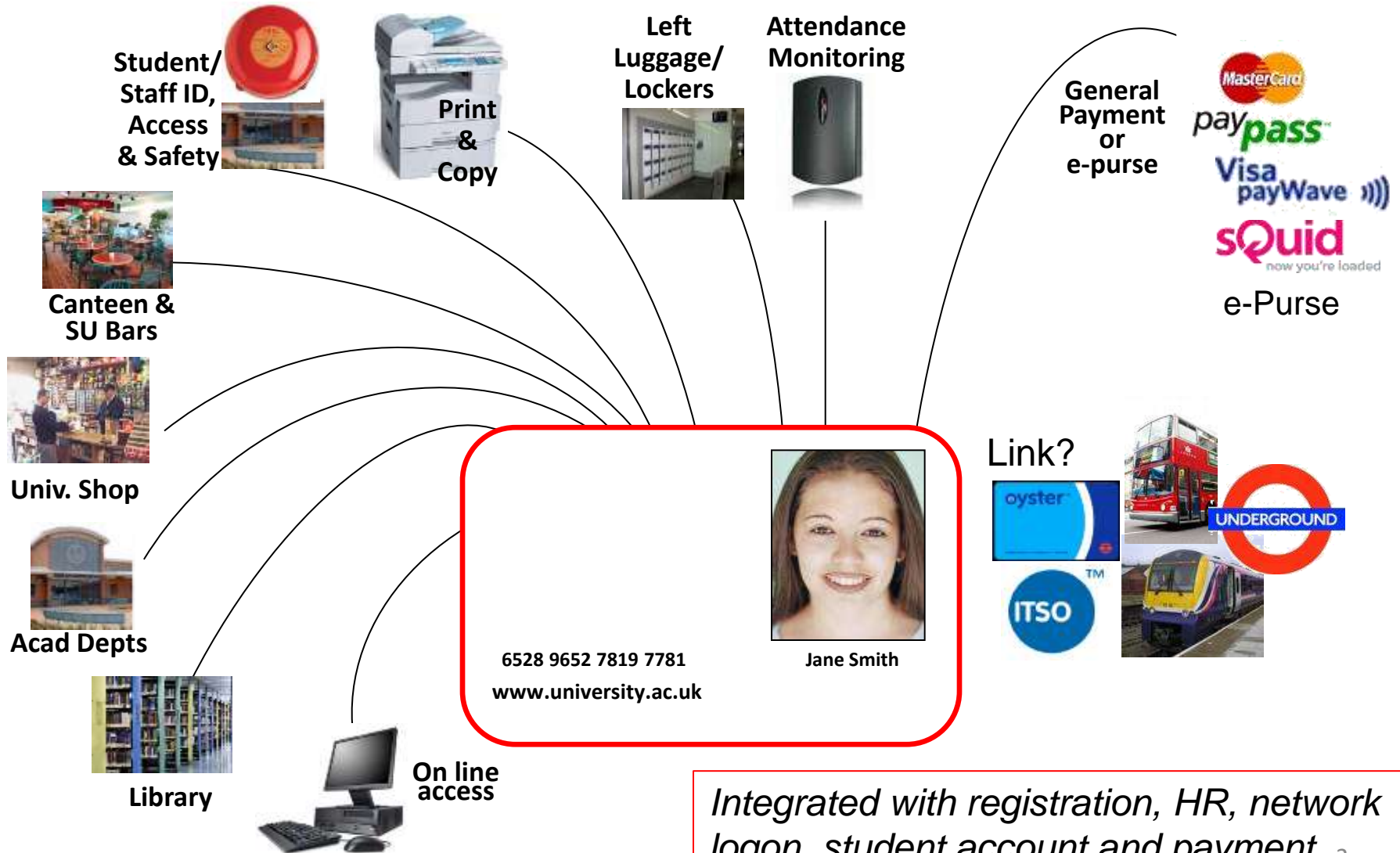

University Multi-application Scheme using Desfire Contactless Cards

Smartran Ltd

Kevin Farquharson, Director

Smartran Ltd
www.smartran.co.uk
+44 1483 772241

So you need a multi-application scheme....



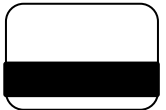
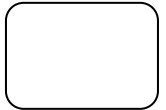
Integrated with registration, HR, network logon, student account and payment 2

Decisions, decisions....

- Selecting Card Type
- Desfire v Mifare from application perspective
- Migrating existing applications
- Adding new applications
- Delivering a multi-application scheme
- Mitigating risks of delay & under-delivery

Card Type Options

1. Plastic ID card
2. Barcode
3. Magnetic Stripe
4. Contactless Memory Smart Card or
Microprocessor Smart Card or dual i/face



Or combination of the above



Why use a memory card?

- Low unit cost
- Supports majority of Uni applications
- Compatible with many applications
- Fast contactless interaction
- Reduced physical wear and tear of card
- Falling cost of contactless readers
- Standardised encoding (eg LASSeO)

Note: NXP Mifare range is most popular choice for access and transport

Card Type Comparison

Services	Mifare 4k Contactless	Desfire 4k Contactless	JCOP J3A080 Dual Interface
Access Control	✓	✓	✓
Library	✓	✓	✓
Leisure	✓	✓	✓
Oyster	Discontinued	✓	✓
Citizen data	✓	✓	✓
Transport (ITSO)	Discontinued	✓	✓
e-purse	✓	✓	✓
Chip & PIN			✓
Public Key			✓
Biometrics	Very Limited	Limited	✓
Other Applications			✓
Use of storage	Fixed sectors	Flex allocation	Flex allocation
Relative pricing*	1.0	1.5	6.5

* Pricing based on quotation for London client, Jan 2011 – volume 10k+

DESfire v Mifare

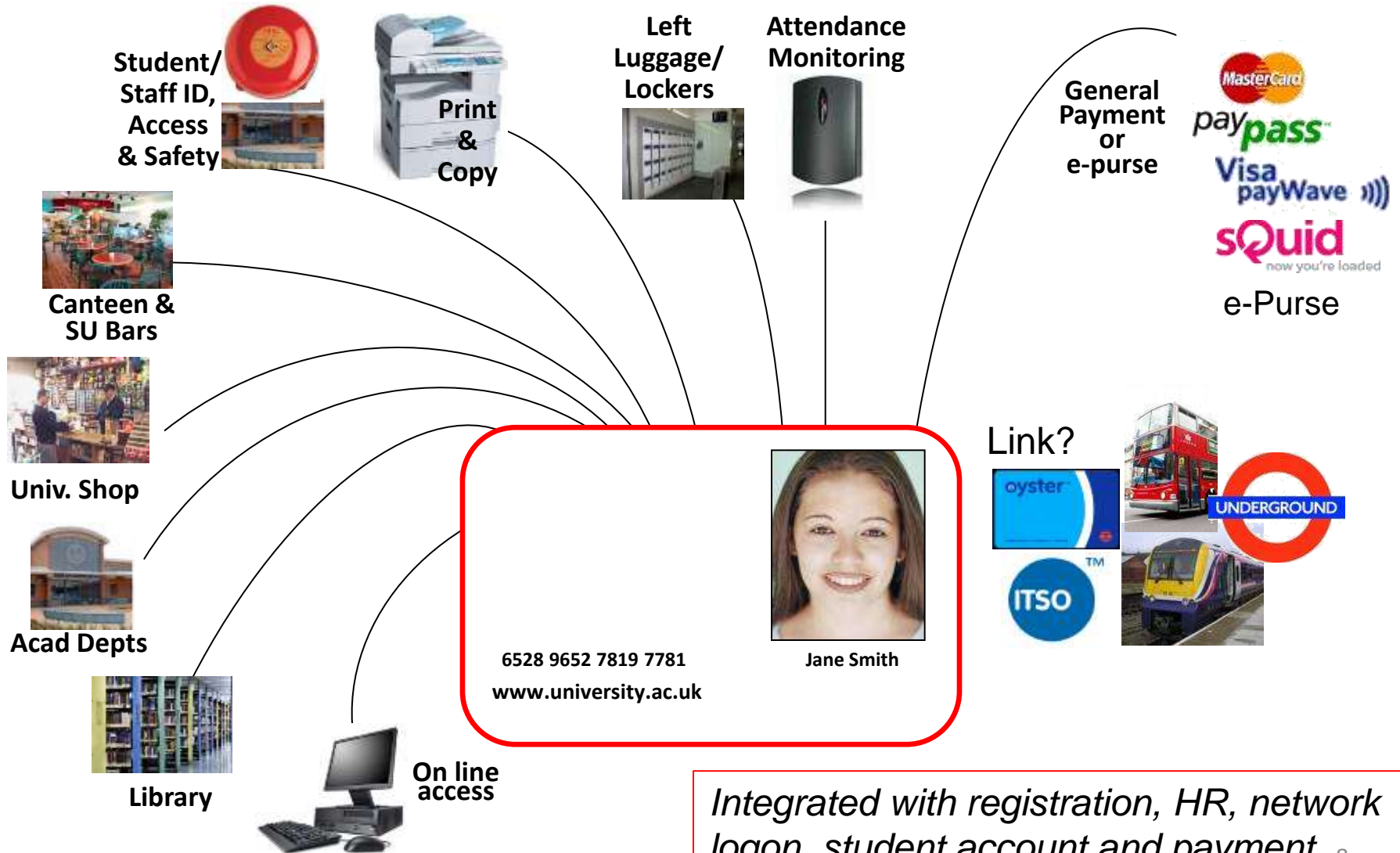
Advantages

- Enhanced security features and options (AES, 3DES)
- More flexible memory allocation
- 7Byte UID ensures card IDs are unique
- More flexibility of read/write control and anti-tear
- ISO / IEC 14443A compliant
- Card of choice for UK transport and resident card schemes
- Future proof for new uses
- Transport compatible

Disadvantages

- Price premium
- Less supplier experience
- Backward compatibility issues
- Less choice of readers
- Change or migrate all applications
- Need to make multiple changes in a short period of time

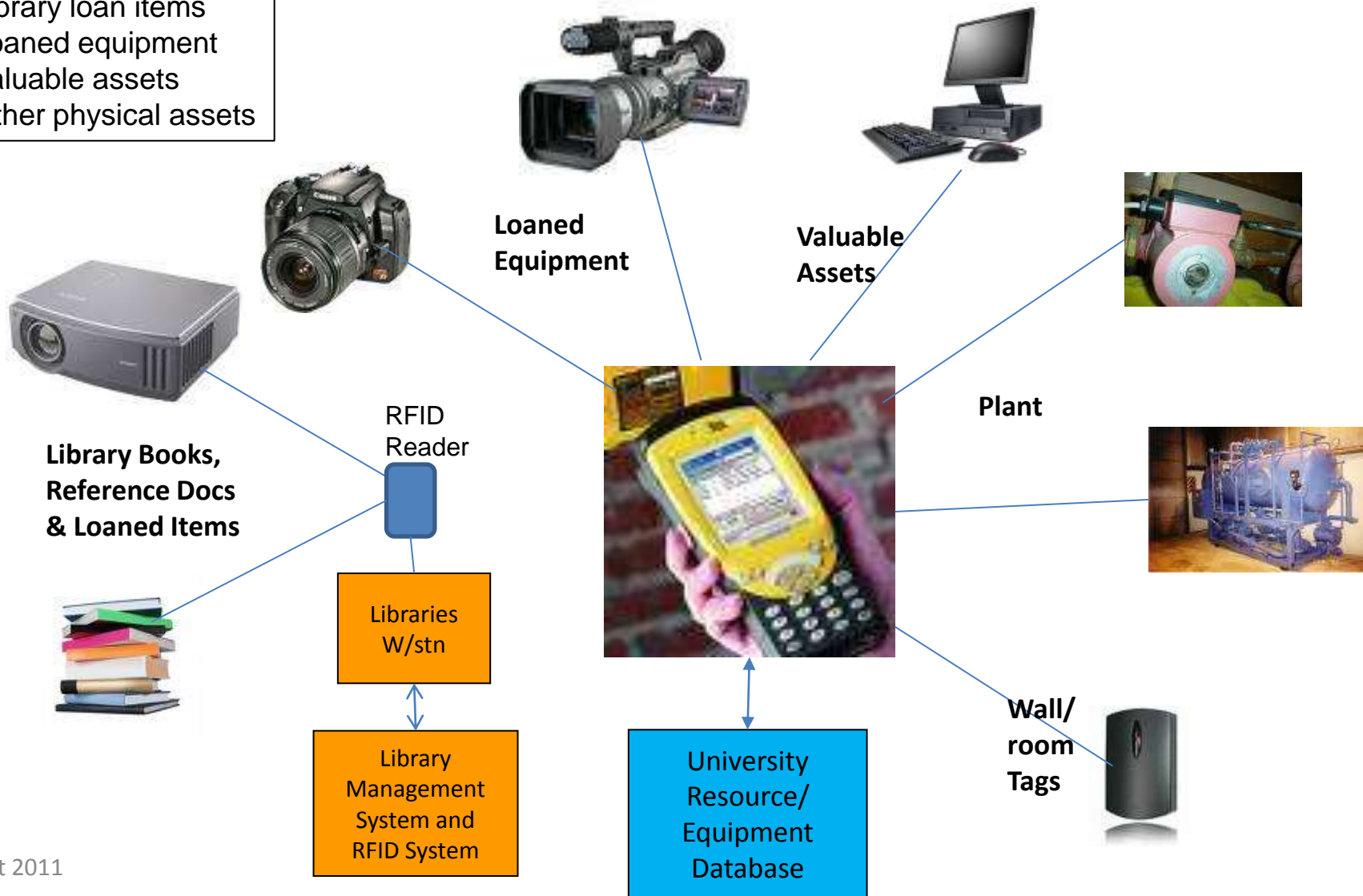
University Multi-app Scheme



Integrated with registration, HR, network logon, student account and payment 8

Don't forget RFID Tagging....

- | | |
|---|-----------------------|
| 1 | Library loan items |
| 2 | Loaned equipment |
| 3 | Valuable assets |
| 4 | Other physical assets |



Implementation Challenges

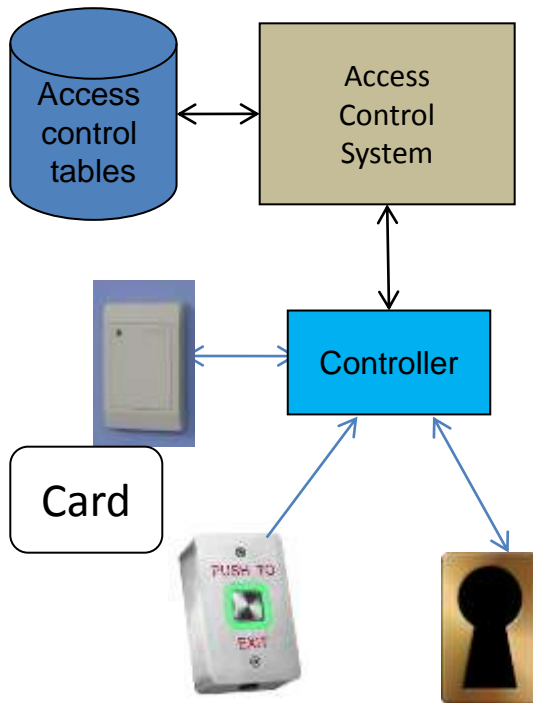
- Multiple stakeholders
- Back office integration
- Quality of data sources & databases (common key)
- OJEU Procurement - timescales & risks
- Co-ordination of application and card rollout
- Interim card applications and use
- Migrating applications to new scheme
- Testing and acceptance
- Communication to staff and students

Switching to Desfire

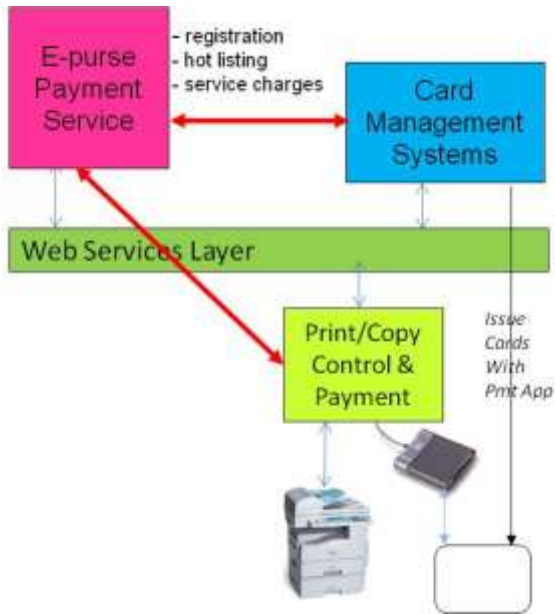
- Identify existing applications - how do they read card? data returned? card updates?
 - Barcode, mag stripe and existing chip
- Investigate applications which only use UID
 - Card reader, middleware, database & i/faces support change to 7 Byte UID
 - Can you mix old and new cards during transition?
- Investigate applications which use encoded data
 - Can application be migrated to Desfire?
 - Card reader, configuration, application
 - Can you mix old and new cards during transition?

Application Reading UID

- Can be the most problematic due to age, lack of support and hidden traps
- Options – phased transition or Big Bang
- Card readers can read UID on both types of card which is useful for changeover
- Test readers, middleware and management systems with new and existing cards
- *Salto and Controlsoft are examples of systems which can handle both card types. Siemens Cotag v5 does not!*



Application which Read Card Data



- How is existing card encoded and read?
- Is application being upgraded or replaced?
- Can change be phased in or Big Bang?
- Investigate dual support of old and new cards. Emulate old application before introducing a new application on new card.
- Test readers, middleware and management systems with new and existing cards
- *ITSO and some payment applications support both types to allow for migration*

Questions?

Kevin Farquharson
Director Smartran Ltd
kevin@smartran.co.uk
www.smartran.co.uk
+44 1483 772241