



Asian Development Bank

New Ticketing and Seat Reservation System for Sri Lanka Railways

COLOMBO, APRIL 2018

Burden Consulting

The Current Situation

Frequent shortages of tickets at stations due to delays in importing blank tickets, delays in printing tickets, printing machine breakages etc.

Cost per ticket is high due to imported paper being used for printing tickets and due to high inventory carrying cost

The system is totally manual. This causes delays in issuing tickets at busy stations.

Loss of revenue due to ticketless travel. The date imprinting machines are very old and are not printing the date properly

Source: TEC Report April 2013



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The Current Situation...

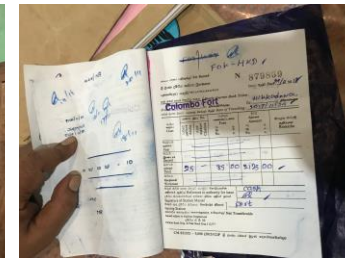
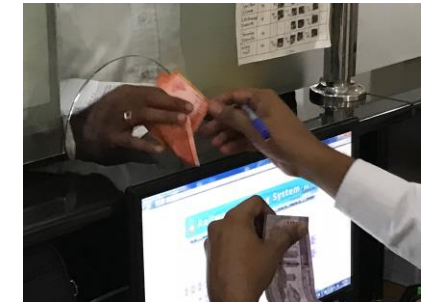
It is not possible to collect timely information about traffic patterns etc.

Seat reservation system has been computerised partially with the support from a third party organisation. However, this system too has disadvantages such as lack of auditing possibility, slow printing machines etc.

Difficulty in tracking fraud

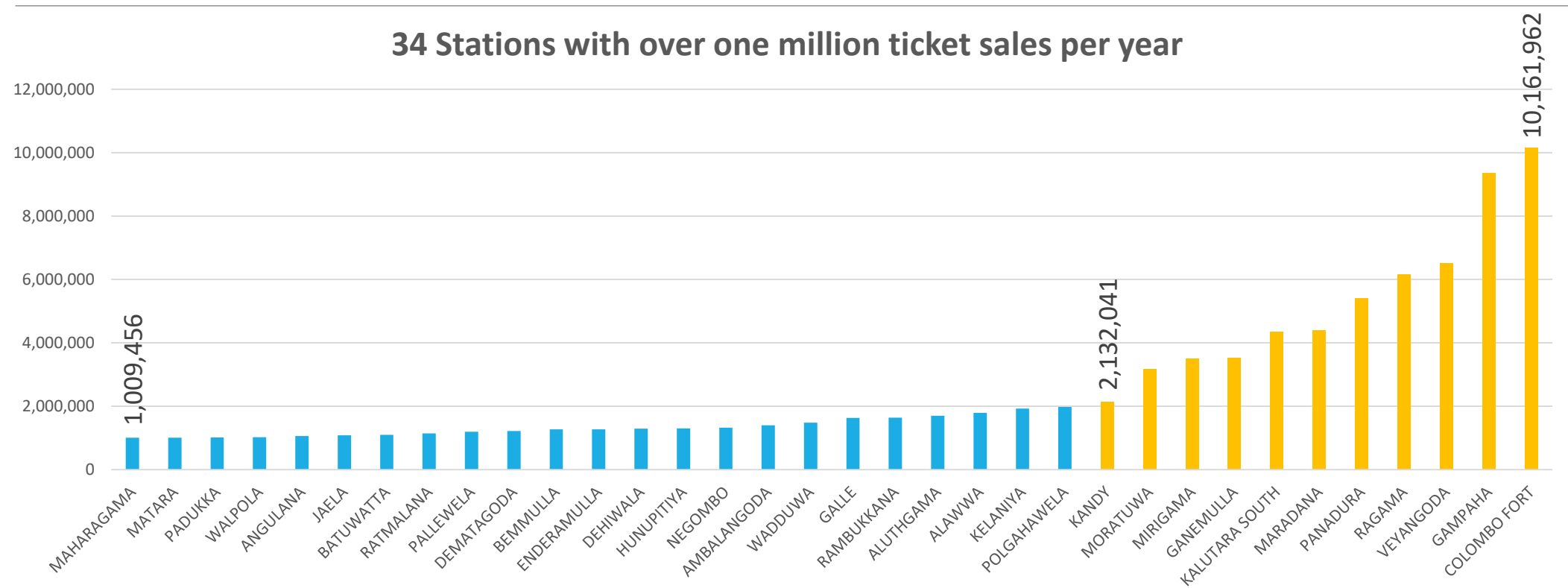
Lack of flexibility (for ex: it is not possible to introduce flexible ticketing fares)

Source: TEC Report April 2013



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Current Ticket Sales Profile



A Vision For Ticketing in Sri Lanka

Simple, quick and easy for passengers to use

Multiple sales channels and ticket media including paper, mobile and smart card to reduce queuing

Automated ticket sales to speed up data collection and analysis

Multiple payment methods to reduce cash

Integrated Ticket for multi-modal travel

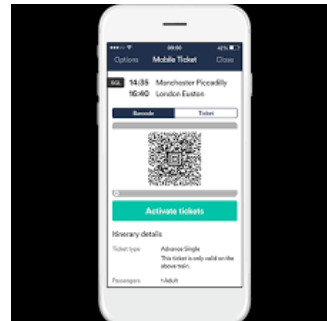
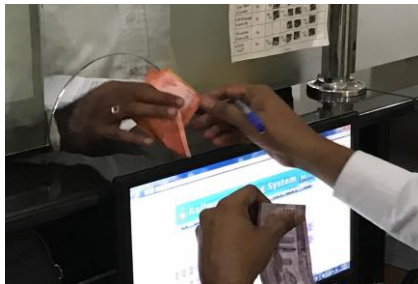
Provide better operational information in a shorter timeframe

Contract will be Design-Build-Maintain: SL Railway will Operate

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New Sales Channels will be provided

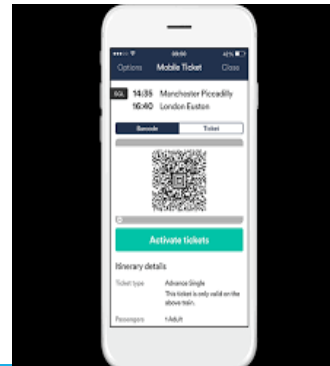
Ticket Type	Station Ticket Office (STO)		Ticket Vending Machine (TVM)		Mobile		Web		Call Centre		3 rd Party Agents/Kiosk	
Journey Type	C	LD	C	LD	C	LD	C	LD	C	LD	C	LD
Single	✓	✓	✓	✓	✓	✓		✓		✓		
Return	✓	✓	✓	✓	✓	✓		✓		✓		
Season (week, month)	✓	✓	Top up	Top up	Top up	Top up	✓	✓	✓	✓	Top up	Top up
Staff / Warrant	✓	✓					✓	✓				
Pay-As-You-Go	✓	✓	Top up	Top up	Top up	Top up	Top up	Top up			Top up	Top up
Payment Method	Cash Card	Cash Card	Card	Card	Card	Card	Card	Card	Cash Card	Cash Card	Cash Card	Cash Card



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Tickets will be available across a range of ticketing media

Ticket	Paper		Mobile		Smart Card	
Journey Type	C	LD	C	LD	C	LD
Single	✓	✓	✓	✓		
Return	✓	✓	✓	✓		
Season (Week, Month)			✓	✓	✓	✓
Staff / Warrant					✓	✓
Pay-As-You-Go (PAYG)					✓	✓



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Existing SLR Ticket Sales Channel and Media

Ticket Channel Ticket Type	Station Ticket Office (STO)			Ticket Vending Machine (TVM)			Mobile			Web			Call Centre			3 rd Party Agents/Kiosk		
Media	Paper	Mobile	Smart Card	Paper	Mobile	Smart Card	Paper	Mobile	Smart Card	Paper	Mobile	Smart Card	Paper	Mobile	Smart Card	Paper	Mobile	Smart Card
Ordinary Single	✓			✓				✓			✓			✓				
Workmen Single (Third Class)	✓			✓				✓						✓				
Intercity Express Ticket	✓			✓				✓		✓	✓		✓	✓				
Special third Class return tickets	✓			✓				✓			✓			✓				
Railcar and unattended halt tickets	✓			✓														
Reservation ticket Double Fare	✓							✓		✓	✓		✓	✓				
Suburban 3 rd Class Return ticket	✓			✓				✓			✓			✓				
Zone Tickets 3 rd class	✓			✓				✓			✓			✓				
Ordinary and Concessionary Season Tickets (2 nd & 3 rd)	✓		✓ Top-up			Top-up		✓	Top-up	✓	✓	Top-up	✓	✓	Top-up			✓ Top-up
Platform tickets	✓			✓				✓			✓			✓				
Book Ticket	✓									✓	✓							
Excess Fare (EFT)	✓																	

Passengers will need to interact more with the system to use a ticket

Entering the Station

- Present ticket to gate / validator to read barcode or smart card
- Ticket Valid – enter the station
- Ticket invalid – Seek Assistance



Major stations will be gated.
Minor stations may have
validators for data collection



On-Board the Train

- Present ticket or smart card to guard for inspection
- Ticket Valid – No problem
- Ticket invalid – Enforcement process



Exiting the Station

- Present ticket to gate / validator to read barcode or smart card
- Ticket Valid – enter the station
- Ticket invalid – Seek Assistance



Proposed System Architecture

Fare media

(Thermal) Paper Ticket



Contactless Ticket
Contactless Card



Printed Barcode Ticket
Mobile Barcode Ticket



Mobile as authentication means
BLE Smartphone
+ Beacons



Front office equipment

Vending equipment

Point of Sales TVM
Unattended TVM / Kiosks
Handheld terminals (On board)
Web Merchant site
Mobile Merchant application



Validation equipment

Validators (unmanned)
Validators (manned)
Access Control gates



Inspection devices

Handheld terminals



Back Office systems

Ticketing System

- CRM
- Fare calculation
- Sales & Distribution
- Fraud Management
- Inventory Management
- Media life cycle management
- Reporting & Analytics
- Equipment supervision
- System Management

Legacy Systems

- Accounting system
- HR system
- Service Planning system
- Other legacy systems ...

3rd Party Systems

- Bank Payment Gateway
- Retailer systems
-

@ PT network scale

Multi network centralized systems

- Media life cycle management
- Revenue clearing
-

@ multi PT network scale

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Real time information will be greatly improved

Data on ticket sales can be provided daily by type and class

Seat reservation information can be updated regularly and communicated to passengers

More information will be available to assist with operational scheduling

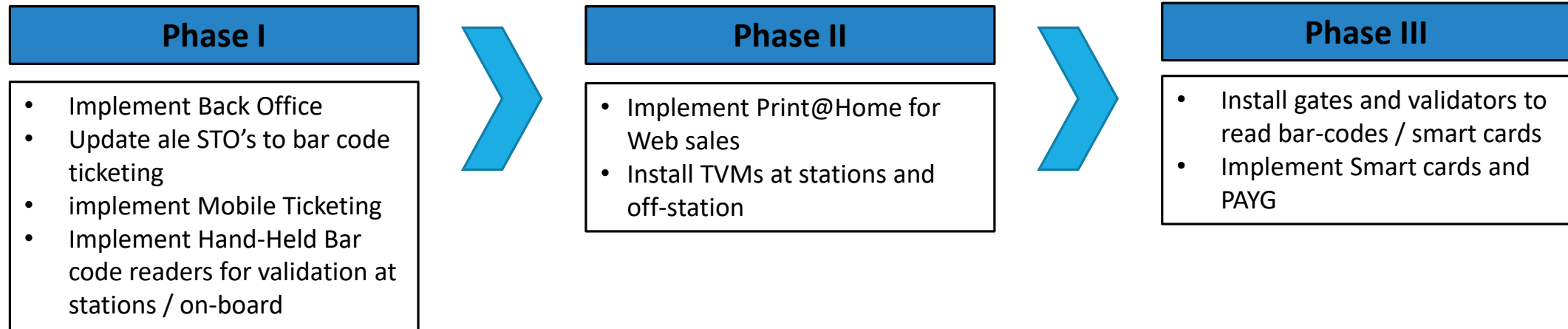
Reports can be generated daily

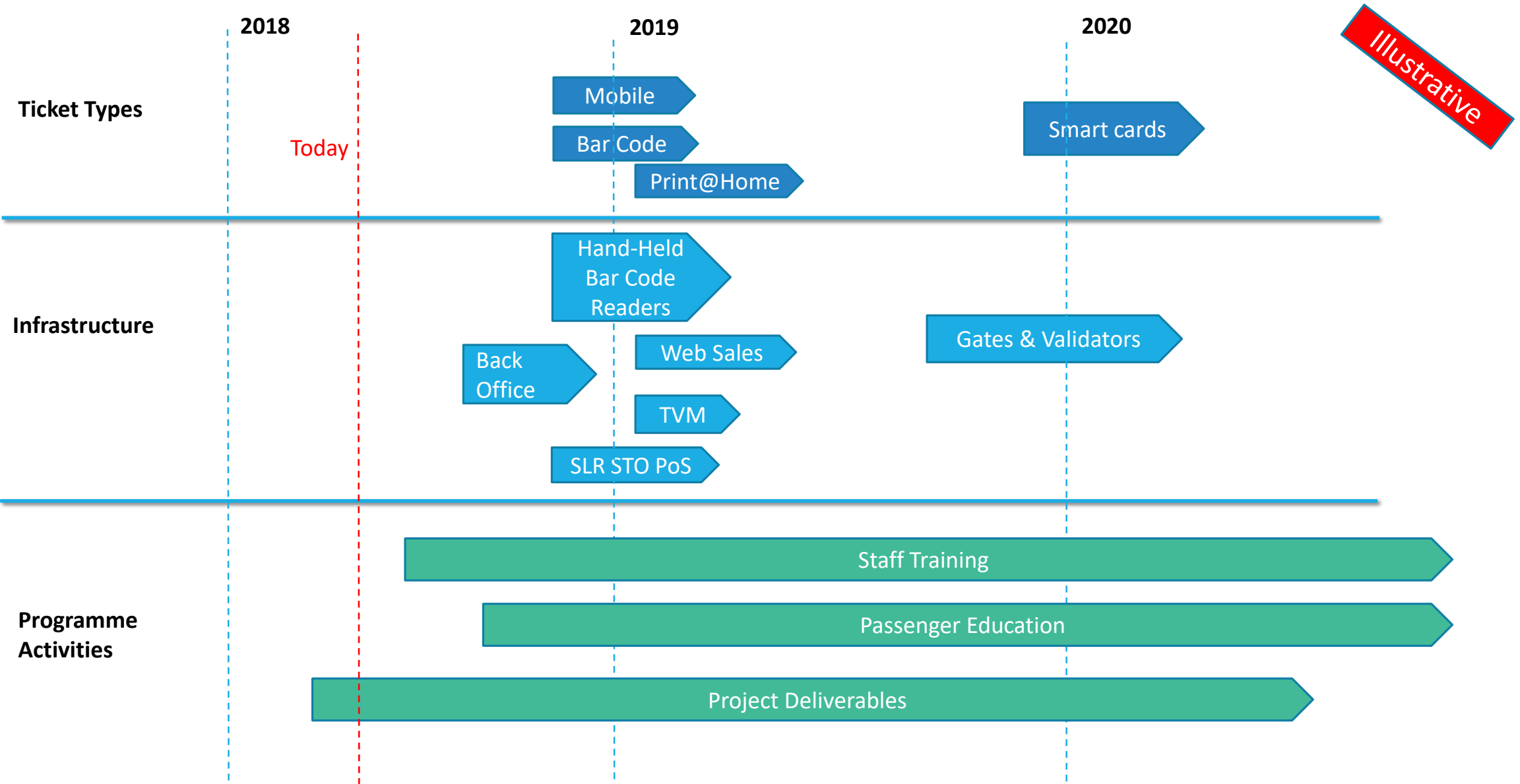
Decision making can be better supported

Mobile phone usage in Sri Lanka

Gender, Sector	Desktop/ Laptop	Smartphone	Tablet computer	Mobile phone
Sri Lanka	38.1	56.9	2.1	2.9
By Sex				
Male	36.8	58.4	1.6	3.2
Female	39.8	55.0	2.7	2.5
Sector				
Urban	40.1	55.4	2.7	1.8
Rural	37.2	57.7	1.8	3.3
Estate	31.7	52.8	1.0	14.6

Proposed Project phases





Company Overview

Burden Consulting is an international management consultancy with offices in Guildford, (UK) and Cork (Ireland). We provide advise and support to clients worldwide, developing payment systems in transport, including fare collection and toll collection systems

Our Services Include:

- Technology Road Mapping
- Technology Strategy
- Market Research
- Business Case Development
- System Design
- Procurement & Evaluation
- Project Management
- Business Development

Some of our clients and partners include:



Burden Consulting

Contact Us



Mike Burden | Director

T: +44 (0)1483 246 362

M: +44 (0)7850 448 134

 [View Mike Burden's LinkedIn Profile](#)

Burden Consulting Ltd

3000 Cathedral Hill
Guildford, GU2 7YB,
United Kingdom

E: mike.burden@burdenconsulting.co.uk

Burden Consulting (Europe) Ltd

Unit 3D, North Point House,
North Point Business Park,
New Mallow Road, Cork,
Ireland

E: info@burdenconsulting.ie

