



European Commission
Information Society and Media



RFID: from identification to identity

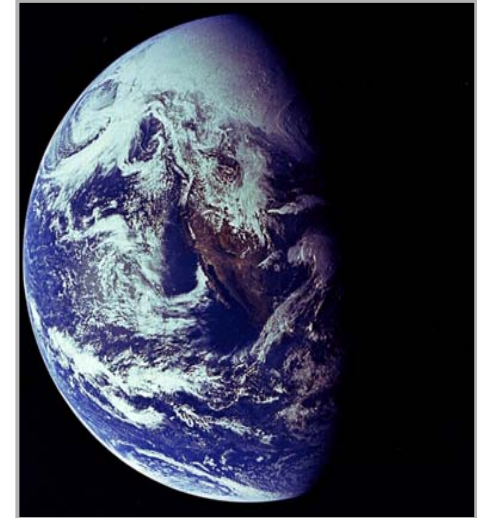


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(ITU)

key industry transitions

- ⇒ from distance to proximity
- ⇒ from local to global
- ⇒ from network-centric to edge-centric
- ⇒ from tech-push to demand-pull
- ⇒ from content to context
- ⇒ from wired to wireless
- ⇒ from frequent access to ubiquitous access



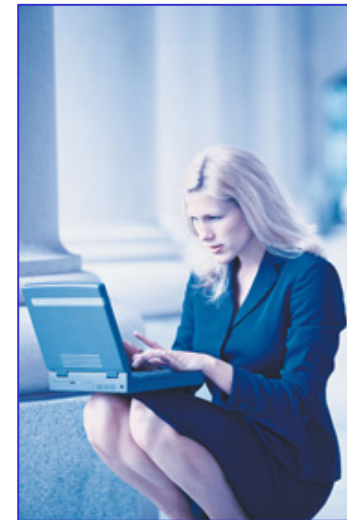
NASA

ubiquity of networks, ubiquity of connections

ANYTIME



ANYPLACE



ANYTHING



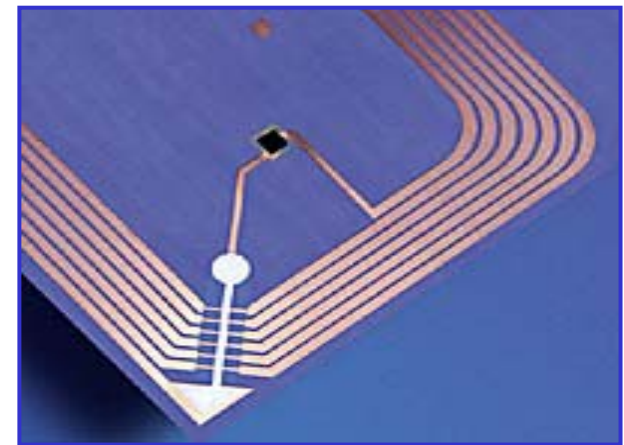
ubiquity of radio

- ➔ humans and radios
 - ratio nearing 1 to 1
 - in the future, might exceed 1000 to 1
- ➔ thus, radios would become “pervasive” in the environment around us
- ➔ this will radically transforming the role of technology in society

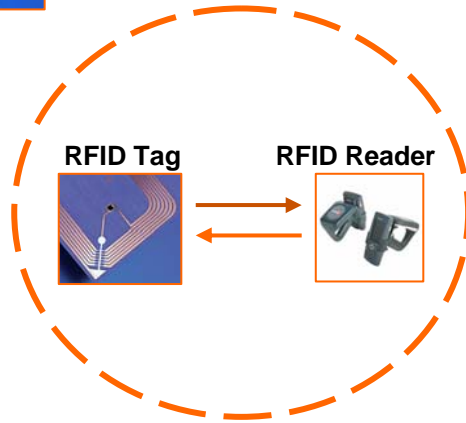
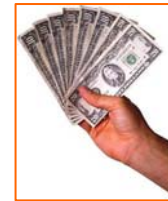


radio-frequency ID and ubiquity

- ➔ RFID systems can “identify” items, “locate” specific ones in a group, and can also “track” items
 - without need for line of sight
 - they provide a sort of virtual data “map” of the real world
- ➔ as such, RFID & related technologies are catalysts for ubiquitous networking

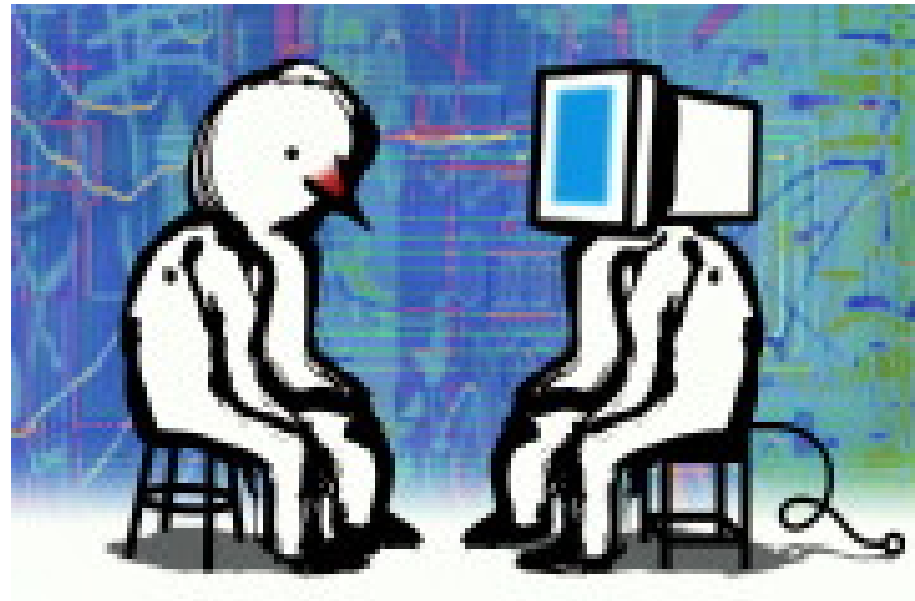


RFID in application



from identification to identity

- ➔ in a ubiquitous network environment, managing a large number of “identities” will become vital:
 - people
 - animals
 - machines
 - institutions
 - things
- ➔ wide-ranging impact
 - on social interaction
 - on policy/regulation
 - on doing business
 - on network design



areas of concern

- ➔ ownership of identifiers
 - governance

- ➔ standardization still fragmented at a global level
 - network protocols
 - tag formats
 - identity systems

- ➔ privacy and data protection
 - how and why is data collected?
 - who owns data on the tags?
 - who can access the data?
 - how long is the data accessible?



privacy: a question of balance

- ➔ users are displaying their need for “anonymity” online
- ➔ ubiquitous networking, for instance through RFID, likely to exacerbate this lack of trust
- ➔ add to this current national security concerns, which are leading to an increase in information collection and retention
- ➔ care must be taken to strike a balance :
 - between national security and citizen privacy
 - between corporate security and the respect of the employee
 - between privacy and convenience (a trade-off...)
- ➔ this balance is to be struck across domains:
technical, regulatory, industrial, & socio-ethical



privacy and the problem of digital identity



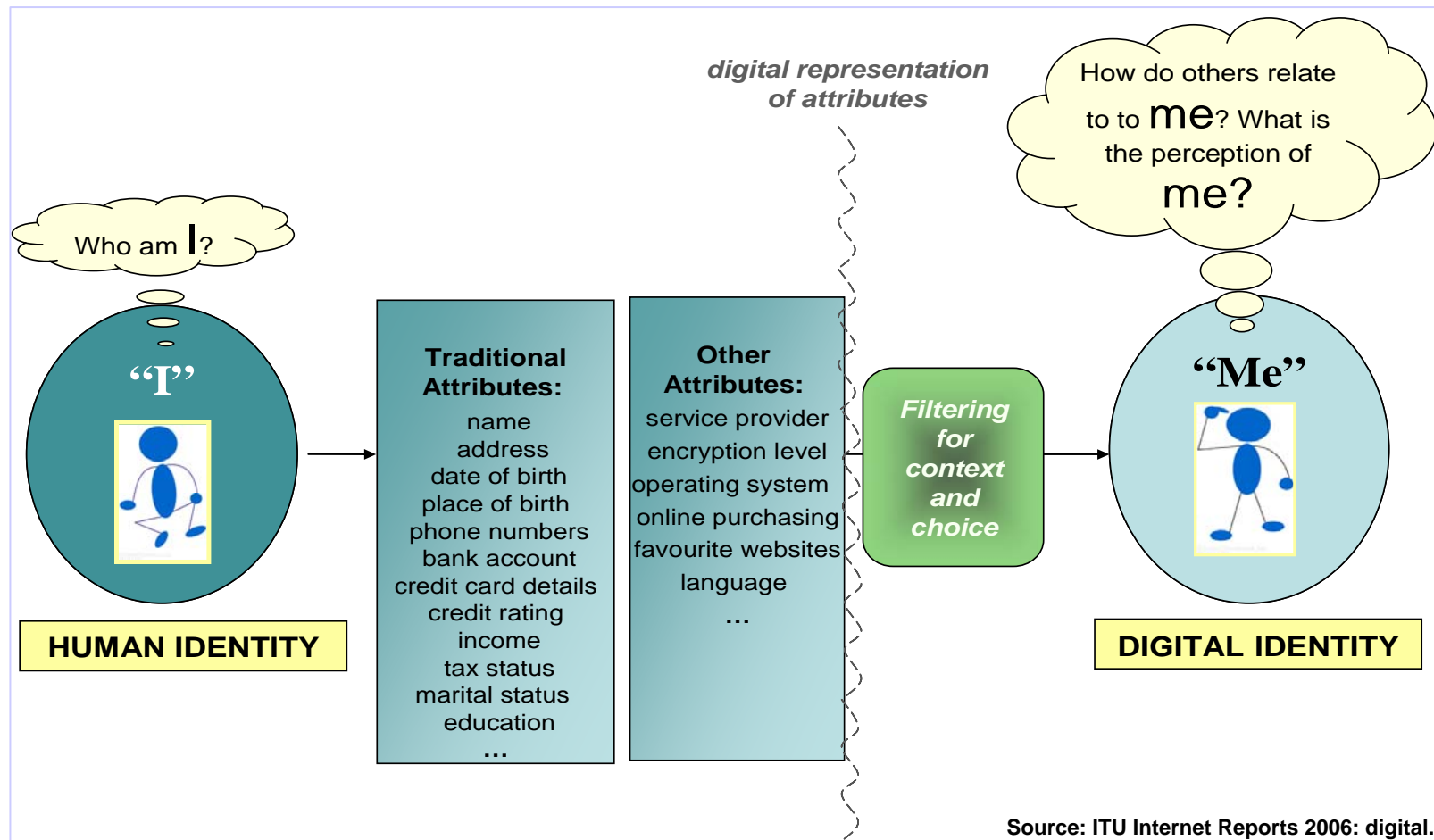
challenges

- ➔ fragmentation of identity
- ➔ blurring boundaries
- ➔ data perpetuity
- ➔ commoditization of privacy, identity
- ➔ cultural differentiation
- ➔ globalization

risks

- ➔ user reticence, mistrust
- ➔ leaks, breaches
- ➔ mistaken identity
- ➔ identity theft

digital identity: from "I" to "me"





key principles for managing identity in a ubiquitous environment

- ➔ user-centric policies
 - user consent
 - user choice
- ➔ context awareness
- ➔ anonymity and 'identifiability'
- ➔ transparency
- ➔ notification
- ➔ accountability
- ➔ data minimization

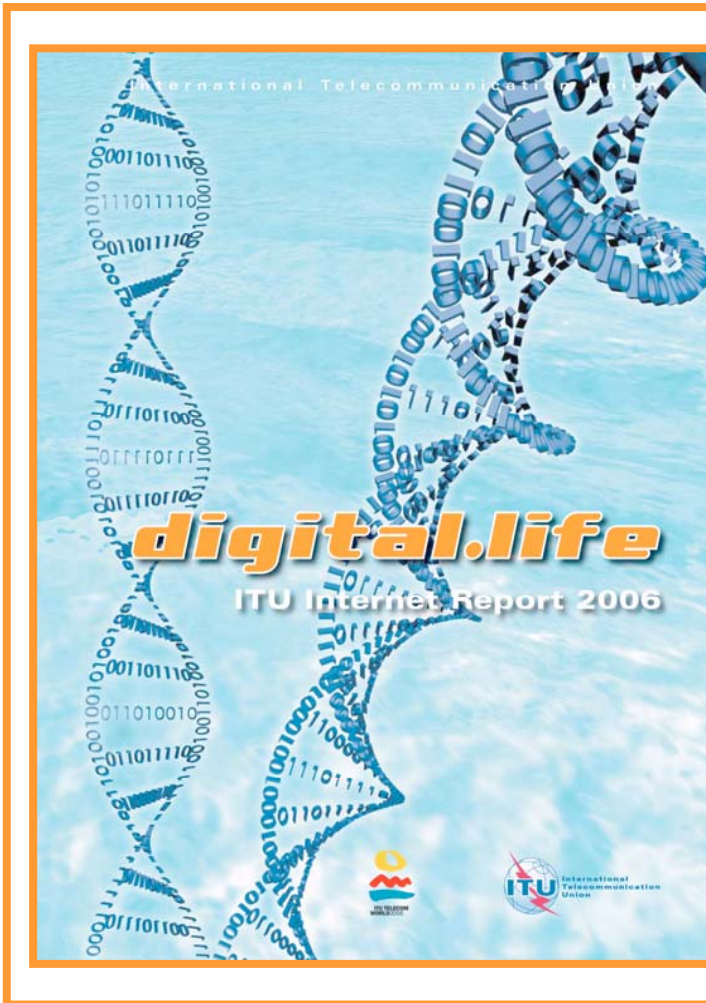




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ITU Internet Report 2006

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