

Table 2 Volume sales of tags by application 2006-2016

Number (bn)	Purchase the report to view these detailed forecasts
Item	
Pallet/case	
Other*	
All categories total	
* See "other" ta	

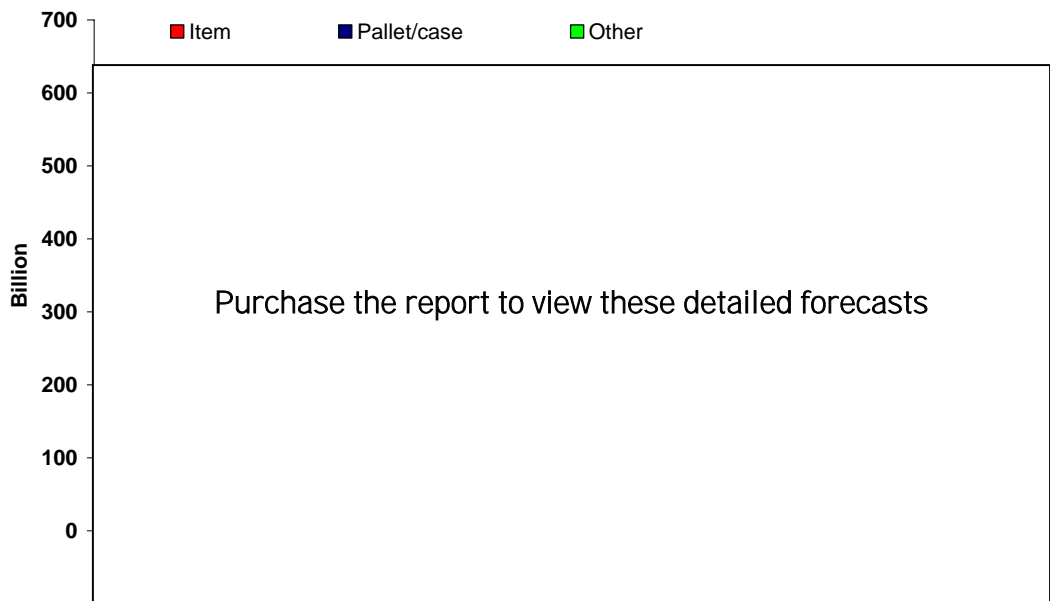
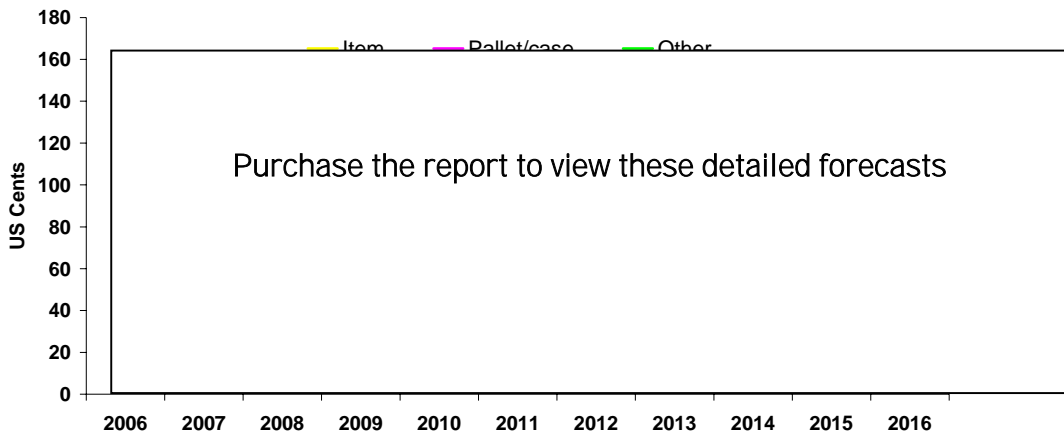


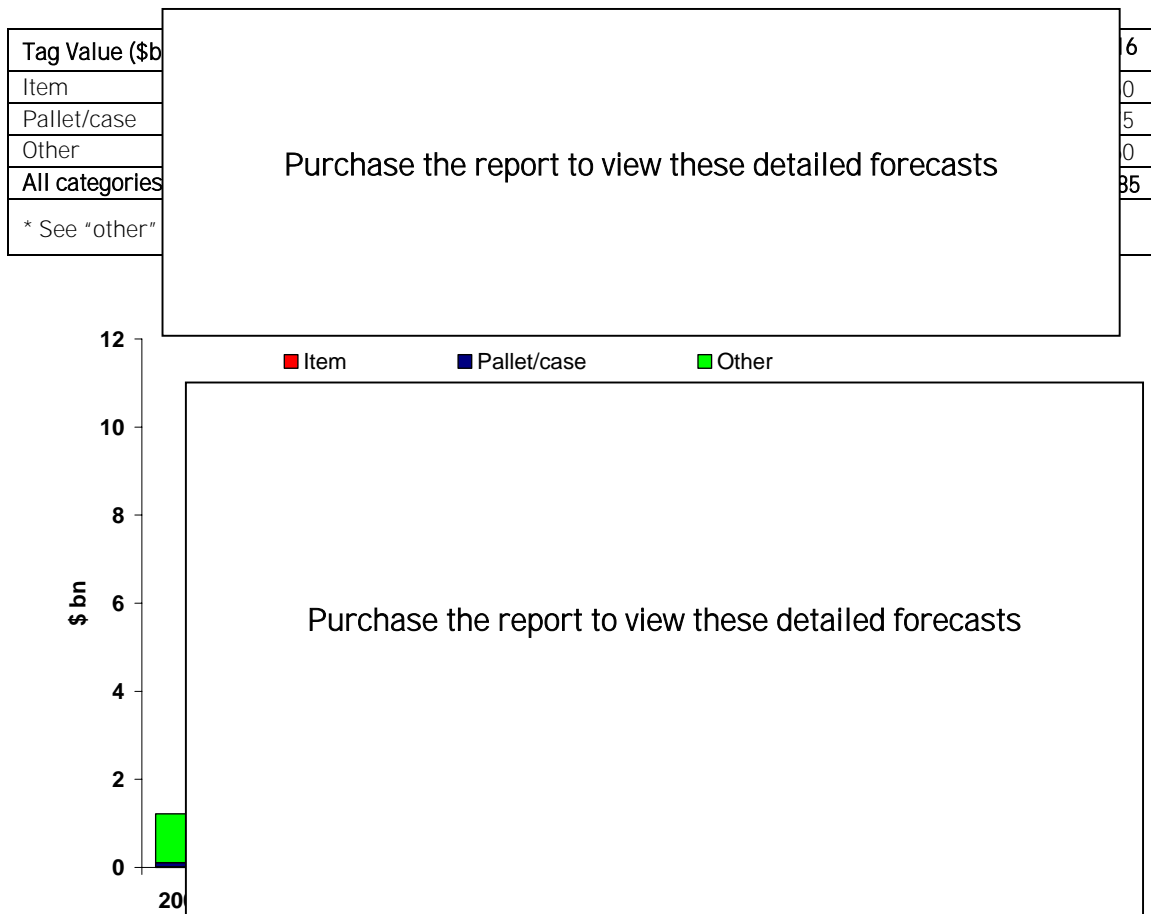
Table 3 Average tag price in US dollar cents per application 2006-2016

Tag Price (Cents)	Purchase the report to view these detailed forecasts
Item	
Pallet/case	
Other	
All categories a	
* See "other" ta + Increase caus untagged	



Source IDTechEx

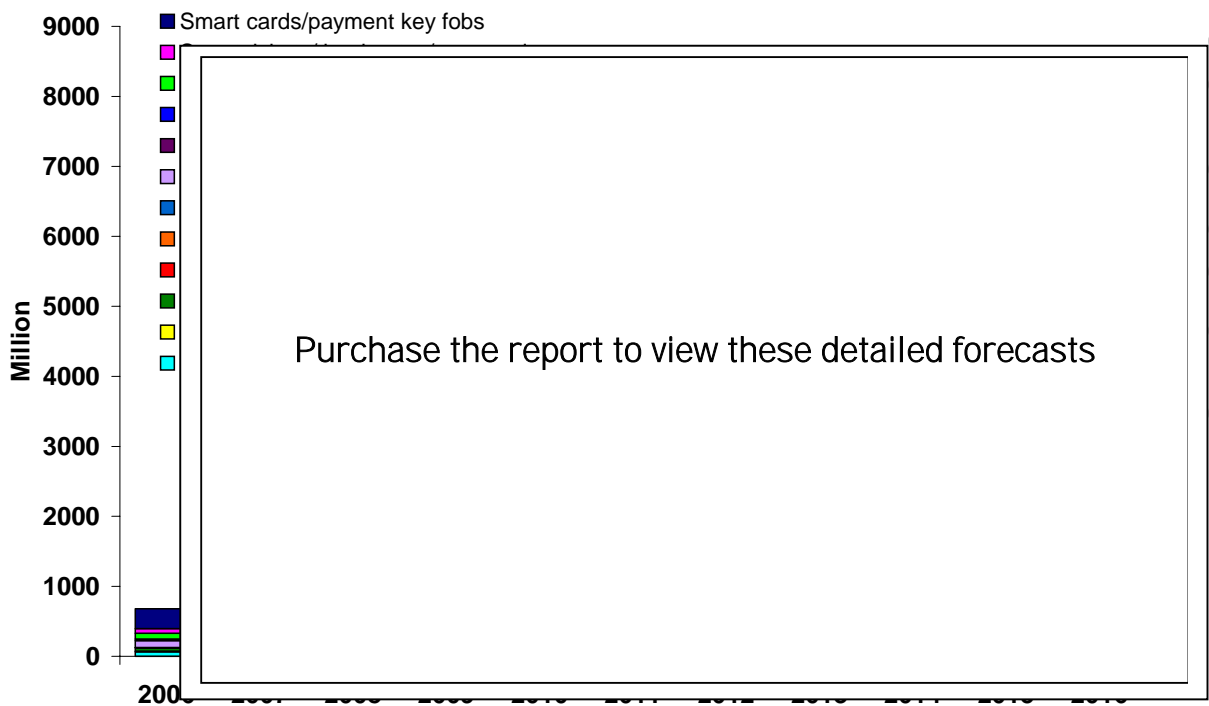
Table 4 Total value of tags in billions of US dollars per application 2006-2016



Source IDTechEx

Table 5 Volume sales of tags by "other" application 2006-2016

Number	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Smart cards/payment key fobs											
Smart banknotes/docs											
Air bags											
Convey Freight											
Intermodal containers											
Animal											
Vehicle											
Military											
People											
Car clubs											
Passports											
Excluded applications											
Total Other											5.0
* prisons + tags for manufacturing											



Source IDTechEx

1.5. The show so far – 1945-2006

1.5.1. Cumulative sales by applicational category

Table 1.3 gives the cumulative global sales of RFID tags by applicational category by the end of 2005 in millions.

Table 1.3 Cumulative global sales of RFID tags by applicational category by the end of 2005 in millions

Application category	Cumulative global numbers sold (million)	Main Frequency	Highlights
Retail/ consumer goods	230	UHF, HF	Pallets/ cases
Land and sea logistics/ postal	15	433MHz, HF	Intermodal containers, sample testing of postal performance, etc
Airlines and airports	25	LF, UHF	Baggage, vehicles
Healthcare	40	A few KHz, 433MHz	AstraZeneca syringe error prevention 30M, staff and patients
Animals & farming	65	LF	Cattle, pigs, sheep.
Books, libraries, archiving	70	HF	Library books, videos, DVDs inc Singapore 10M. Business filing systems.
Manufacturing	50	LF, HF	Work in progress, conveyances
Leisure	100	LF, HF	Hasbro Star Wars toy 80M, marathon runner's shoes
Laundry	75	LF, HF	Hospital, hotel and military uniforms, bedding etc
Financial, security, safety	670	HF	Access cards
Military	2	LF, HF, 433 MHz	Assets, vehicles
Passenger transport/ automotive	1000	HF, 315MHz, 433MHz UHF	Car clickers 400M, Bus/ train cards and tickets
Other	80	LF, HF	
Total	2,422		

Source IDTechEx

Figure 1.2 shows RFID tagged vehicles being monitored with interrogators on an overhead gantry at Los Angeles International Airport

Table 2.3 **When industries may adopt EPC RFID in at least hundreds of millions yearly. Estimates by IDTechEx**

Application	Year of mass adoption of EPC RFID
Pallets/ cases	2006/7
Drugs	2006/7
CPG	2007
Air baggage	2007
Air freight	2008
Tires	2009
Postal	2009
Books	2013
Archiving	2014

Source IDTechEx

2.3. Choice of tagging package or product

All agree that CPG is the biggest potential for EPC and indeed RFID in general. Although unpackaged consumer items are also a large figure there are many reasons not to tag them although it will be done to some degree. For example it is impractical or illegal to directly tag food, drink, paint, putty, seeds and so on. Those with privacy concerns prefer to have the tag on the package because they can throw it away immediately after purchase. However, for the 30% of paybacks that can come after the till, tagging the product is preferable and this is also true when the tag is to be used for theft deterrence.

2.4. Forecast for EPC CPG 2006-2010

Figure 2.1 gives the Procter & Gamble forecast for EPC CPG tagging at pallet, case and item level 2003 to 2010. The 2004 forecast was not met because only a few million EPC CPG tags were delivered due to delays caused by quality, technical problems, lack of conviction about paybacks (in the case of tires, books, postal etc) and waiting for standards to be completed. Accordingly, perhaps the Procter & Gamble forecast should be slipped one year. Nevertheless, some analysts believe the later figures will be achieved anyway.

Table 1.12 **Ultimate potential annual global sales by 2020 for some of the most promising tagged things with potential of over one billion tags yearly.**

Category	Ultimate potential billons yearly	Leading user countries today	Leading user countries eventually	Explanation
Smart cards	2	China, Japan, Korea	China	Largest population, rapid economic growth and strong government support
Military items	2	US	US	Largest military force by far, with no prospect of change
Blood	2	US, Europe	US, Europe, East Asia	General need
Test tubes	2	US, Europe	US, Europe	Drug research
Air baggage	2	US, China	US, Europe, East Asia	General need
Air freight	2	US, Europe	US, Europe, East Asia	General need
Archiving paperwork	2	Europe trials	US, Europe	Western preference
Banknotes, high value	20	Japan trials	Japan	Japan and Malaysia are keenest
Drugs	30	US	US, Europe, East Asia	General need
Pallets/cases	40	US, Europe, Japan	US, Europe, East Asia	General need
Books	50	Korea, Japan trials	East Asia	East Asia is keenest and produces a disproportionately large number of books e.g. 6 billion yearly in Japan.
Postal	650	Europe	US, Europe, East Asia	General need
Consumer goods	10,000	US, Europe, East Asia	US, Europe, East Asia	General need

Source IDTechEx

1.7.2. Tag price sensitivity at highest volumes

Most RFID projects involve volumes well below one million tags yearly and the viability of these projects depends only modestly on the tag price because the spend on tags in these projects is typically only around 20% of the total cost of ownership of the system. By contrast, the highest volume projects will be responsible for most of the spend on RFID in future. Here the tag spend will be 40-60% of total cost of ownership and therefore the single most critical element of cost.

Figure 1.4 gives our appraisal of the technologies appropriate to the different levels of tag cost and volume. Meeting our forecasts depends on timely success with these technologies.

Fig. 1.2 RFID tagged vehicles being monitored with interrogators on an overhead gantry at Los Angeles International Airport



Source TransCore

1.5.2. Cumulative sales chip vs chipless

Table 1.4 gives cumulative global sales of RFID tags divided into those that have a silicon chip in them and those that do not.

Table 1.4 Cumulative global sales of RFID tags chip vs chipless to end of 2005 in millions

Type	Cumulative global sales	Highlight
Chip	2,322	Cards
Chipless	100	HID secure access cards, AstraZeneca tagged syringes
Total	2,422	

Source IDTechEx

Figure 1.3 shows a tagged AstraZeneca syringe