

Integrate or Hesitate?

Evaluating the Readiness for Integrating RFID with Enterprise Systems in the Healthcare Supply Chain

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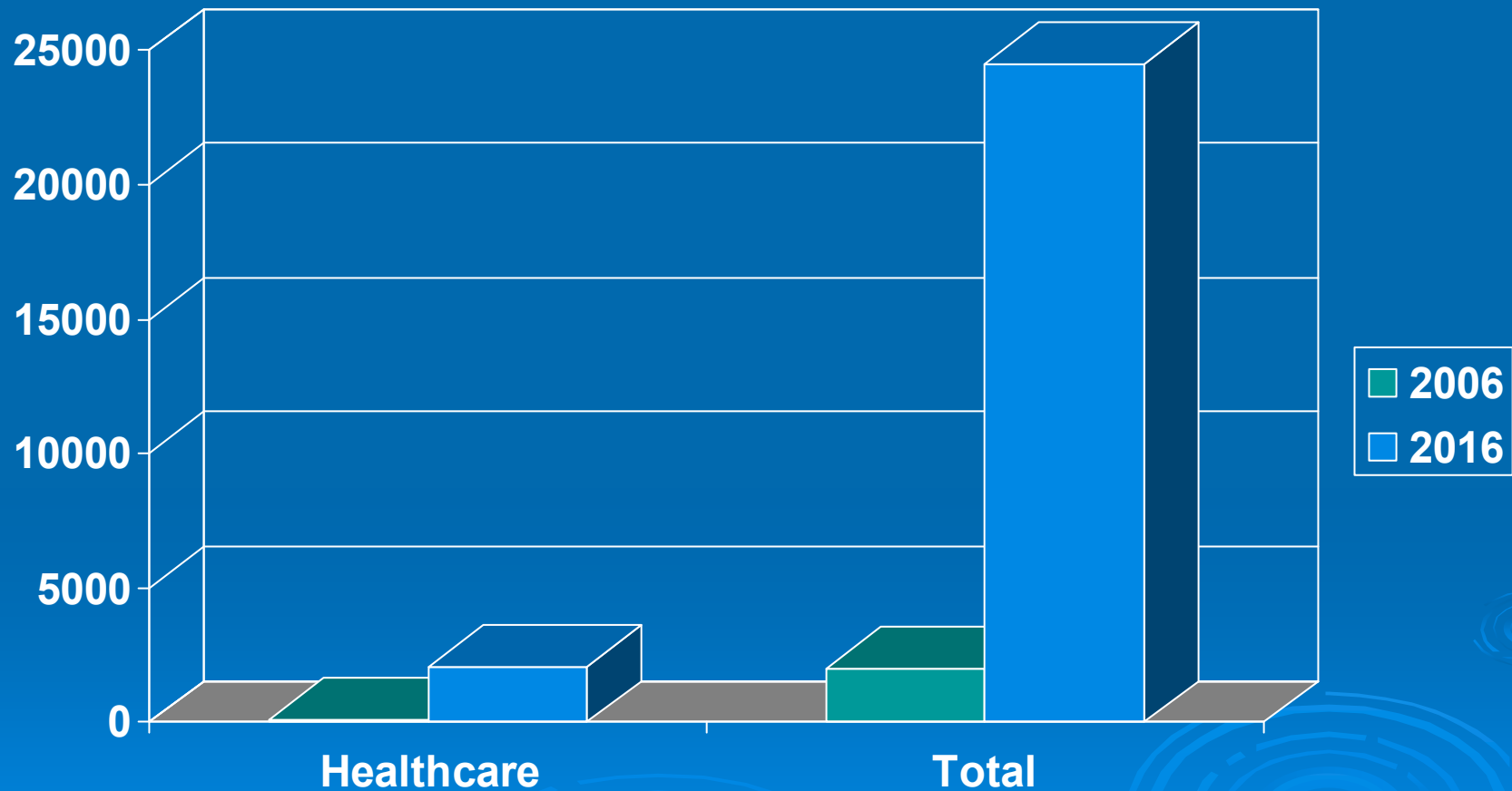
RFID in Healthcare - Paris December 2008

Toronto - Ryerson University



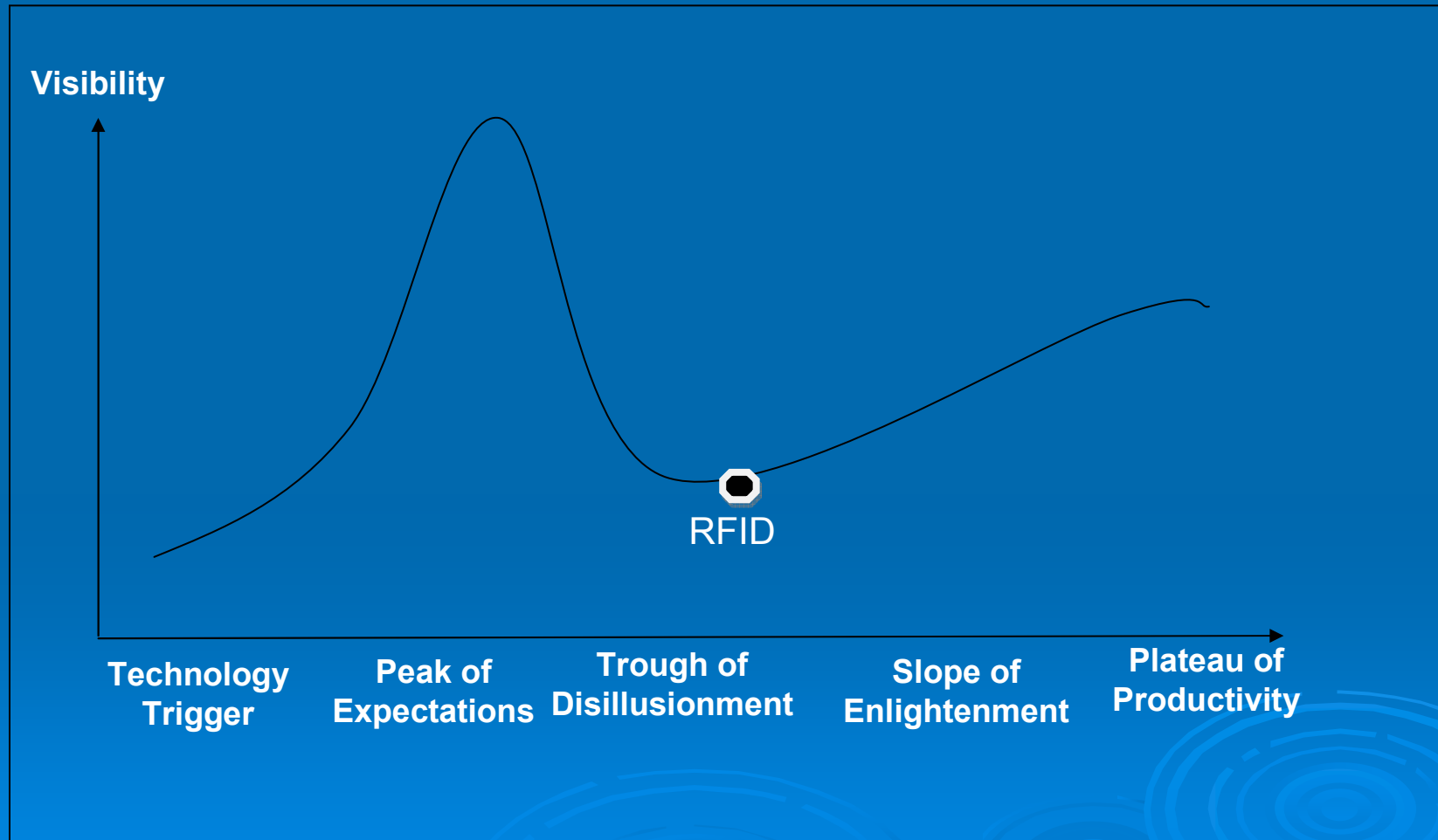
RFID Growth

All amounts in US\$
(Das, 2005; IDTechEx, 2007)



Gartner Hype Cycle – for RFID

Fenn & Linden (2005)



Adapted from Fenn & Linden (2005)

Slap and Ship



- Mandates do not mean integration
(Smith, 2007; White, Johnson, & Wilson, 2008)

Healthcare Applications

➤ Drug labels

- Tracing
- Anti-counterfeiting
- Administering

Cangialosi, Monaly, & Yang, 2007



➤ Implants to track

- Assets
- Patients
- Staff

Enyinda & Szmerekovsky, 2008;

Wyld & Jones, 2007



David Friedman / Getty Images file

“Healthcare is considered to be the
biggest service industry on the
planet”

Correa, Gil & Redin, 2007

RFID Implementation Challenges and Constraints

High cost	Mandviwalla & Asif, 2005
Upgrade of infrastructure	Stuart, 2007
Existing ERP inadequate	Stuart, 2007
Middleware challenges	Frost & Sullivan, 2007
Lack of technical skills	Sommer, 2006
Organizational change	DuLaney, 2006

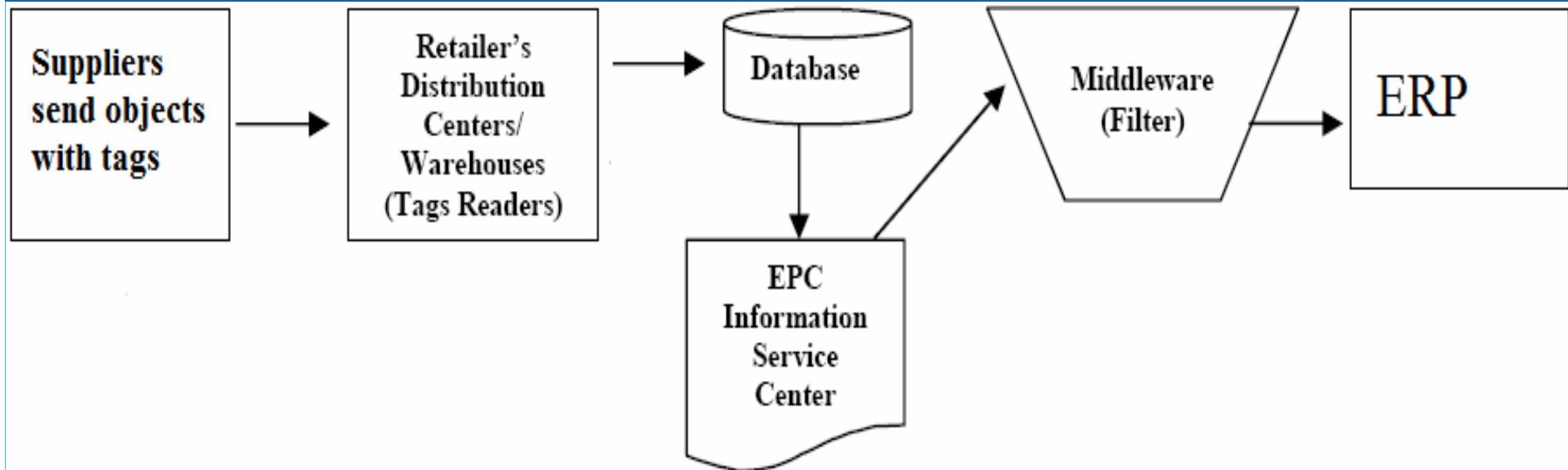
Breakdown of Costs for Consumer Packaged Goods

Mandviwalla & Asif, 2004

<i>Type of Cost</i>	<i>Conservative Estimate</i>	<i>Up-to Estimate</i>
Tags and readers	\$5m.	\$10m.
System integration	\$3m.	\$5m.
Modifications to existing apps	\$3m.	\$5m.
Data volume management	\$2m.	\$3m.
TOTAL	\$13m.	\$23m.

Middleware: Integrating RFID with ERP

Chuang, 2007; Sullivan, 2005



Readiness

- **Costs** (Mandviwalla & Asif, 2005)
- **Tag enabled items** (Attaran, 2007)
- **Standards** (Loebbecke & Huyskens, 2008)
- **HIPAA mandates** (Pumphrey, Trimmer & Beachboard, 2007)
- **ERP upgrades** (Burnell, 2006)

Decision Options

- A. Integrate with existing systems
- B. Deploy new systems
- C. Hesitate

Practitioners must consider...

- **Relative advantage** (Rogers, 1995)
- **Evaluation of benefits** (Reyes et al, 2007)
- **Perceived marginal benefit** (Kay & Bogart, 2005)