

# **RAIN RFID 2015-2020: Market size, growth opportunities and trends**

IDTechEx / r.das@IDTechEx.com

---

Raghu Das, CEO, IDTechEx

# Agenda

- Historic sales of UHF RFID vs other RFID frequencies
- Forecast sales of UHF RFID
- Reader sales
- Retail beyond Apparel
- New innovations in tag manufacture
- RAIN as part of IoT
- The impending impact of China on RFID

# About IDTechEx – snapshot view

IDTechEx provides Emerging Technology **insight**, **intelligence** and **networking**, helping clients with their critical strategic business decisions.

## Areas of coverage:

- Printed Electronics
- Emerging Materials & Devices
- Energy Harvesting
- Energy Storage
- Hybrid & Pure Electric Vehicles
- 3D Printing
- New Mobile Phone Technologies
- RFID and IoT
- Wearable Technology

## Global and timely analysis through:

- **Subscriptions**
  - IDTechEx Market Intelligence Portal
  - Weekly market, technology and company assessments
- **Research Reports**
  - Over 70 detailed current studies
- **Custom Consulting Projects**
  - Over 300 conducted
- **Global Events**
  - Held in 3 continents
- **Free Web Journals**
  - e.g. [www.PrintedElectronicsWorld.com](http://www.PrintedElectronicsWorld.com)

*Since 1999 we have served clients in 80 countries from our bases in the US, UK, Germany and Japan*

# Historic sales of RFID

Cumulative sales of tags from 1943 to the start of 2015

— DIGITALLY-ENCODED RFID TAGS ABOVE 0.1cm RANGE

— Worldwide sales cumulative numbers for cards, labels, fobs

— Total number **34 billion** (2014 – 7.5 billion sold)

○ Passive: 33 billion

○ Active/RTLS: 1 billion

# Cumulative sales in millions of tags from 1943 to the start of 2015

Application	Number (millions)	Biggest markets by number
Drugs and healthcare	398	
Retail apparel and CPG Pallet/case	9295	<b>2 – mostly UHF</b>
Consumer goods	170	
Tires	0.1	
Postal	83	
Books	1420	<b>6 – mostly HF</b>
Manufacturing parts, tools	1963	<b>4 – mostly UHF</b>
Archiving (documents/samples)	49.7	
Military	658	
Smart cards/payment key fobs	9400	<b>1 – mostly HF</b>
Smart tickets	3515	<b>3 – mostly HF</b>
Air baggage	561	
Conveyances/Rollcages/ULD/Totes	760	
Animals (Livestock and Pets)	1861	<b>5 – mostly LF</b>
Vehicles	260	
People (excludes other sectors)	219	
Car clickers	939	<b>7 – LF and active RFID</b>
Passport page/secure documents	560	
Other tag applications	1788	
<b>Total</b>	<b>33.9</b>	

- Very diverse, unrelated applications, addressing different problems
- Rapid rise in UHF numbers over the last few years

# UHF and HF sales by numbers

## Passive UHF (millions)

Application	2013	2014	2015
Retail apparel, shoes	2250	3000	3750
Retail items other	25	50	90
Logistics, roll cages conveyances	125	125	130
Asset management/inventory/documents	450	475	510
Medical/health care	18	23	38
Air baggage and cargo	72	74	74
Access Control/ticketing	1.5	2	3
Embedded	0.1	2	5
People	22	24	30
Other	65	70	75
<b>Total</b>	<b>3078.6</b>	<b>3845</b>	<b>4705</b>

**\$241m**

**\$278m**

**\$324m**

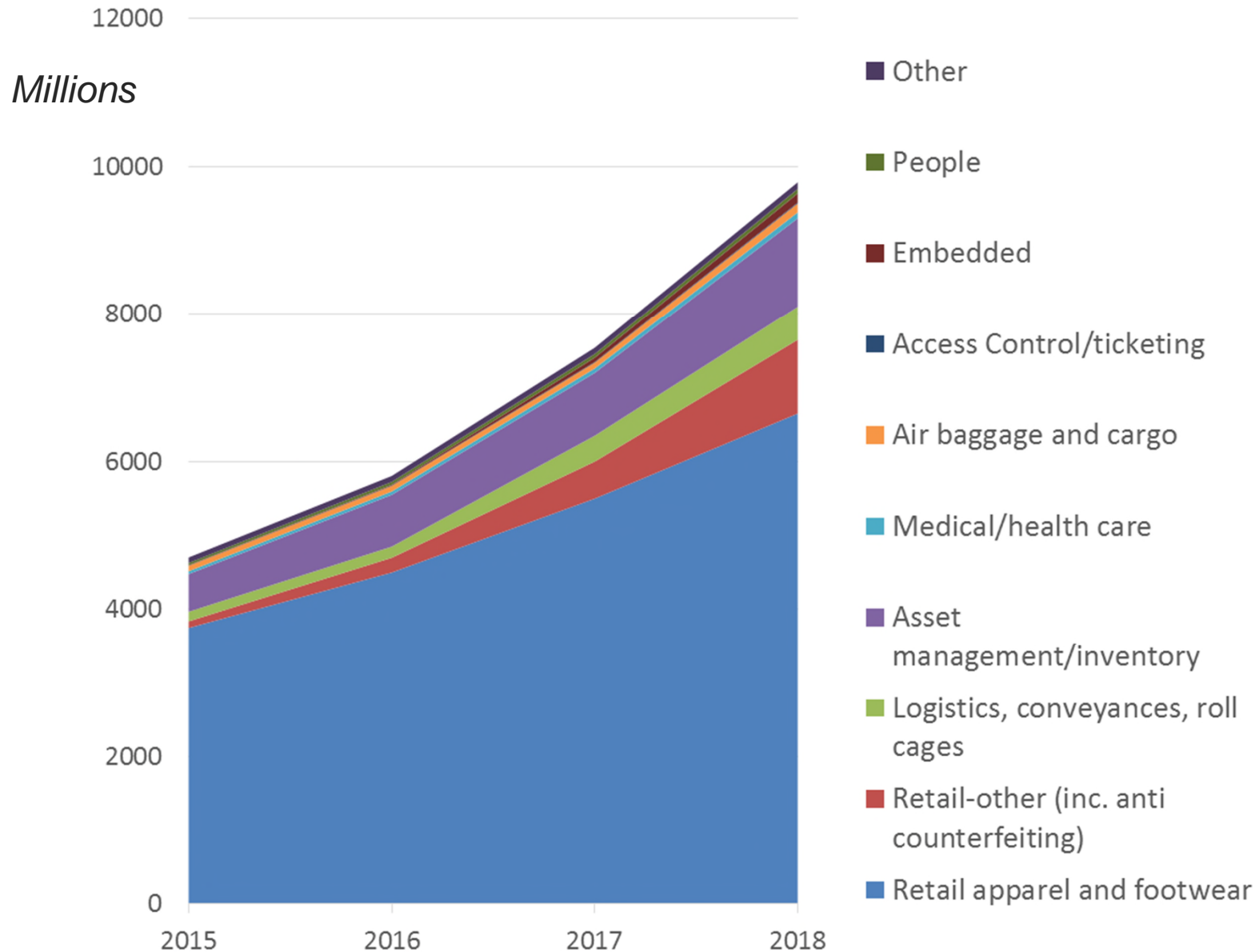
## Passive HF (millions)

Application	2013	2014
Contactless cards/fobs	1250	1600
Smart tickets	600	700
Books	260	270
Medical	22	28
Assets/tools	105	110
Passports	75	80
People	5	6
NFC apps (not payment)	15	200
Other	25	30
<b>Total</b>	<b>2357</b>	<b>3024</b>

*[ LF 581 million 2014 ]*

**CAGR based on IDTechEx research 2014-2018: UHF 20% HF 9%**

# RAIN RFID Tags Forecast



Apparel will continue to dominate

Other applications will grow (apparel 80% in 2015 to about 60% in 2018)

After apparel, many diverse applications “asset management” but fragmented and varying volumes, but strong payback from high performance, low cost devices

Strong growth in other retail items beyond apparel

# Passive RFID Interrogator 2014

Type	Number (millions)	Market size (\$ millions)
UHF Fixed portal *	0.05	68
UHF Embedded and handheld	0.28	105
HF and LF Hand held, fixed, embedded	6.5	878
LF Vehicle	27	68
NFC Cellphone	698	419
<b>Total</b>	<b>731</b>	<b>1547</b>

- \* Excludes external antenna value
- Retailers do not use many readers per store
- HF readers are simpler devices – can cost \$10's of dollars or less. UHF are more complex devices but will see cost reduction – integrated UHF in phones could spark many opportunities

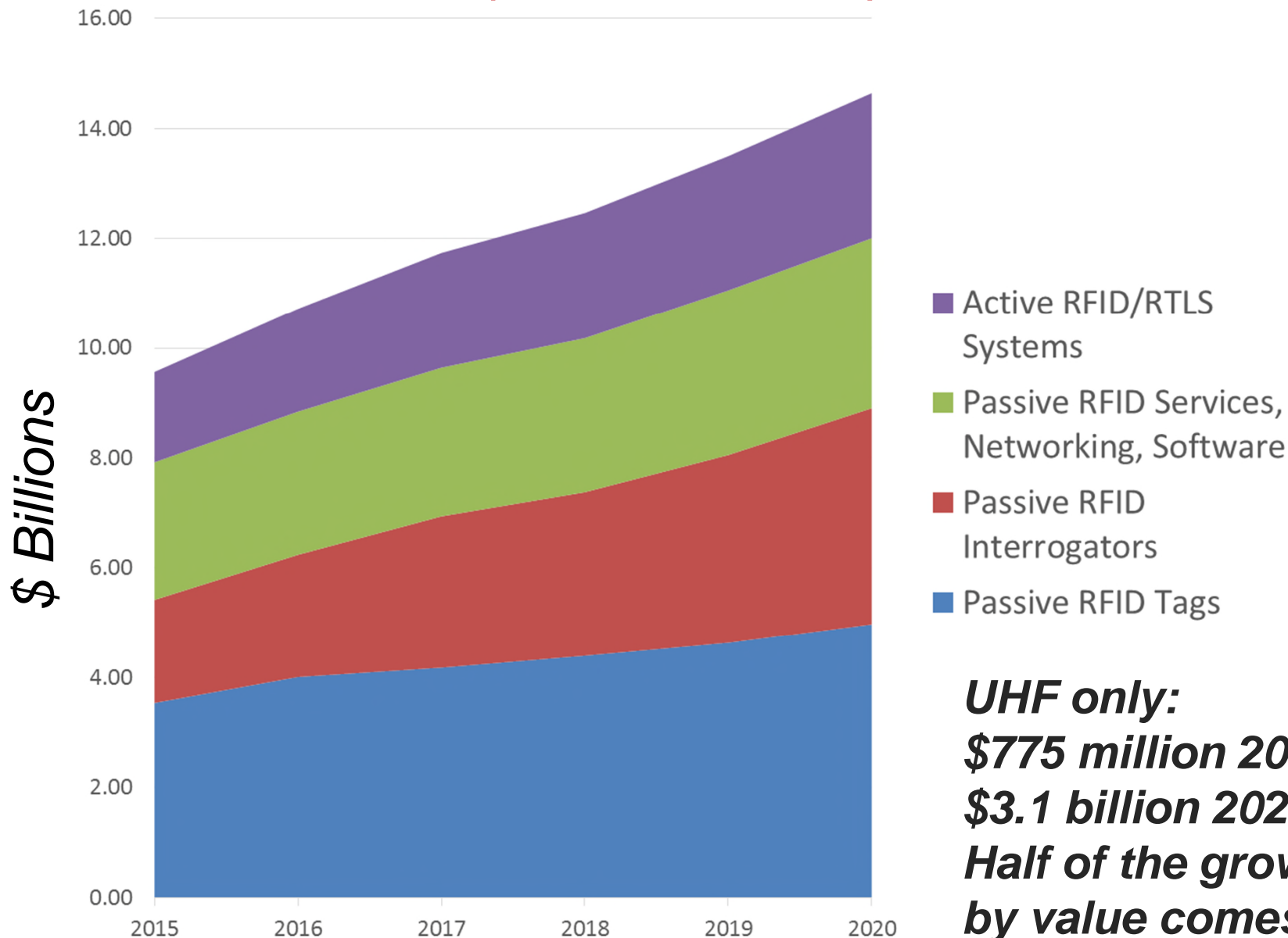
	Small project	Large project
Tag cost	20%	50%
Other cost*	80%	50%

\*Software, infrastructure (inc readers), installation, commissioning etc



# Total RFID Market Size and Outlook

**2015 - \$9.56 Billion (2014 - \$8.73 Billion)**



**UHF only:  
\$775 million 2015  
\$3.1 billion 2020  
Half of the growth to 2020  
by value comes from UHF**