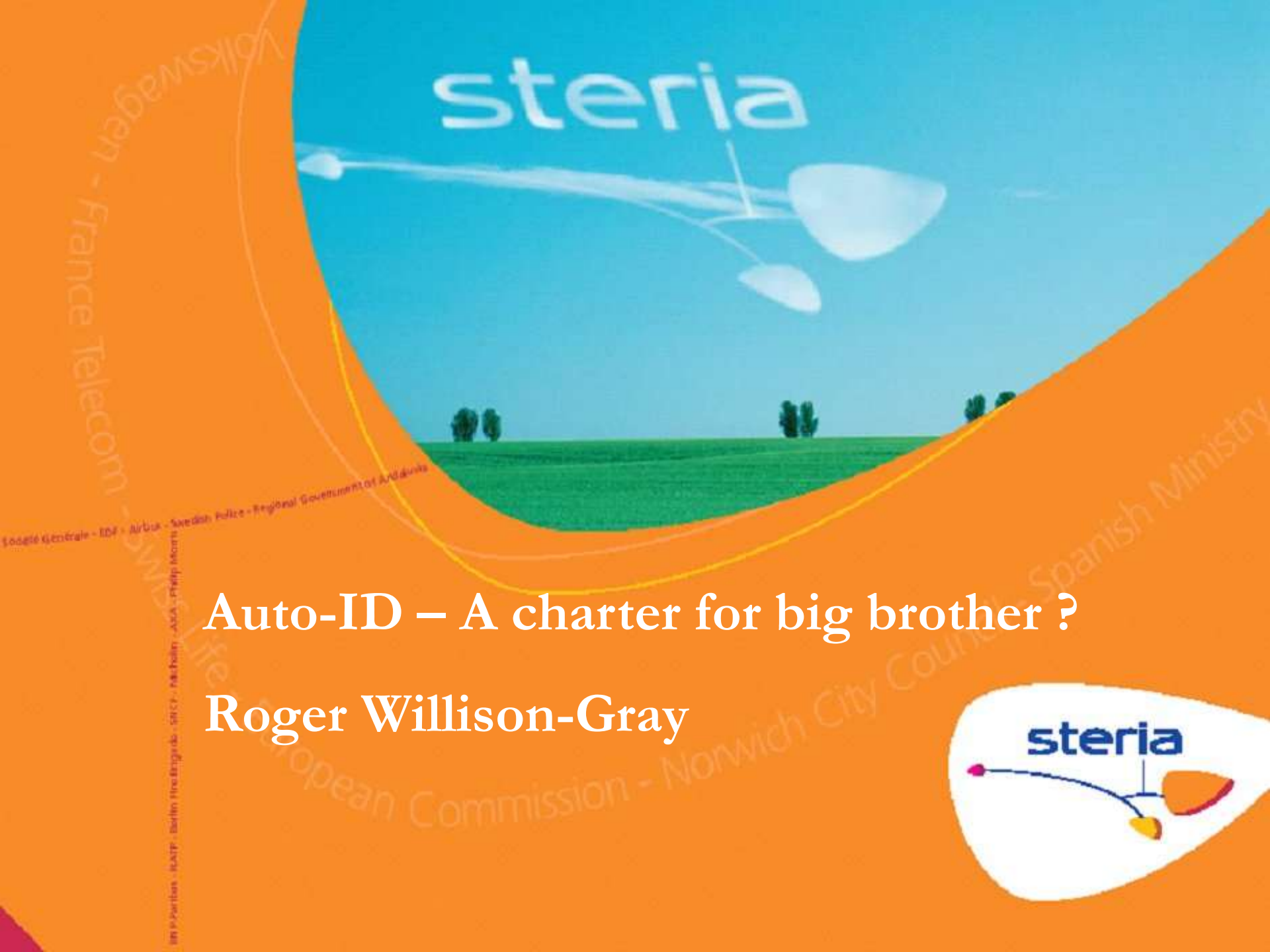# Auto-ID – A charter for big brother ?

Roger Willison-Gray

Auto ID – A Charter for Big Brother ?

steria

The emergence of wireless based 'Auto ID' solutions is revolutionising the supply chain and allowing both animate and inanimate objects to have a unique identity which automatically monitors, tracks and traces their behaviour.

Coupled with advanced data management techniques this allows accurate and detailed analysis of information at a level previously not possible.

This technology will help reduce theft and fraud, improve public safety and provide much better management reporting. Like all new technology it can be a force for good or misuse. What impact does this have for Civil Liberties ?

Roger Willison-Gray C.Eng MIEE MAPM

- 20 + years experience in the field of RFID and auto ID systems having worked on projects in the supply chain and security for both public and private sector clients.

- Recently led the Steria team in winning a project at London Heathrow airport to manage the operation of London taxis using RFID.

Steria

Systems Integration

Build

Design

Consulting

Operate

Managed Services

Added Value Customer Services

Steria

Finance & Insurance

Defence

Central Government

Transport

Criminal Justice

Local Government

What Is Auto ID

- Object with a unique identity
- "Intelligent" barcode
- Some can store data
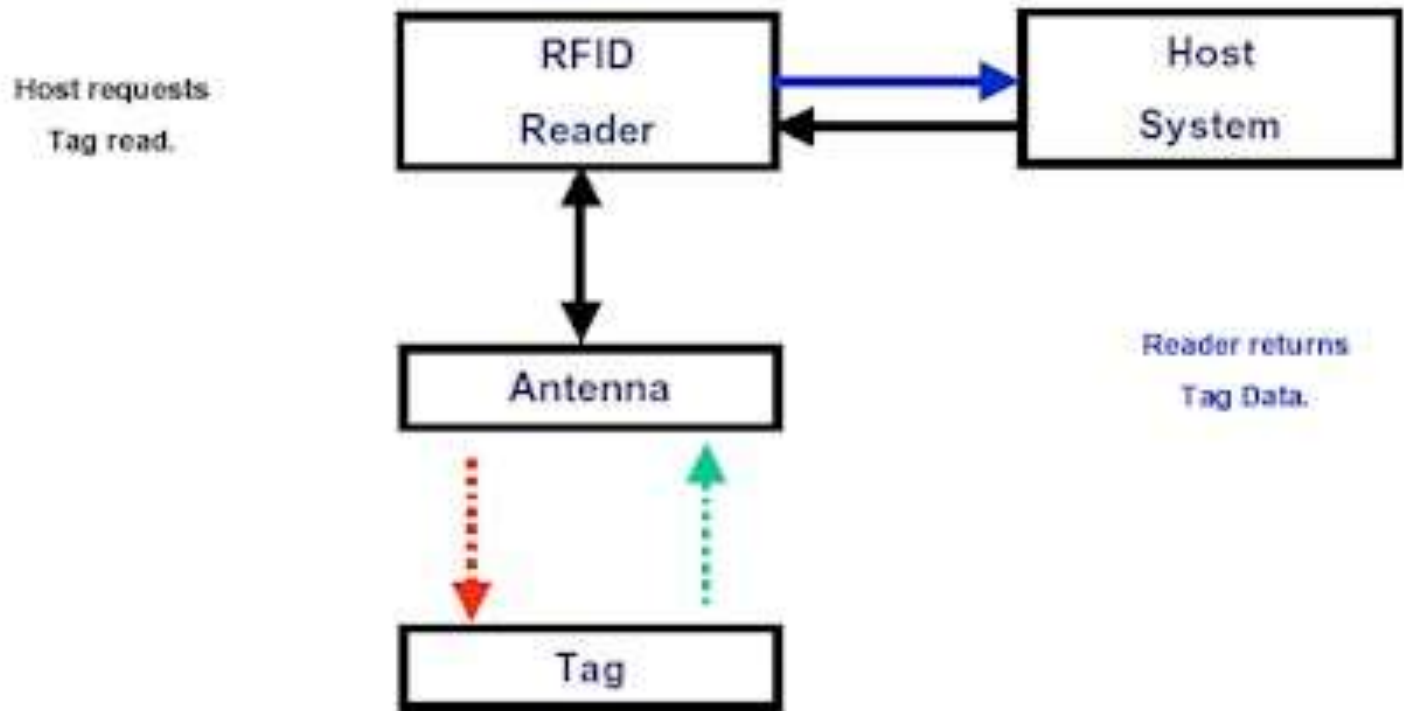- Active / passive
- Long battery life

Current Auto-id Technologies

- Barcode
- RFID
- Wi-Fi / Wi-max
- SMS
- GPRS
- Combined

Tag Technology

Host requests
Tag read.

RFID
Reader

Host
System

Antenna

Reader returns
Tag Data.

Tag

Types of Tag

RFID tag formats

Tags Can Be Printed !!

Combined Tags

Dual ID tag suited for high security applications where vehicles & drivers need to be identified simultaneously

Monitoring flexible driver

and vehicle situations

Combined Tag

- **Combined vehicle and driver ID**
- **Integration of various proximity cards**
- **Non intrusive installation**
- **Battery life time > 5 years**

Proximity Card

- Unique driver identification
  - Identification of the driver
  - Card can also be applied for other applications such as
    - Access control within a building
    - Payment identification
    - Local journey authorisation
    - Reporting driver for violations
  - Can be linked with other identification such as biometrics

Hype or Reality ?

- 25 years of "coming soon"
- Technology is not the issue
- Specialist applications
- Lots of pilots and POC's
- Solution driven

Taxi Management at Heathrow

- 7,500 registered drivers
- 3,500 movements per day
- Taxi drivers pay to use the feeder park
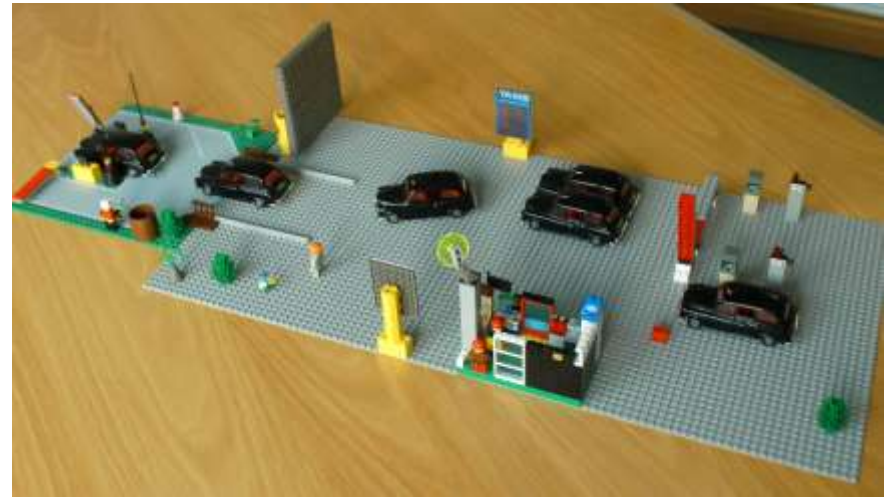
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Why Regulate Taxi's ?

- Geography of central terminal area (T1,2,3)
- Behaviour
- Congestion
- Pollution
- Match supply to demand
- Passenger onward travel experience

Managing the Feeder Park

- 27 lanes
- 3 hours + wait
- Revolving queue
- Balanced despatch
- Despatch on demand
- Operator exceptions
- IP enabled
- Wireless / hand –held
- Environmentally powered

It's a Wal-mart World

- Integrated supply chain
- Service differentiation
- Top 100 suppliers must use auto ID 2005

Winners and Losers

- **The early adopters will spend a lot of money on new technologies and see their profits decline, but get a big increase in market share.**

- **Large manufacturers may see a decrease in profitability, but many smaller manufacturers will not have the resources to remain involved at all.**

The Application Is the Key

- Auto ID is simple
- Managing it is not !
- Infrastructure
- Apps dev/mgt
- Middleware
- Logic
- Data security
- Privacy
- Ethics

Issues and Opportunities

- Retail
- Manufacturing
- Defence
- Transport
- Automotive
- Supply chain
- Security
- Welfare
- Education
- Hr

$Bn Rewards

- Auto ID will be ubiquitous (2015 silicon)
- It will be present in most industries and most applications
- It is already a multi - $Bn market
- Accenture's latest win is allegedly $10bn
- So what ?

Civil Liberties Groups Unite for RFID Protest

Silicon.Com
March 31, 2004

- Cross-border sharing of biometric data could infringe human rights, warns an international coalition of civil liberties groups.

- Civil liberties groups from both sides of the Atlantic have joined forces to oppose the proposed introduction and cross-border sharing of biometrics and RFID in more than one billion passports worldwide.

A Global Vision – for Good !

Founded in 1999, the Auto-ID Center is a unique partnership between almost 100 global companies and six of the world's leading research universities; the Massachusetts Institute of Technology the US, the University of Cambridge in the UK, the University of Adelaide in Australia, Keio University in Japan, the University of St. Gallen in Switzerland and Fudan University in China. Together they are creating the standards and assembling the building blocks needed to create an "Internet of things."

Radio frequency identification (RFID) is a simple concept with enormous implications. Put a tag - a microchip with an antenna - on a can of Coke or a car axle, and suddenly a computer can "see" it. Put tags on every can of Coke and every car axle, and suddenly the world changes. No more inventory counts. No more lost or misdirected shipments. No more guessing how much material is in the supply chain - or how much product is on the store shelves.

The Auto-ID Center is designing, building, testing and deploying a global infrastructure - a layer on top of the Internet - that will make it possible for computers to identify any object anywhere in the world instantly. This network will not just provide the means to feed reliable, accurate, real-time information into existing business applications; it will usher in a whole new era of innovation and opportunity.

http://www.autoidlabs.org.uk/

Utopia

Imagine, the end of property crime. Everything that has any value that could be stolen – a car, a laptop, a piece of construction equipment" (not to mention every ship, plane, truck, trailer, and toddler) – everything like that will know its location and be able to report it. We can go even further: You tell your laptop that it should only find itself at your office or your home. And if it finds itself in a car, it wakes up, notices that it's in the wrong place, calls your mobile phone, and says, 'Hi, this is your laptop. I'm at this location on this map.

How about insurance companies selling you car insurance based on how you actually use your car, say, a month at a time. They review the GPS information on where you've driven, how far, to what areas of town, and how fast (speeding, eh?) and bill you for the risks that you're taking.
Norwich Union will be launching such a service shortly.

Or Not ?

- Tagging school children ?
- Tesco / Gillette mach 3 ?
- Merchandising research ?
- Car keys ?
- Driving licenses ?
- Banknotes ?
- Recycling compliance ?
- Credit cards ?
- Workplace monitoring ?
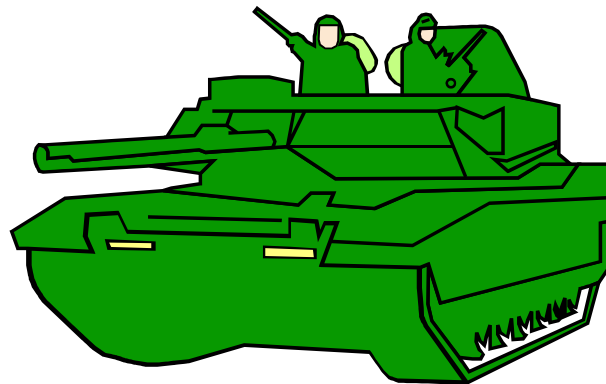- Criminal / police – unauthorised activities

Potential Defences

- European human rights act
- Data protection act
- OECD privacy and personal data guidelines
- Parliamentary awareness
- Public awareness
- Industry best practice
- Codes of conduct
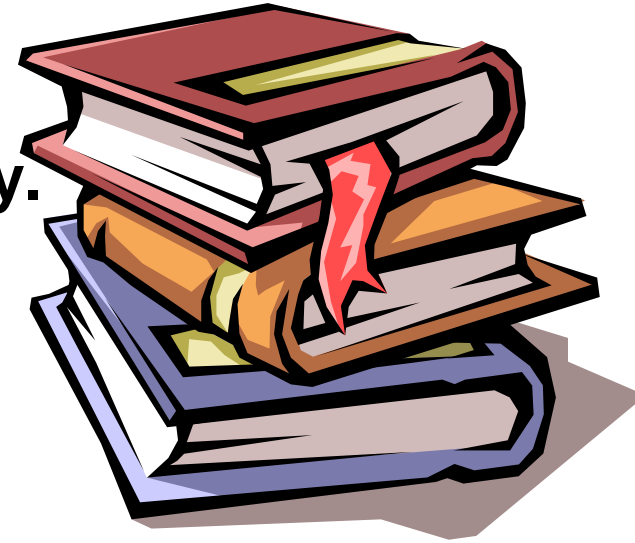
Threats To Privacy And Civil Liberties

- **Hidden placement of tags.**
- **Unique identifiers for all objects worldwide. (EPC)**
- **Massive data aggregation.**
- **Hidden readers.**
- **Individual tracking and profiling.**

Framework Of RFID Rights And Responsibilities

- **Openness, or transparency.**
- **Purpose specification.**
- **Collection limitation.**
- **Accountability.**
- **Security safeguards.**
- **Informed consent**
- **Right to remove**

  - **Coalition of civil rights organisations**

Conclusions

- Auto-id is here !
- The "internet of objects" is coming !
- The legal system is not ready !
- It is essential that technologists act ethically
- Big brother's thought police may not be possible, but it will certainly be possible to track and predict behaviour.

Questions

Roger.Willison-Gray@Steria.co.uk

07966 824247 / 01442 884247