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An Overview or RFID Today

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Presentation Overview

- Why are we talking about RFID now?

- A brief history of IT

- Why RFID?

- Where is RFID being used today?
  - Apparel Retail: Inventory management
  - Hospitals: Asset tracking
  - Manufacturing: Tool tracking
  - Aerospace: Parts tracking

Why are we talking about RFID now?

- Business demands ever-increasing efficiencies
- IT systems have nearly reached the limits of the efficiencies they can bring
- Companies have invested billions in IT over the past 20 years, but waste still exists—on a massive scale

Food Facts

- 50 percent of all food produced is never consumed
- The amount wasted could feed all the worlds poor for the next 50 years

Source: United Nations Food Program

Retail Shrinkage

- Retailers lost **$61.7 billion** in 2019 (1.62% of sales) due to fraud, employee theft, supplier fraud and shoplifting

- Fraud is a growing concern

Source: National Retail Security Survey 2020

Ailing Hospitals

- Hospitals lose an average of $5,000 in equipment per bed

- Nurses spend 60 minutes per week looking for equipment

- Asset utilization rates for mobile medical equipment average less than 60%

Source: McMaster RFID Applications Lab Study

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Fake Pharmaceuticals

- Pharmaceutical manufacturers lose $75 billion per year due to the sale of counterfeit drugs

Source: Center for Medicines in the Public Interest

Lost Luggage

- Nearly 30 million bags are mishandled by airlines, costing $2.9 billion annually

Source: SITA

Missing Containers

- 76% of auto makers and parts companies have issues related to lost or missing reusable containers or totes

- 36% report operational downtime due to lack of containers

- 7% of containers replaced annually

Source: Joint Automotive Industry Forum

Why does so much waste exist?

Answer:

What Is This?

a) An very expensive data input device

b) The edge of most IT networks

c) The weak link in most IT systems

d) All of the above

A Brief History of Data Entry

Data entry is a person using a

- Dumb terminal in 1960s and 1970s
- Bar code scanner, desktop computer in 1980s and '90s
- A bar code scanner, desktop PC or laptop from the late 1990s to the present
- A bar code scanner, desktop, laptop or smart phone from 2000 to the present

Why Can't We Boost Efficiencies?

- We can't collect information cost-effectively on what's happening in the real world

- We can't monitor things that aren't stationary or connected to the Internet

- We are talking about RFID because RFID allows us to manage everything mobile—everything we can't manage today

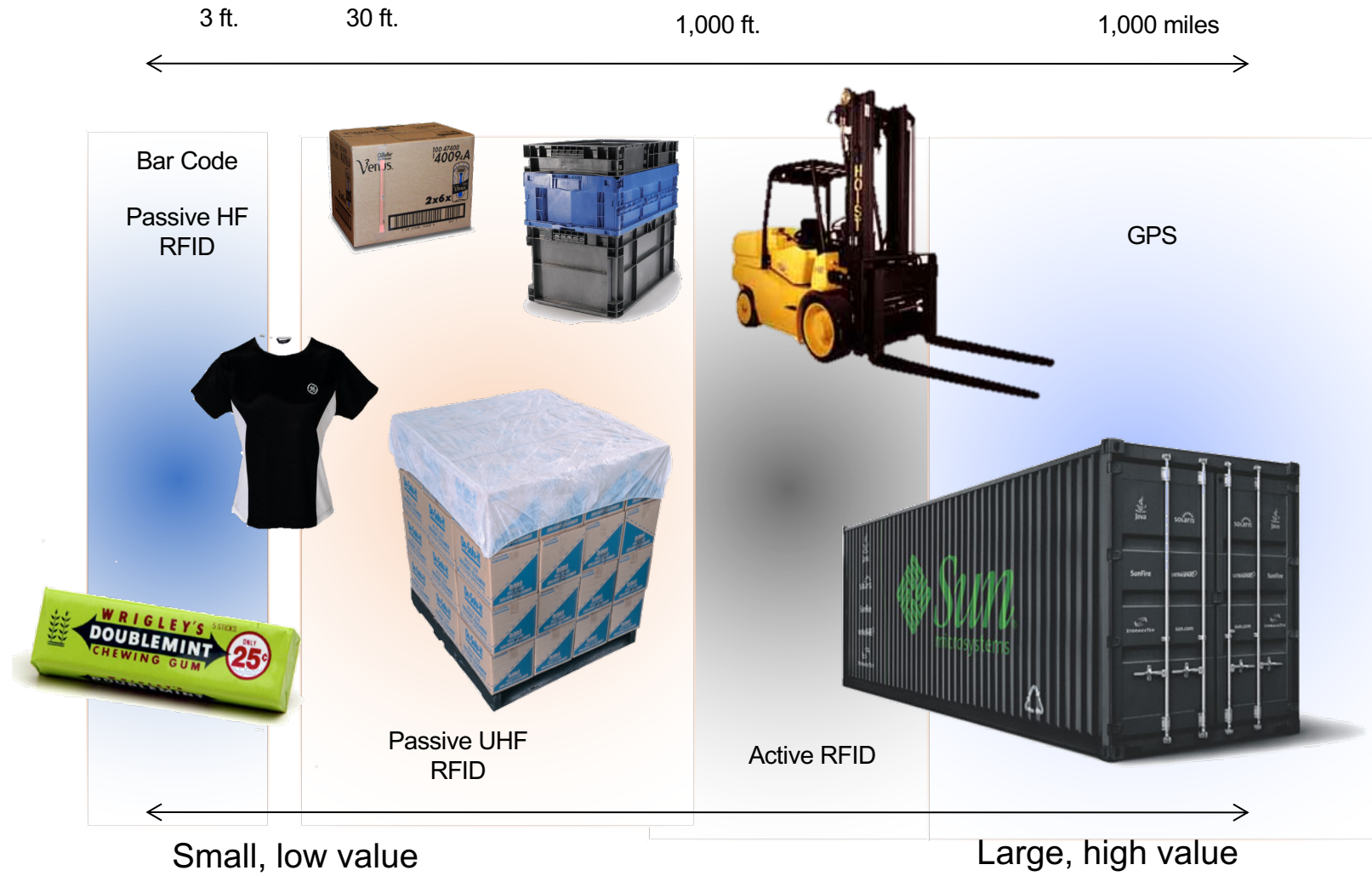# Bar Codes Are Too Expensive

It costs too much . . .

- To take inventory every day by scanning every bar code in a store
- To scan a bar code every time an item moves in a warehouse
- To scan a bar code every time a piece of luggage is moved
- To scan bar codes on every pill bottle

RFID is Part of a Suite of Technologies

- Bar codes, 2D bar codes
- Passive RFID (LF, HF, UHF)
- Active RFID (433 MHz, 915 MHz, 2.45 GHz)
- Hybrid RFID
- RF Sensors
- RFID Alternative (ultrasound, infrared)
- GPS, telematics

Read distance

3 ft.   30 ft.   1,000 ft.   1,000 miles

Bar Code

Passive HF RFID

GPS

Passive UHF RFID

Active RFID

Small, low value

Large, high value

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RFID Can Play a Major Role in Reducing Waste

- It is inexpensive
- It is far more accurate than bar codes or manual data entry
- It is the only truly automatic automatic data collection technology
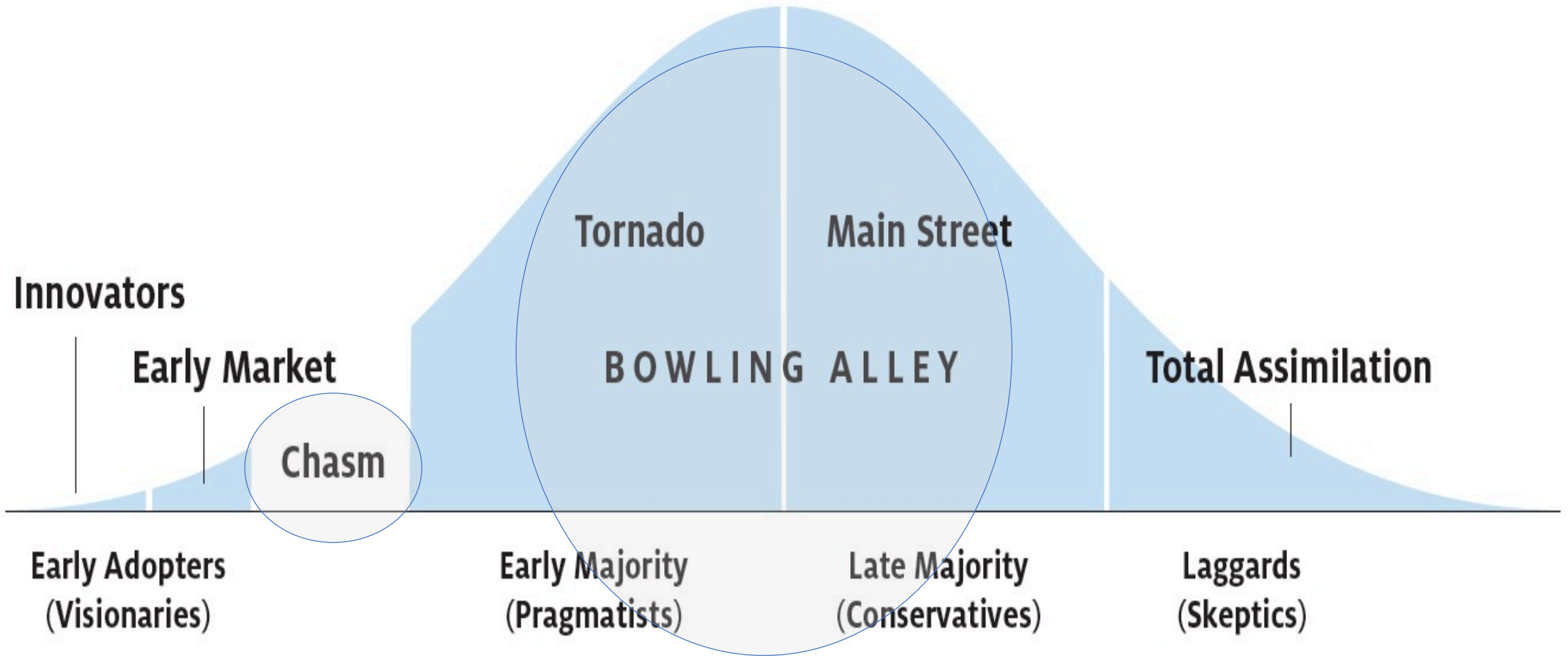- It allows companies to manage mobile assets in a way never possible before

RFID's Strengths

- Truly automatic (no human intervention)
- Can be used indoors and outdoors
- Can cover everything from low-cost inventory to high-value assets
- Can locate with precision at short or long distances

RFID's Weaknesses

- Limited read range (less than 1 mile)
- Passive systems not 100% reliable
- Relatively little software
- Mix of active and passive required
- Must integrate with GPS for global coverage
- Must integrate with infrared for sub-room-level accuracy

The Technology Adoption Lifecycle

Apparel Retail: Inventory Management

- RFID has boosted inventory accuracy at American apparel from 65% to 95%

- Increased sales – and profits – by 5 percent or more

Hospitals: Asset Tracking

- Hospitals are using RFID to track mobile equipment and automate maintenance

- At University of San Diego Medical Center, monthly rental cost down from nearly $8,000 to $2,000 within a few months

- It achieved more than $70,000 year in savings— on pump rentals alone

Manufacturing: Tool Tracking

Northrop Grumman manages a large number of government-owned tools valued at $2K to $1M each

- Company was tracking these tools manually
- That was costly and error-prone
- Needed real-time location data
- Turned to active RFID

Manufacturing: Tool Tracking

What the system does:

- Locates tools automatically
- Notifies managers when tools have moved out of designated areas
- Notifies managers when tools need to be recalibrated
- Validates manufacturing milestones based on the location of the tools

Manufacturing: Tool Tracking

Results:

- Northrop Grumman reduced by 66% the number of people needed to track tools

- ROI in less than one year

- Number of one type of a specialty tool needed was reduced by 50%, saving $715,000

Banks: IT Asset Tracking

- Bank of America is tracking 100,000 individual blade servers, storage devices

- Improved asset utilization

- Ensured Sarbanes-Oxley compliance

- Reduced labor required by 90 percent

Is RFID Taking Off?

- Yes
- RFID is being deployed in every country and every industry
- No industry has yet reached critical mass where RFID tracking is the norm
- Apparel retail will be the first
- Lots of activity in manufacturing
- Tracking medical equipment picking up

Questions

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