

I am not a machine, Sir: RFID and Customer Services

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Overview

- Prestige project overview
 - business and organizational background
 - payment and service objectives
- The Oyster card system
- Other similar systems and extensions
- RFID in retail sales
- Agency and workplace realities

Transport for London

- Formed in 2000
- Reports to Mayor of London
- Includes the Underground, the Docklands Light Railway, the Croydon Tramlink and the London River Services
- The Underground
 - Operates since 1863
 - 500 trains at peak times
 - 253 stations owned (275 served)
 - over 12,000 staff

Private Finance Initiatives

- 3 PFI partnerships
- Power PFI (£133m)
- Connect Communications PFI (£475m)
- Prestige Ticketing PFI (£1.3bn)
 - Over 17 years
 - Launched in 1998
 - Financing based on a design, build, operate and maintain contract (off-balance sheet for TfL, fully debt-financed)
 - System delivered later than planned due to technological problems.
 - Contract proved to be inflexible and expensive to amend.
 - Looking to develop to support new technology options.

Prestige drivers

- **Business Drivers - Underground**
 - reduce fraud
 - reduce queues at ticket offices
 - improve service offering
- **Business Drivers - Buses**
 - Common ticket for deregulated environment
 - Life expired equipment
 - Allows for Cashless Buses
- **Integrated Travel**

Project scope

ASSETS

- Gates
- Ticket Machines
- Computer Systems
- Communications Network
- Back Office Systems

NETWORK

- 8,000 buses
- 273 stations
- 2,600 retail outlets (newsagents)
- 16,000 Smartcard Devices

CUSTOMER BASE

- 1,534 million bus journeys per annum
- 942 million tube journeys per annum
- 8.5 million journeys a day

SERVICES

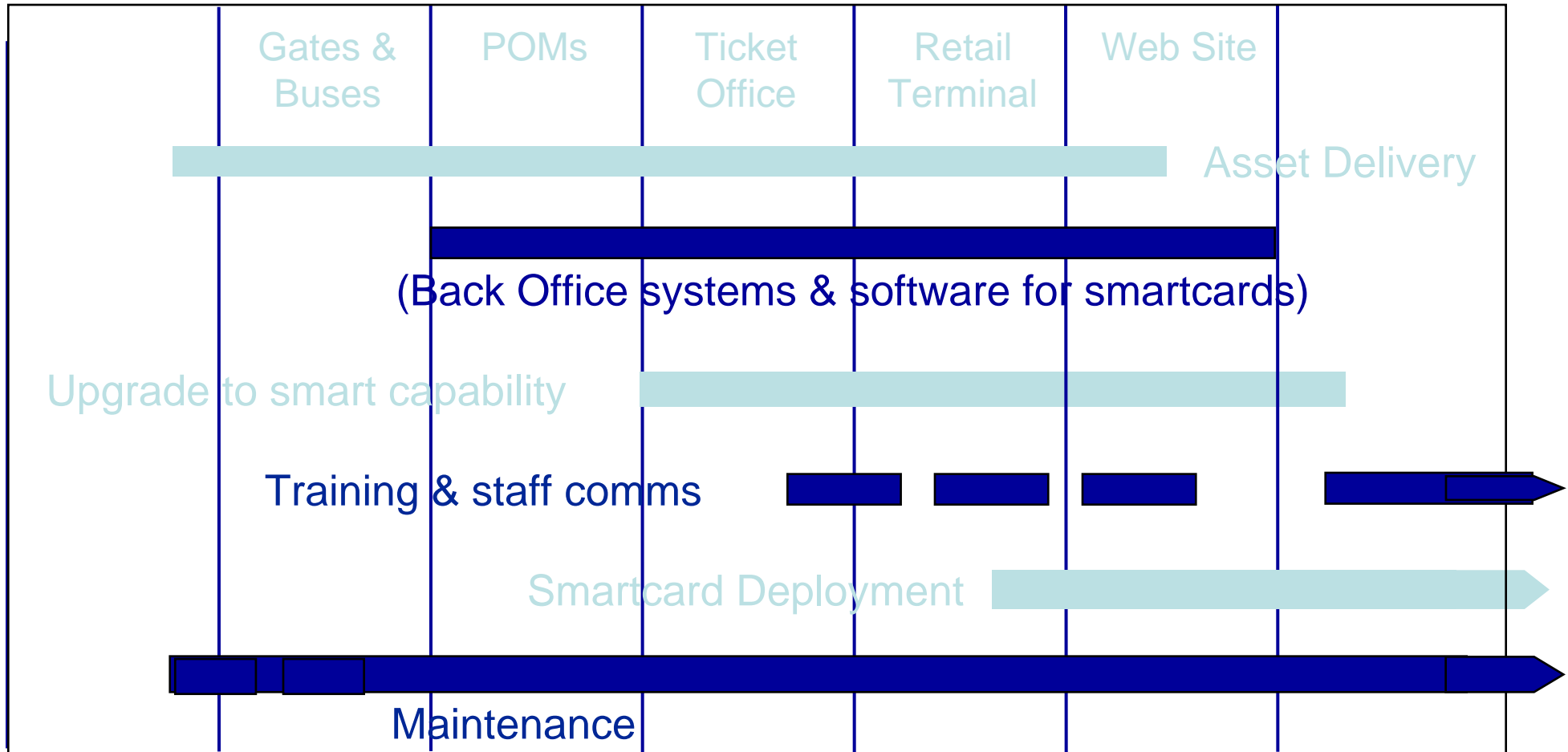
- Fares Revenue & Collection System
- Smartcard procurement
- Maintenance & Asset Management
- Call Centres
- Retail Network management

Oyster technology

- Ticket gates
- New ticket selling machines
 - self-service
- Expansion of retailing facilities
 - internet in particular
- Portable read/write equipment
 - store and forward for busses
- New data processing & back office systems
- Conversion to smartcard technology (ISO 14443A)
- Support systems and processes



Implementation schedule



TfL Financial Evaluation

Evaluation of Prestige

Evaluation Criteria	RAG Status	Project evaluation
1. Value for money & affordability	Orange	Initial costs managed but monopoly pricing of variations.
2. Risk transfer	Orange	Technological obsolescence during contract life. Some risk transfer proved inefficient.
3. Expertise & innovation	Green	Specialist knowledge / innovative technology.
4. Quality & customer issues	Orange	No incentive to market / promote. Success of promotion of Oyster depended on TfL intervention (particularly fare incentives).
5. Delivery	Orange	System delivered but required rephasing of delivery timetable.

Steve Allen
MD, Finance
March 2008



The Oyster Card

- Transition from a magnetic system to one that accepts smartcards as well
 - Always working on a live system
- Intense system proving required
- Phase in ticket products
- Phase in sales outlets training
- Phase in Oyster Web functions



Oyster card scope

- 10 million Oyster cards issued
- 5 million journeys a day
- 16,000 readers in stations
- 8,000 buses
- 2,600 readers at external retail points
- cash accounts for 4% today

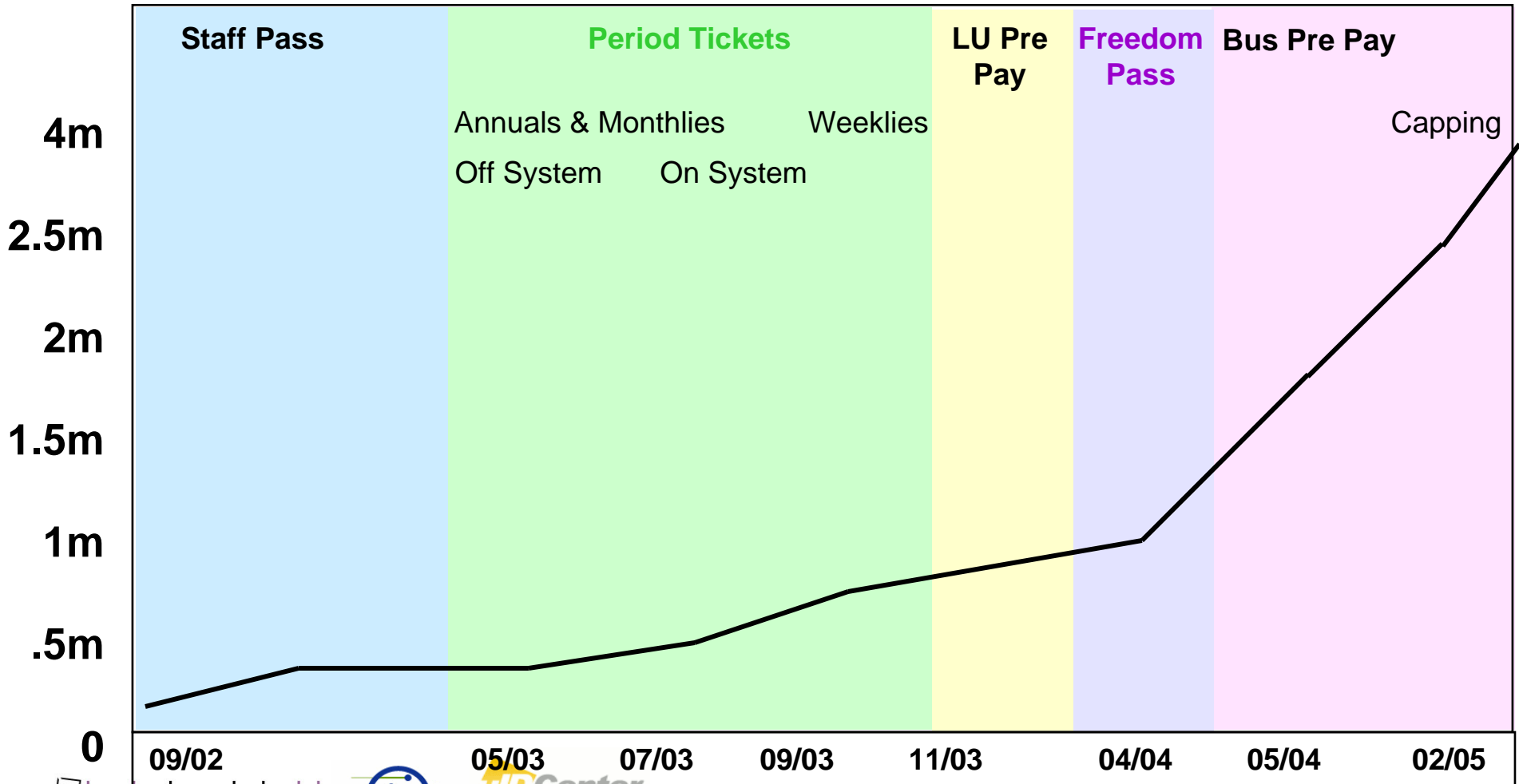


Phased rollout

- New products and systems introduced gradually
 - manage the impact on existing systems, processes and staff
 - allowed lessons to be learnt that could be applied to later phases
- Simple products first – build up staff and customer confidence
- Maintain credibility
 - desire to avoid high profile (London-wide) problems
 - manage demand to avoid major impact on operations
 - contain errors and deficiencies that are not obvious at development testing phase

Phased Rollout of Oyster

Number of cards issued to date



Lessons learned

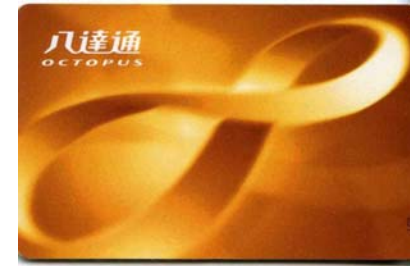
- Agree firm deliverables
 - PFI contract has output service clauses
 - Focused work-teams to assure requirements and then specifications
 - Technology risk on the contractor
- Sensible programme of deployment
 - Limited changes at any one time
 - Significant and realistic test scenarios
- Identify the new process owners
 - Have people simulate these roles
 - Both Business and Contractor
 - Allow for Learning Curve

More lessons learned

- Don't underestimate organisational issues
 - Operational staff training and internal communications
 - Customer help desk
 - Customer documents and learning curve
- Expect problems anyway at start-up
 - Daily reporting
 - Automated system health-checks
- Facilitate independent test and trial
 - Be able to try new functions without affecting current users
 - Launch incrementally

Other ticketing systems

- Oyster is one of the bigger but not the only one
- Wikipedia records over 70 similar systems across 5 continents*



Octopus – Hong Kong



Suica – Tokyo



KentKart – Izmir



EZ-link – Singapore

Beyond ticketing

- (Mobile) Suica is used across organizations as identification
 - To operate lockers
 - Airport check-in
 - Coupon
 - Bank account access



Mobile payments

- Mobile Suica (through Edy and Sony FeLiCa technology) is widely used for payment



Oyster and mobile payment

- Oyster has not been used for payment
 - although all the technology is in place
- Payment is regulated by the FSA
- TfL is not in this business
 - would require a major shift in business focus
- Oyster as part of a triple-play credit card
 - Independent functions



Customer service

- Most interactions with TfL now self-service
 - Ticket machines (accepting credit cards)
 - Internet
- Significant reductions in station operational staff
- Many stations now operate without any staff
 - Safety considerations
 - Response to crime
 - Fully-automated access control (no manual override)
- Ticket inspection now only at entry points

More on customer service

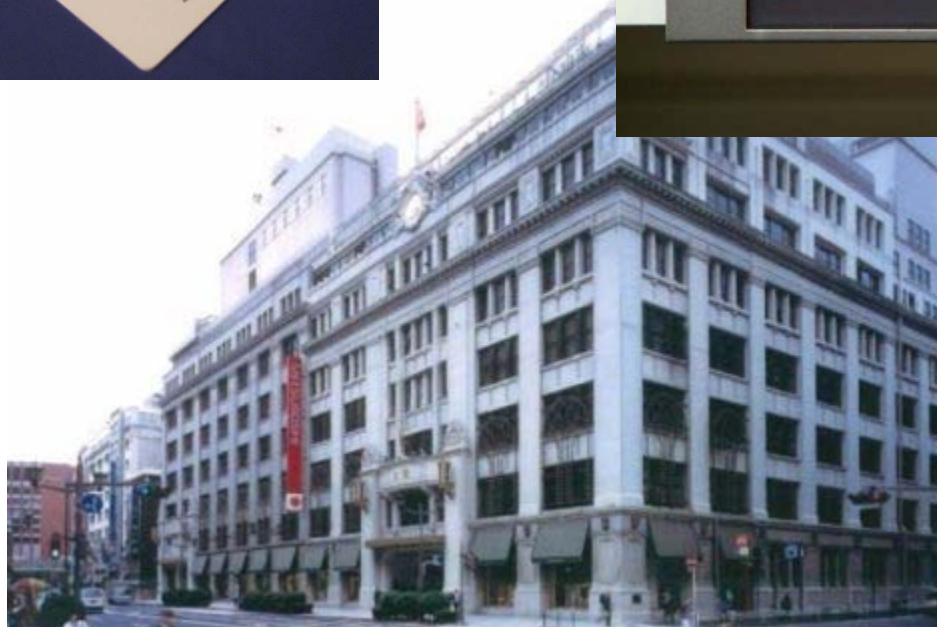
- Reduced service points at stations
- Reduced numbers of staff
- Less flexibility for staff to help
 - Often advise to by-pass the system
- Self-service can often be more convenient
- Can improve efficiency at stations
 - by encouraging commuters to buy in advance
- More efficient to operate for TfL

Retail applications

- Marks and Spencer clothing item-level rollout of RFID tagging
- 50 Million garments tagged per annum
- 53 stores live
- 500,000 tags/week read
- Tags installed in 50 factories in 25 countries (all products own brand)
- ROI justification based on stock taking
- Allows sales assistants to do what they do best: talk to people and sell!



More retail applications



More retail applications



Retail implications

- Help sales assistants maximize their time with customers
- Reduce time for repetitive-unproductive tasks
 - Stock taking, searching for availability, locating items
- Allow sales assistants to focus on their actual task
- Allows for a more enjoyable shopping experience
- Interactions with humans, not machines

A comparison

- Borrowing heavily from Tony Salvador
- *Agency* as the ability to control and/or make a difference through decision-making power
 - humans possess and can express agency
 - machines are designed to serve human needs
- The role of workers and information systems in retail establishments is that of agency:
 - through interactions with all involved actors create a situation of dynamic and polymorphic processes

An objective for RFID

- From *technology to rationalize* to *technology to energize*
- TfL's Oyster is rationalization of processes
- M&S and Mitsukoshi towards the opposite side of the spectrum

Summary

- The TfL Prestige project
 - organizational issues
 - business drivers
- The Oyster card system
 - self-service replacing humans
- Restrictions and limitations
- RFID to support retail
- From streamlining to supporting agency