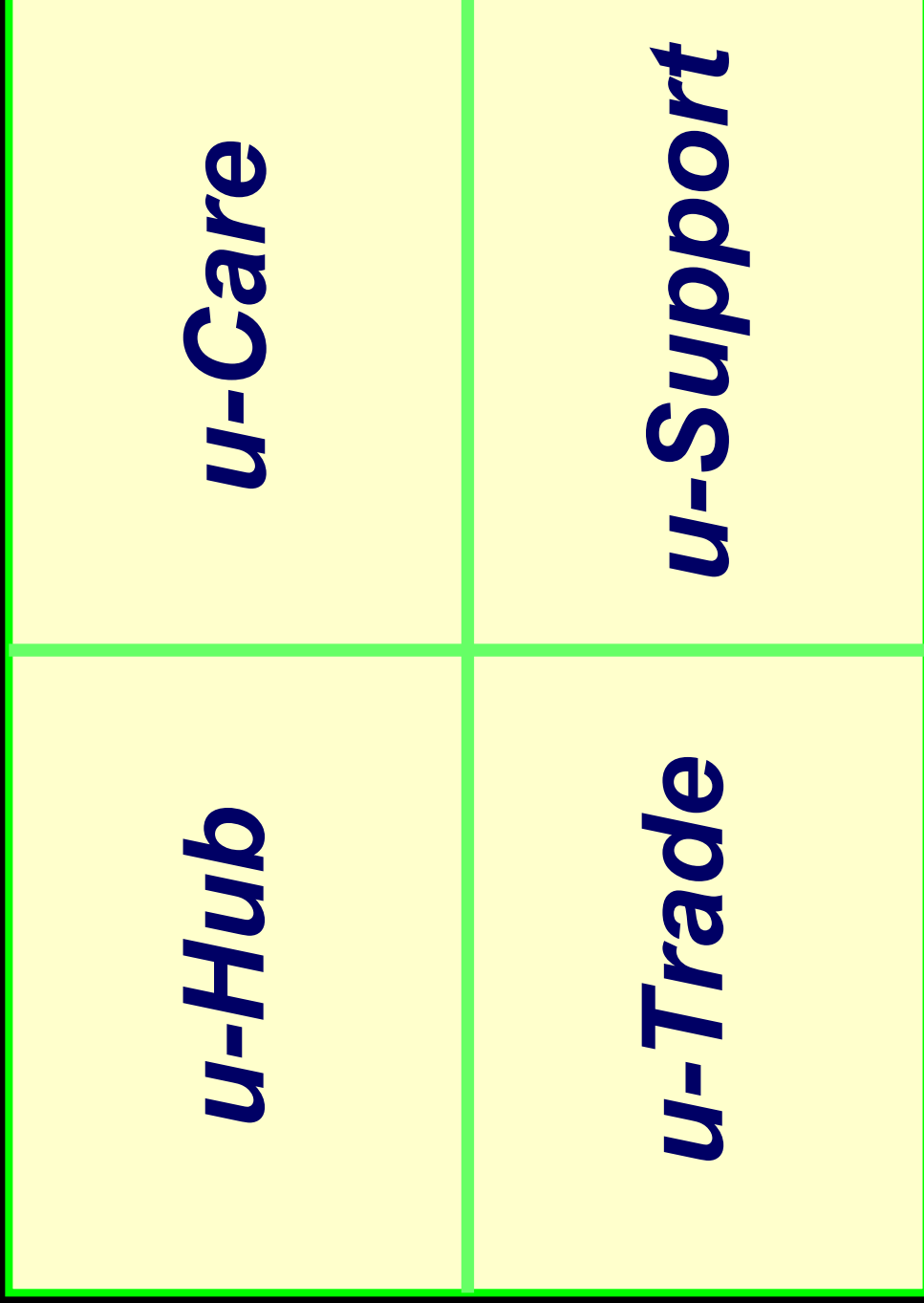
• Terminal

- PC, ...
- HH, Wearable, ...

Not 3C → The u-Matrix

The u-Matrix

(Source: Oh, 2003)



Well-Being



Productivity



Spot

Continuous

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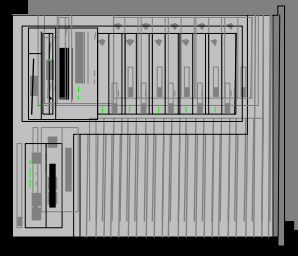
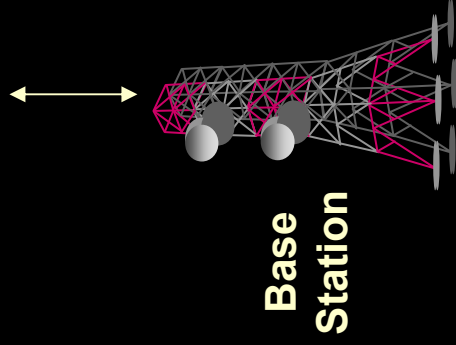
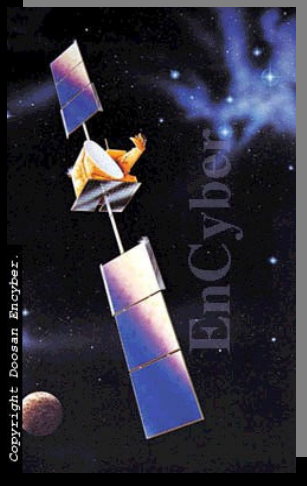
Cooltown: u-Navigator



(Source: cooltown.hp.com)

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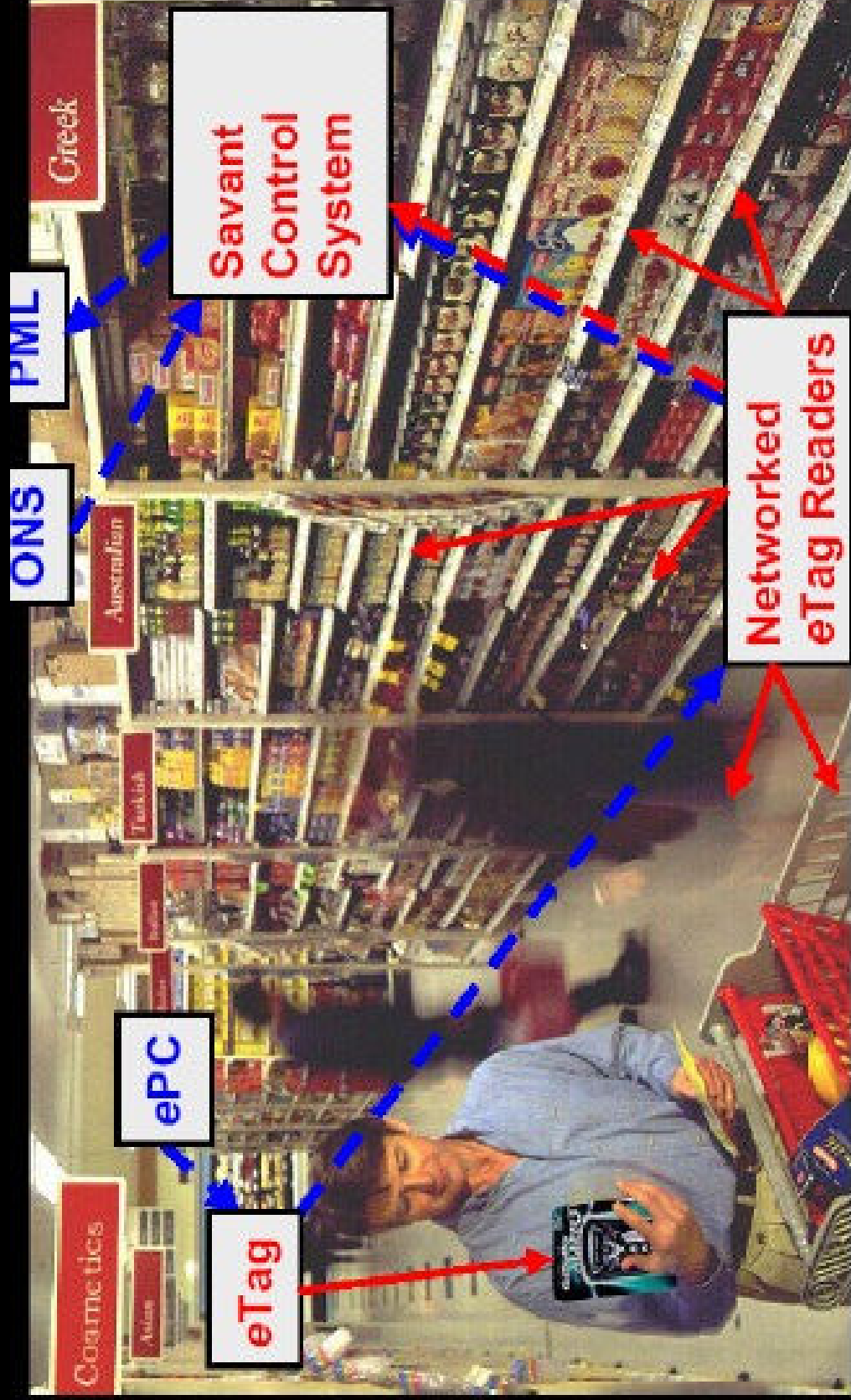
GM OnStar



Onstar Main Center

Location Calculation Server

Shopping at Future Store



(Source: www.walmart.com)

ETCS of Firm D

차량설비

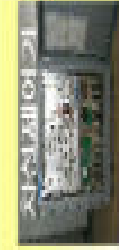
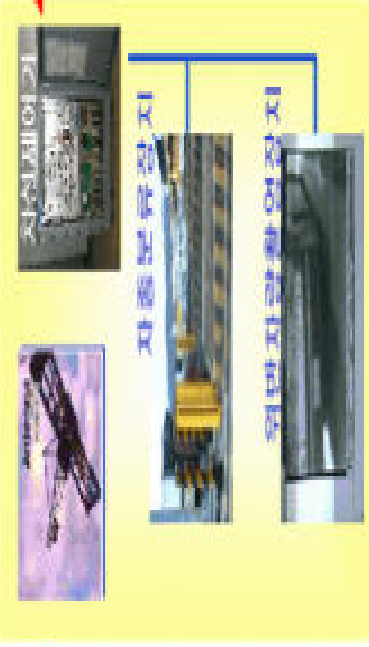


OBU, 하이패스카드

차량부착

OBU : On Board Unit
차량단말기
하이패스카드

자선 설비



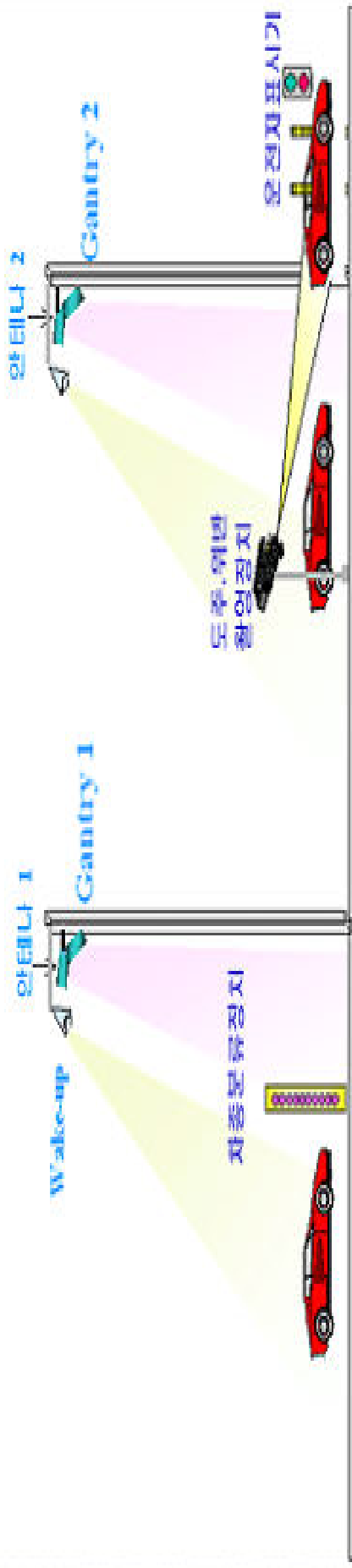
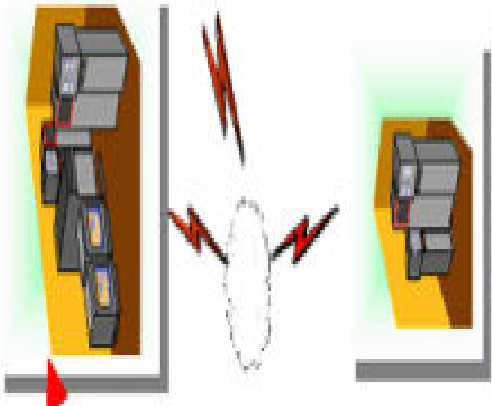
자선세터기



위반차량촬영장치

Center 서버

영역소 서버



상호인증

요금징수

요금징수 확인

● **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, ...**

Paradigm of u-Services

(Source: Oh, 2003)

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

Well-Being



Productivity



Value Chain in u-Space

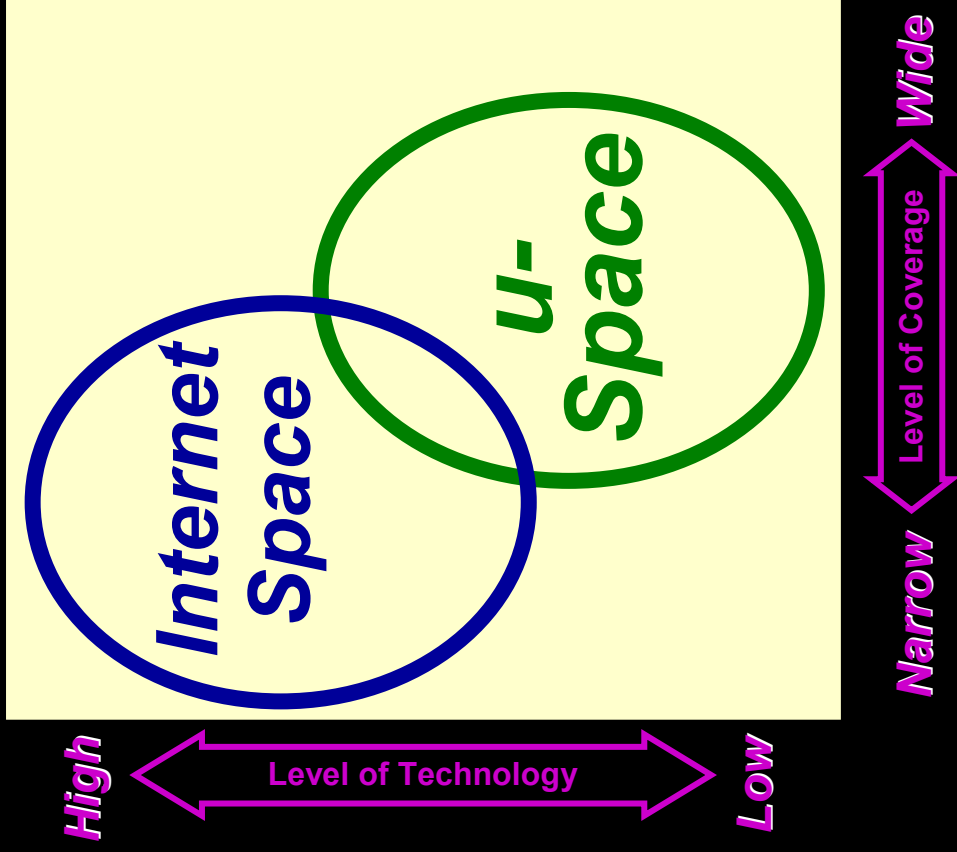
(Source: Oh, 2003)



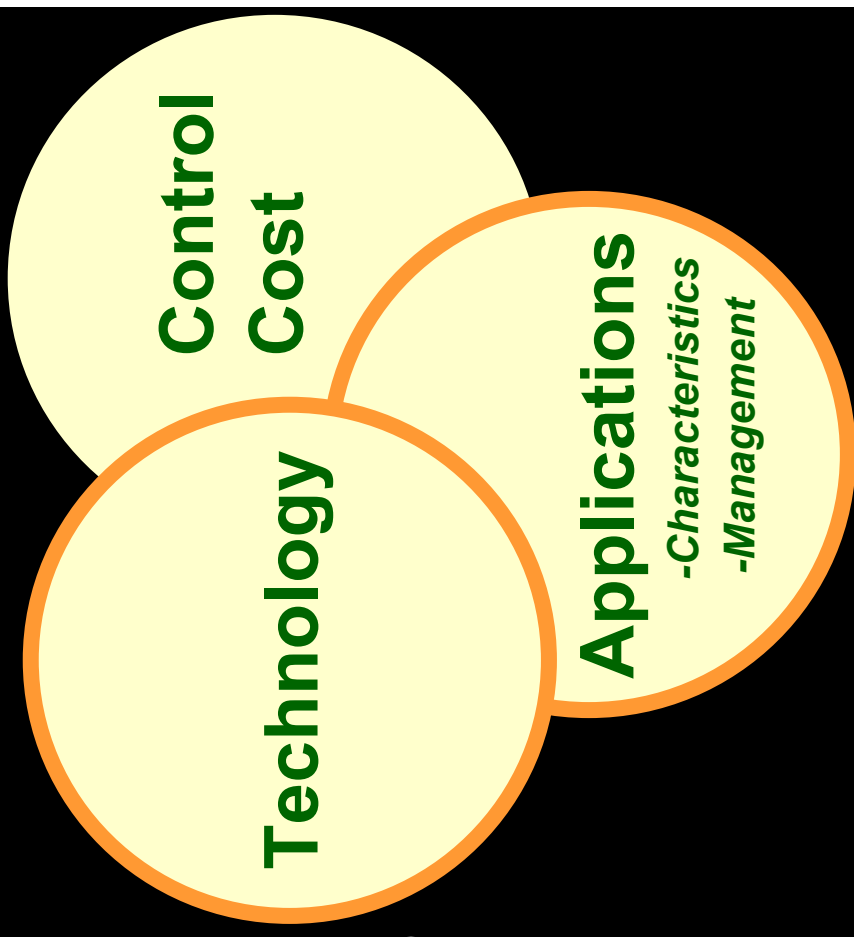
C2AT Strategies

(Source: Oh, 2003)

Environment



u-Strategies



CSFs

(Source: Oh, 2003)

요인	변수
애플리케이션	신선평형 접근다양성 범위 적시성
	관리
기술	정확성/신뢰성 접근도 운영성 인터페이스 개인화
비용	전송로 단말기 비용 애플리케이션 이용료
컨트롤	신뢰성 프라이버시

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, ...

Conclusions

- **Hot u-Cities: New Projects Opportunities**
 - Creation of New Businesses
 - Customer Satisfaction: e.g., CRM, Endoscope, ...
 - u-Transformation: Innovation, VC Integration, Tech fusion
 - Better Well-Being: e.g., 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