# RFID Solutions:

# An Opportunity for the Health Care Industry?

**S. Bureau**

**Decembre 13 2008**

# RFID and its Myths: The Case of Healthcare

FIRMS

RFID, the new Graal

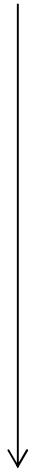
GOVERNMENTS

RFID, we have to do it, whith/without regulation

CITIZENS / CLIENTS

RFID, a new way to spy us

**Smart Chips**



**Spy Chips**

78 % of consumers surveyed reacted negatively to RFD on privacy grounds and “more than half claimed to be extremely or very concerned” about the technology” (Albrecht and McIntyre, 2005, p.154)

ESCP-EAP
LONDON PARIS BERLIN MADRID TORINO
European School of Management

# Why Health Care? Why Hospitals?

- "Hospitals are currently the largest buyers of RFID technology" (Merrill, 2007).
- "It is estimated that about 200 hospitals are using radio wave-based technology" (Leigh 2007).
- "RFID marketplace in hospitals will reach $8.8 billion in the next 4 years alone" (RFID & Emerging Technologies Guide to Healthcare, 2006).
- Majors institutions involved which are pros RFID: Pfizer, FDA…

# Why Health Care? Why Hospitals?

- According to the Food and Drug Administration (FDA), the potential benefits of RFID to hospitals and healthcare facilities include
  - "patient safety by ensuring that patients receive the correct medications and medical devices; preventing the distribution of counterfeit drugs and medical devices; facilitating device recalls (...);
  - managing assets such as hospital equipment;
  - tracking patients;
  - providing data for electronic medical records systems". (http://www.fda.gov/cdrh/rfid/) Document updated on-line in May 2, 2007.

ESCP-EAP
LONDON PARIS BERLIN MADRID TORINO
European School of Management

# Myth 1: RFID, a New Bar Code

## Illustrations



"Conceptually, bar coding and RFID are quite similar, both are intended to provide rapid and reliable item identification-tracking capabilities"

(www.zebra.com/id/zebra/na/en/index/rfid/faqs/rfid_bar_codes.html 11/10/2007)

**However**

RFID differs from bar code in several ways:

1. Unique ID
2. Remotely readable (RFID tags can be read from a distance by anyone with the rights reader device)
3. Tags can be rewriteable
4. Active versus passive solutions
5. Applications are much wider compare to what we find with bar code (Machine to machine applications)
6. The perspective of an Internet of Things

ESCP-EAP
LONDON PARIS BERLIN MADRID TORINO
European School of Management

# Myth 2: RFID is just a Tag

## Illustrations

- The focus in the press is often on the tags and not on the many different types of RFID applications and technical solutions.
- Indicator for the market growth: number of tags sold.

**However**

RFID is not only a tag, we should talk about RFID as a whole system ("RFID solutions"):

1. Hardware
2. Middleware
3. Software

RFID solutions are very different from one another…

# Myth 3: RFID and the New Challenge of Identification

**Illustrations:**

- Harper, J. 2006. *Identity Crisis. How Identification Is Overused and Misunderstood. Washington, DC: Cato Institute.*

- IBM: patent #20020165758, identification and tracking of persons using RFID-tagged system.

**However**

"The **problem of identification** of individuals, their medical samples, and observations about both in a computer-based information system is a fundamental source of error and uncertainty in all MISs. Corn flake boxes and railroad cars are now made with "zebra stripes", people are much more difficult to identify"

(Lindberg, 1977)

ESCP-EAP
LONDON PARIS BERLIN MADRID TORINO
European School of Management

# Myth 4: RFID, the new Big Brother

## Illustrations

➢ Albrecht, K. and L. McIntyre. 2005. *Spychips. How Major Corporations and Government Plan to Track Your Every Move with RFID. Nashville, Te: Nelson Current.*

➢ Accenture: "Activity-monitoring tools could give [government] case workers a powerful complement to home visits" (patent quotation)

## However

"In response to a growing awareness of the potential abuses that arise from society's dependency on personal record tracking and the power of current **technology** to store and disseminate (…) data, Congress enacted the **Privacy** Act of 1974, the most comprehensive domestic privacy legislation to date"

(Woodman et al. 1982)

RFID solutions collect, transfer, and store data like many other IT, and therefore, critical questions are most the time the same: who has an access to data and who controls it? What is the data for, and when will it be deleted?

+ new issues related to specific RFID solutions like subcutaneous tags.

ESCP-EAP
LONDON PARIS BERLIN MADRID TORINO
European School of Management

# Myth 5: RFID, the Cost Killer

## Illustrations

"In the United States during 2000 to 2002, 2,591 cases of foreign bodies left in patients during procedures were reported. The fiscal impact of such incidents is placed at $17.25 million in excess costs (Patient Safety in American Hospitals, Health Grades 2004). Surgical instruments passively tagged can be accounted for with RFID readers on the surgical tray“ (Nagy et al 2006).

## However

“Yet, proper automation of the hospital information handling process offers the potential for saving many dollars a day on each patient's bill” (Norwood et al. **1976**, p. 83)

“Nationwide the cost reduction is estimated to be as much as $1.5 billion annually if cost-effective information systems were installed in every hospital with 200 or more beds. Computer technology could be the single most important cost-cutting tool available to American hospitals today” (Hodge, **1977**)

Cost of healthcare in the USA:

| 1976 | 2006 |
|---|---|
| 8% of GDP | 14% of GDP |

# Myth 6: RFID to Reduce Medical Errors

## Illustrations

"Medical errors have become a leading cause of death, killing more people each year than AIDS or aeroplane crashes. (…) Employing innovative information technologies [RFID] in correcting these deficiencies and meeting the Joint Commission on Accreditation of Healthcare Organistion (JCAHO) patient safety goals is the current trend in enhancing patient safety" (Chao et al. 2007).

**However**

"These scenes could occur in many Americans hospitals today: At a meeting of the medical staff's formularity committee, the chief pharmacist reports that he has just completed reviewing 100 randomly selected charts for errors in medication. More than one-seventh of all medications ordered were administered incorrectly. Errors included giving the wrong drug, the wrong form of the drug, the wrong dosage, or the right medicine more frequently or less often than specified"

(Hodge, 1977, p.3)

ESCP-EAP
LONDON PARIS BERLIN MADRID TORINO
European School of Management

# Conclusion

*"the hospital sector is a very promising sector for RFID applications as the technology enables increased patient safety and reduced costs and thus addresses two crucial challenges for the sector"* (OECD, 2007, p. 56).

Our claim is that like any other IT, RFID can do nothing by itself:
-RFID will not reduce medical errors,
-RFID will not improve patient safety,
- and RFID will not reduce the counterfeiting of drugs.

RFID is nothing but an opportunity!