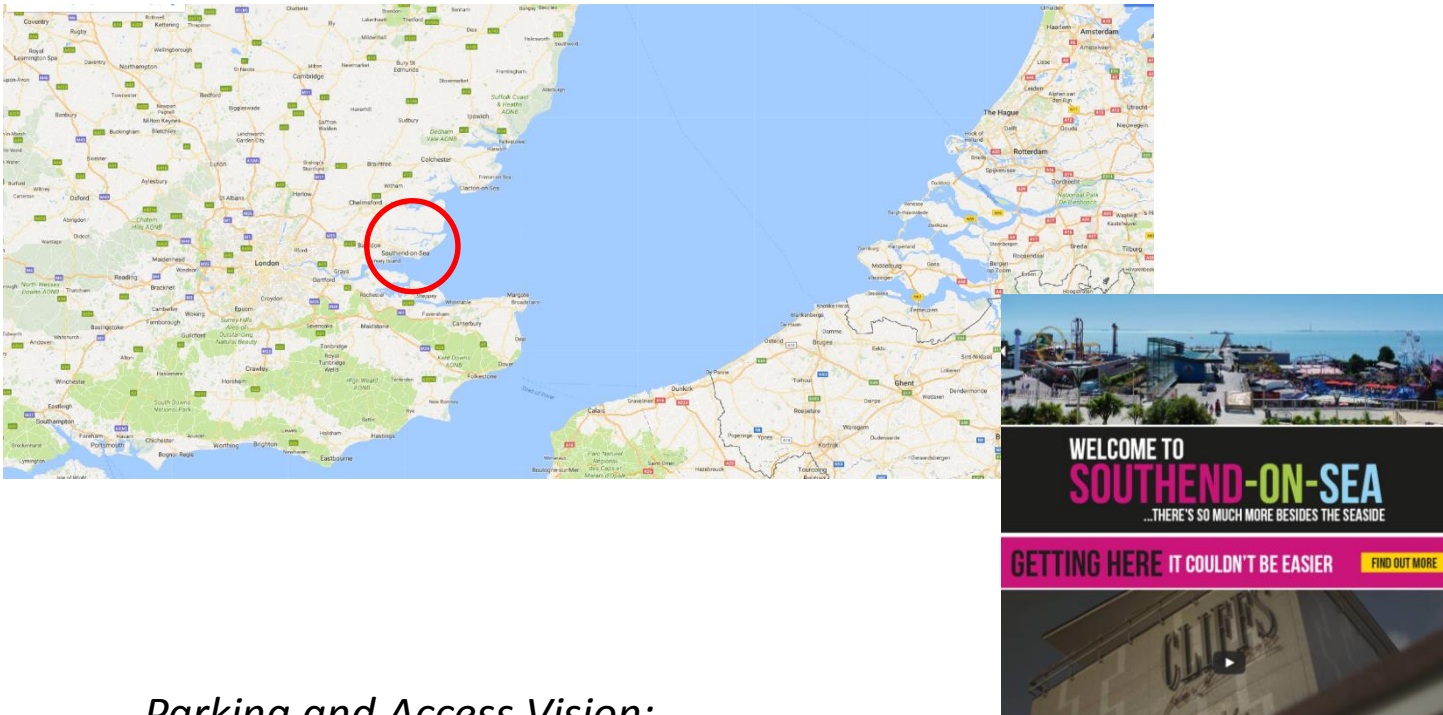


The Digital Context

Polis-CROW-EPA Workshop
19th September 2017 – Rotterdam

Paul Mathieson
Programme Manager Smart City and Mobility Services

Southend on Sea, UK



Parking and Access Vision:

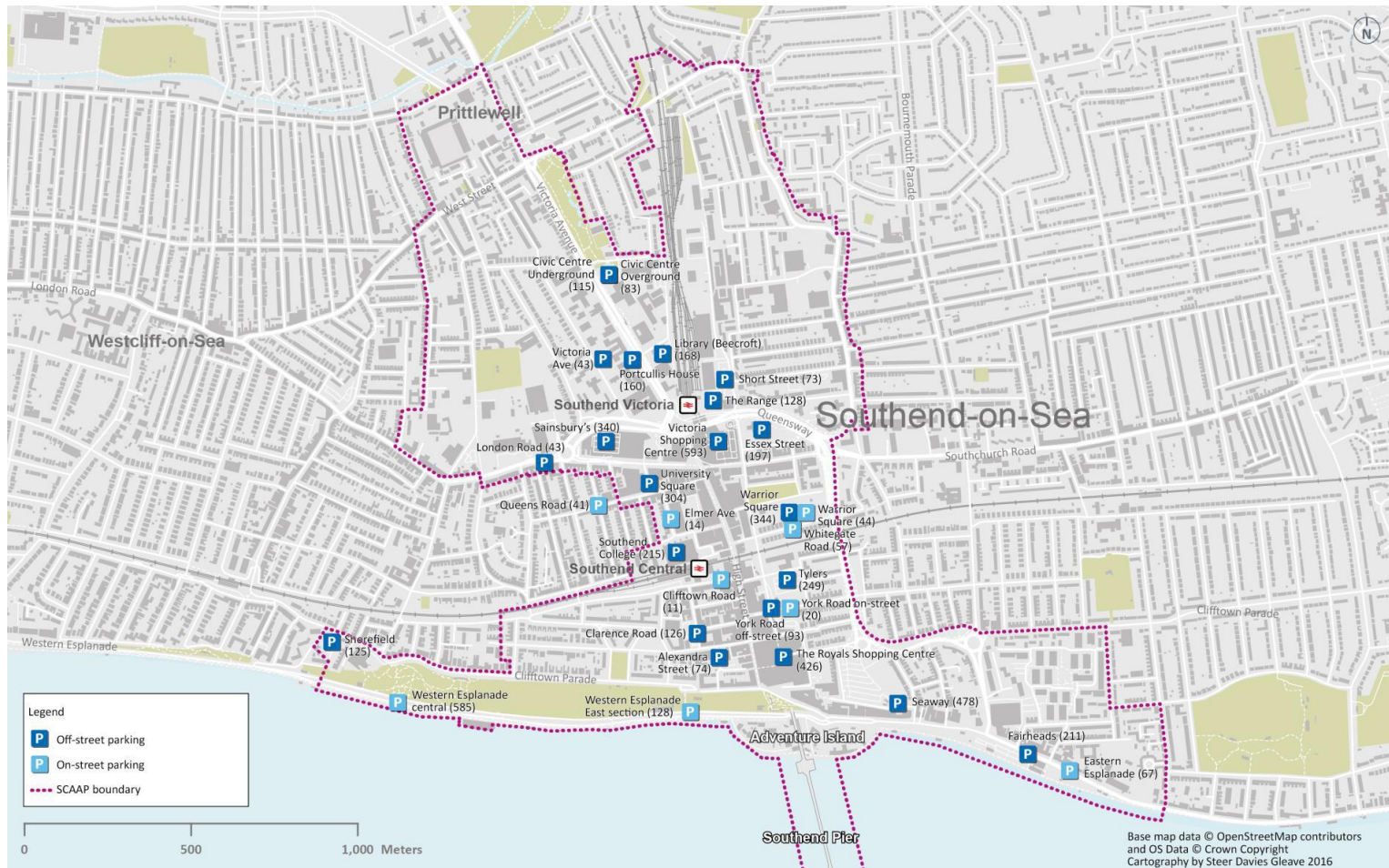
“To provide the best experience for visitors to Southend, by enabling the most convenient location, choice and competitive price when parking in Southend”

Four key principles

1. A smart, modern parking management system is essential for a sustainable urban mobility system, which should manage supply and demand without detrimental effects, supporting air quality improvements and reducing carbon emissions.
2. Pricing of parking should be competitive, flexible and dynamic to achieve best value, better usage and contribute to a prosperous Borough.
3. Traffic “cruising” in search of parking spaces is detrimental to business in the Borough, especially in the Town Centre and Seafront and must be reduced; it also creates congestion, pollution and road safety problems.
4. New initiatives, smart technology and new thinking should be encouraged to deliver better access to and maximum utilisation of parking spaces (both private and public) with the greatest benefit at the most economical and advantageous price.



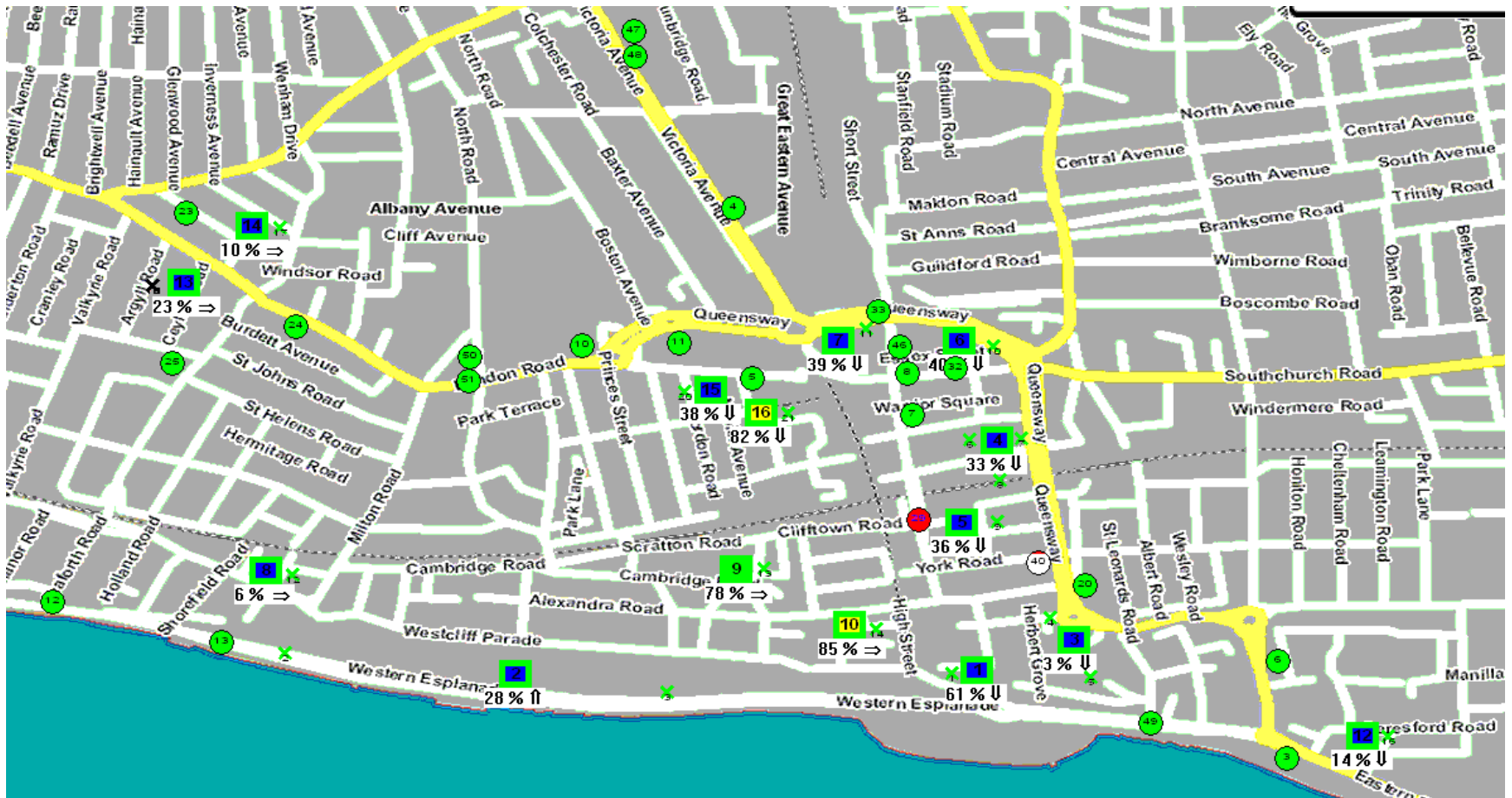
Parking locations in Town Centre and Seafront



Traffic information signs



Car park guidance system



Permanent and temporary parking signs

Sign S47

Car Parks	
Town Centre	
The Victoria Shopping Centre	14 SPACES ¹
University Square College	86 SPACES ²
Essex Street	21 SPACES ³
Warrior Square	FULL ⁴
Tylers Avenue	FULL ⁵
The Royals Shopping Centre	38 SPACES ⁶

Central Seafront



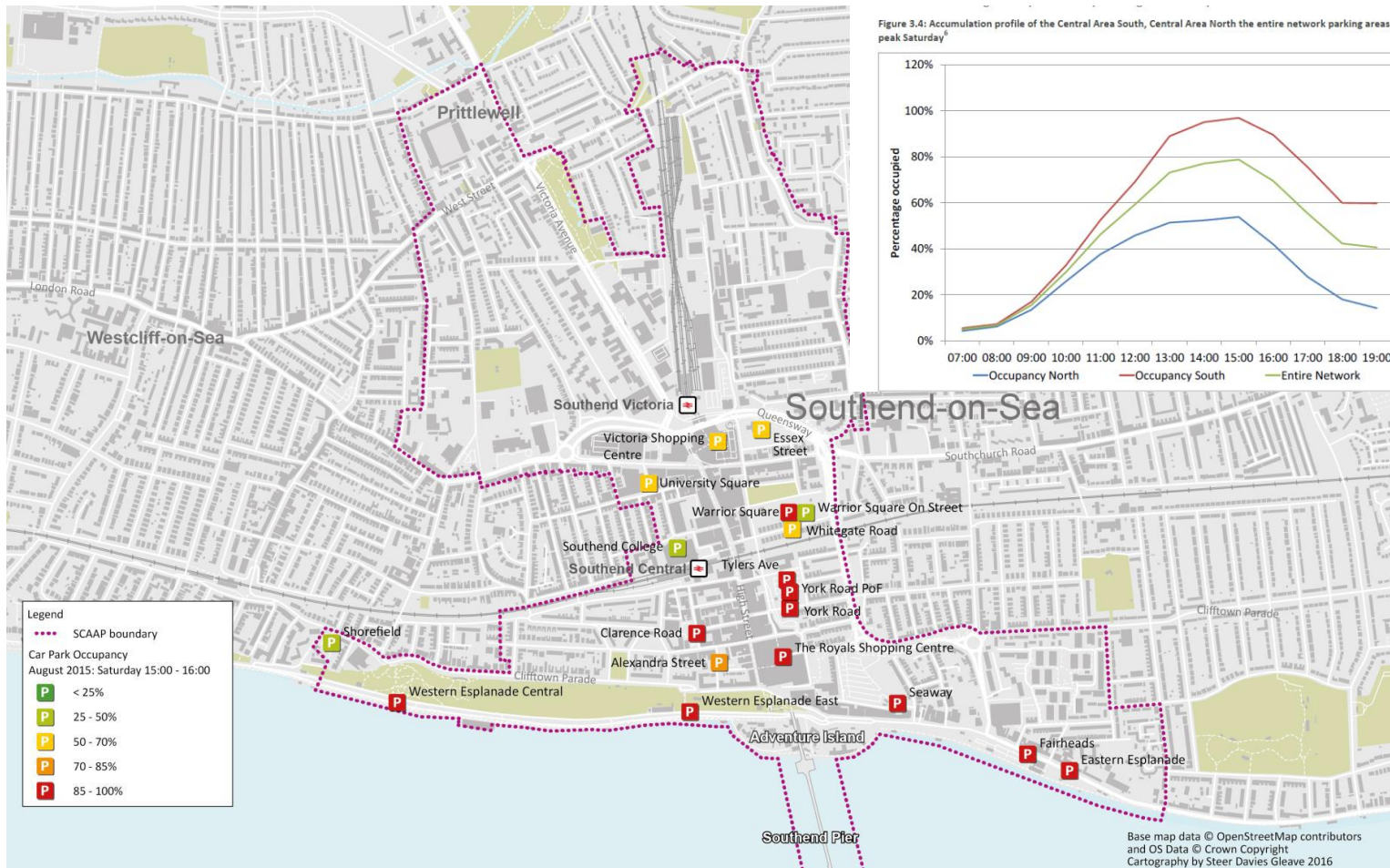
Every city is unique – what are the factors that shape parking supply and demand?

- seasonal variations – what is the significance?
- limitations of existing sites and new developments
- changing travel patterns and demographics
- tariffs and income generation
- parking management and supplier contracts

Typical midweek summer's day.....



Typical Saturday summer's day.....



Data from Swarco system

paces in car parks

Exit Print Help

P 1 The Royals
P 2 Western Esplanade
P 3 Seavay
P 4 Warrior Square
P 5 Tylers Avenue
P 6 Essex Street
P 7 Victoria Shop CNTR
P 8 Shorefield Road

P 9 Clarence Road
P10 Alexandra Road
P12 Fairheads Green
P13 Ceylon Road
P14 Hamlet Court Road
P15 University Square
P16 College

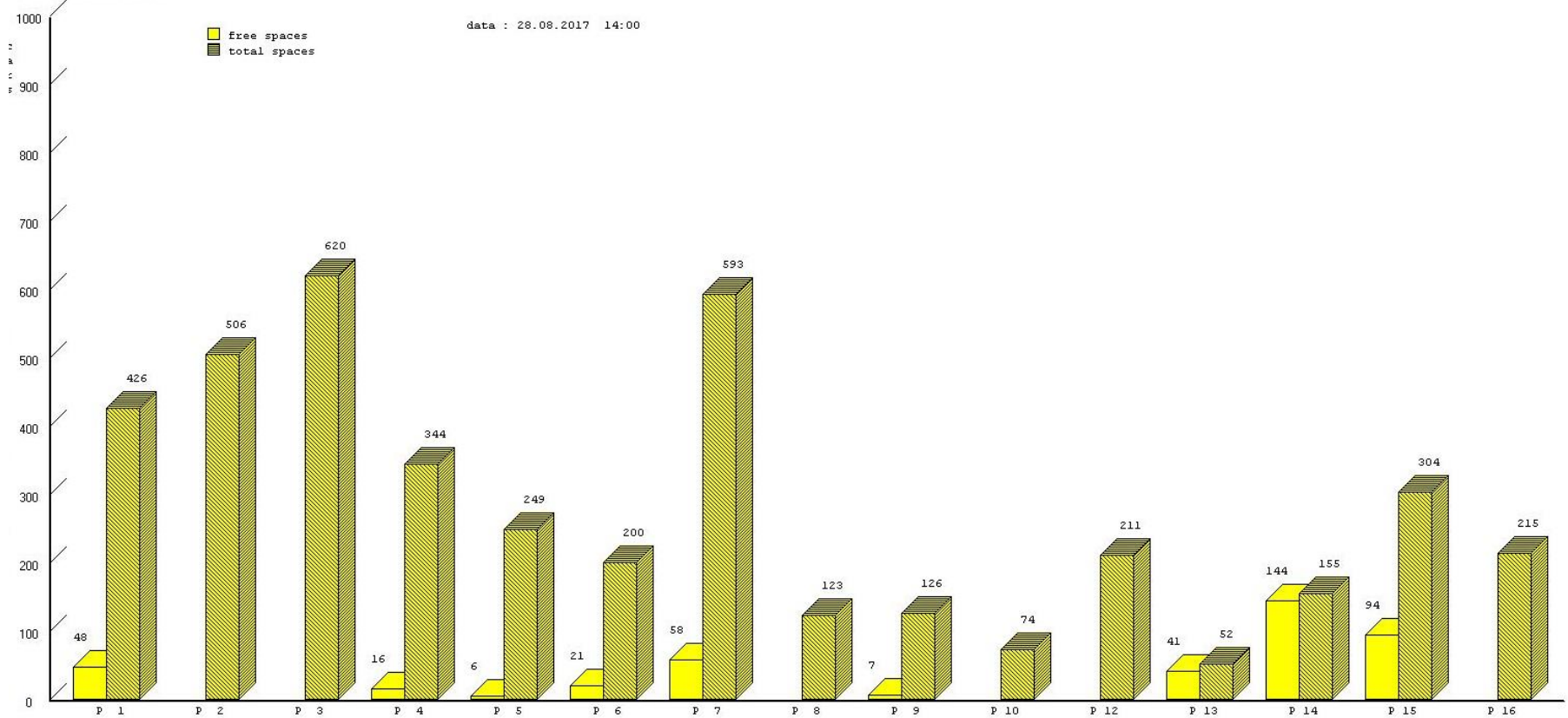


Figure 1: Peak Occupancy of the Central Area Car Parks⁹ (Daily CPOS Records May 2015 to April 2016)

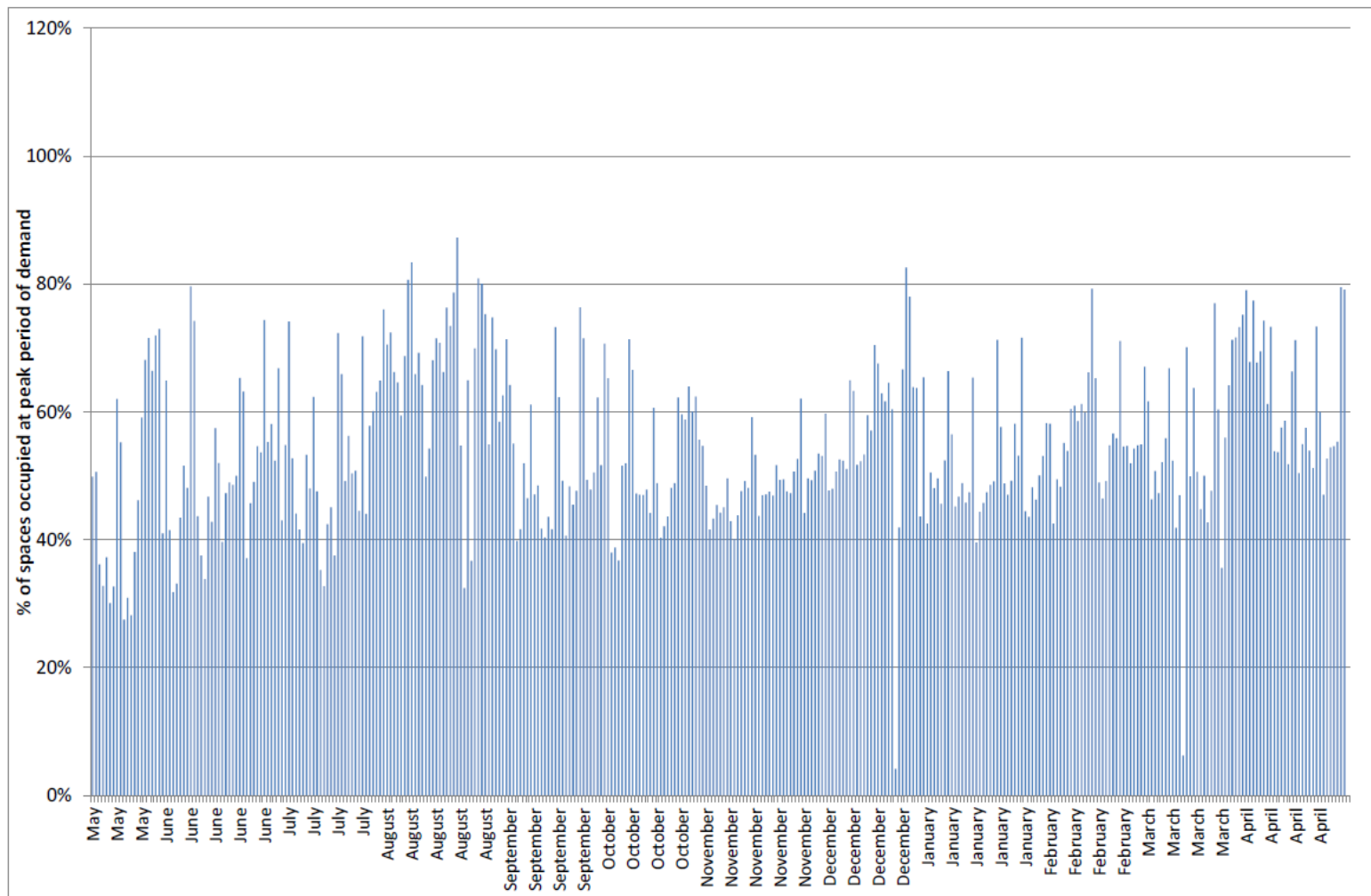
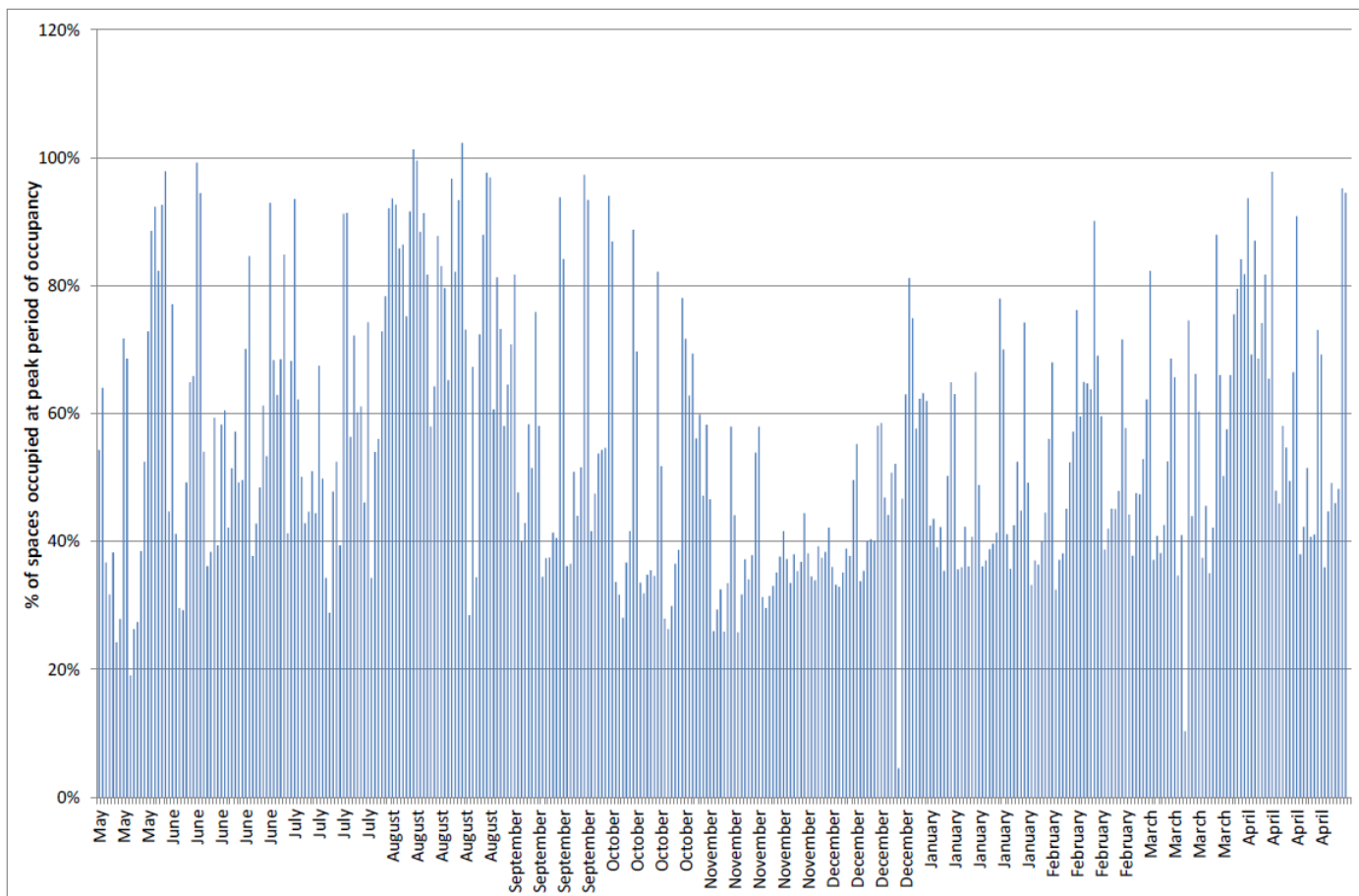


Figure 2: Peak Occupancy of the Central Area 'South'¹⁰ Parking Areas (Daily CPOS Records May 2015 to April 2016)



Media coverage

++VISITORS CAUGHT UP IN A CAR PARKING FRENZY DURING BUSY BANK HOLIDAY



■ Going nowhere - town centre mayhem



■ Gridlock - Queensway queues

■ Long wait - visitors queue in the baking sunshine to get parking tickets at Seaway car park



■ Sweltering - motorists in seafront gridlock



Queues to park in the bank holiday chaos



Parking behaviour and technology

what have we learnt?

- limits to the current system – sharing of data, different systems, lack of coordinated strategies and plans
- numerous suppliers from different backgrounds and tenders with different components eg ticket machines, VMS, traffic management
- greater reliance on information via websites, smartphone apps
- Need to influence behaviour and adaptation
- limitations of older systems and new systems
- integration with wider digital projects – Smart City projects across different service areas

Southend Parking and Access Strategy

- Take forward the Action Plan
- Literature review
- development of the Smart Technology Plan

Smart City Technology Report

Southend-on-Sea Borough Council

Steven Bishop, Ian Bewick
September 2017

Action Plan – digital



Table 1

Strategy Area	Travel Information	Sustainable Access	Parking Management	Parking Supply
Short Term: 1 to 2 years	<u>S1 Improved website and visitor travel app</u>	S2 Rail promotions for discounted rail fares and entry to attractions	<u>S4 Designate long-stay / short-stay car parks for weekends and public holidays during peak season</u>	S7 Encourage weekend and public holiday Park & Ride from Leigh-on-Sea Station.
		S3 Priority parking for car sharing (e.g. High Occupancy Vehicles).	S5 Differential pricing	S8 Engage with employers to identify spare peak period parking supply
			S6 Improve parking payment systems.	
Medium Term: 2 to 5 years		<u>M1 Improved static signage and way finding</u>	<u>M3 Improved VMS and co-ordinated messaging</u>	M4 Park and Ride 'Lite' – making use of existing assets
		M2 Integrated bike hire and e-car club		
Long Term: 5 to 10 years	<u>L1 Ability to reserve and pay for parking in Southend at specified car parks / on-street parking bays.</u>		<u>L2 Dynamic parking</u>	L3 Additional parking supply in the south of the Central Area.

Pain points

of UK travellers. The study notes that “75% of all journeys made in the UK are subject to negative experiences (i.e. pain-points), many of which may be addressed with Intelligent Mobility solutions”, highlighting both the need for improvements to service, and the potential role of smart technologies in this process.

12% due to parking

More specifically, the study found that parking-related pain-points are encountered in 12% of UK journeys, with the average driver spending “over 6.45 minutes searching for a parking space on each journey”. Findings from interview surveys with residents and visitors to Southend town centre and seafront conducted on behalf of Southend-on-Sea Borough Council in 2016 gave an indication of the extent to which Southend’s visitors experience these pain-points: in March, 7% of respondents reported having to make more than one attempt to park, while in May this proportion increased to 22%.

22% > one attempt to park

Smart parking bays

The Transport Systems Catapult report emphasises the importance of “a sufficiently high coverage of ‘smart parking bays’” in order to achieve a “tangible reduction in time spent searching for parking”. A solution blending a selection of the “plethora” of available technologies, including road sensors, CCTV (image recognition), vehicle connectivity, and crowdsourced information, is suggested to be likely to provide the most value. The authors also suggest that local authorities should be given the freedom to conduct “trials and experimentation” in the development of parking

Blended solutions

46% won't
pay fee

However, the survey also advises caution when considering the propensity of users to adopt new parking technologies – 46% of UK drivers surveyed said they would not be willing to pay a fee, on top of the parking charge, to use an app or related technology to pay for their parking.

Even
preferences
for payment

Their survey also revealed a very even distribution in preferences of payment methods. 28% of respondents preferred to pay cash at a machine, 27% to pay card at a machine, 20% to use a payment system integrated into their navigation, while 25% preferred to use a separate mobile app.

Appetite for
smart parking
solutions

Encouragingly, the study found that there is a clear appetite among UK travellers to use smarter parking solutions, determining that drivers would be willing to pay an additional £0.42 per journey “to be able to reserve a parking space and be guided to it”. Overall, the study concluded that UK travellers are generally “progressive and ready for new developments in mobility”:

- 57% of respondents were open to sharing their personal data in order to get a better service.
- Smartphone penetration in the UK is currently at 72%, and growing. 54% of smartphone owners consider it essential to their journey.

In July 2017, INRIX Research, a private research company with a focus on optimising movements of people and goods, published a paper titled “The Impact of Parking Pain in the US, UK and Germany”. Their study draws upon the INRIX Parking

In simple terms, the INRIX report demonstrates that “parking pain is a universal problem that imposes significant economic and non-economic costs”, and that there is “tremendous enthusiasm among drivers for solutions”. INRIX are optimistic that “many of these parking pains can be eased by technology”.

A survey of 18,000 drivers by INRIX investigated the most desirable functionalities of such technologies:

Feature	% of drivers who would either “like to” or “love to” use a technology with this feature
Compare closest and cheapest parking	81%
Real-time parking availability	84%
Advanced parking reservation	71%
Advanced payment	62%
Navigation with parking	80%

Why do parking managers need to understand digital technology?

Summary diagram of existing situation (Summer 2017)



Short-term (< 6 months)

Immediate fix (4-6 weeks):

- Interactive map of car park data, presenting the same real-time car park data, but in a more aesthetically-pleasing format.
- Integrate historical data on parking space occupancy by time of day to provide users with more details on when and where to park.
- Additionally, with stronger marketing more value can be gained from the existing APCOA Connect system; encouraging greater uptake of the system while it is still in place will allow more insight to be gained, while also familiarising more of Southend's users to a new technology.
- Launch of new Mobon app to promote contactless payment

Recently launched interactive parking map

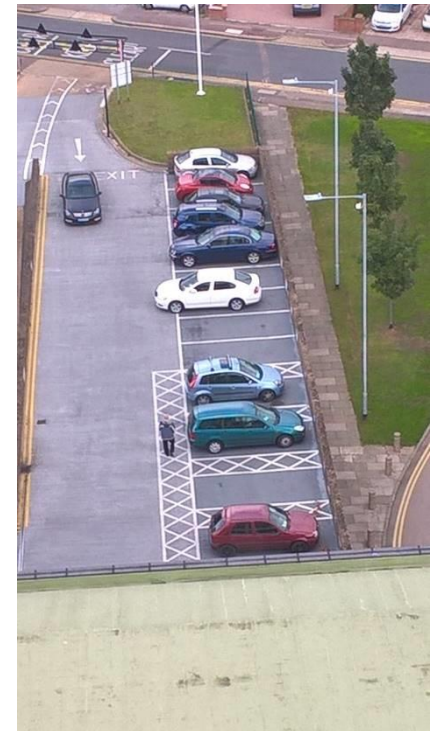
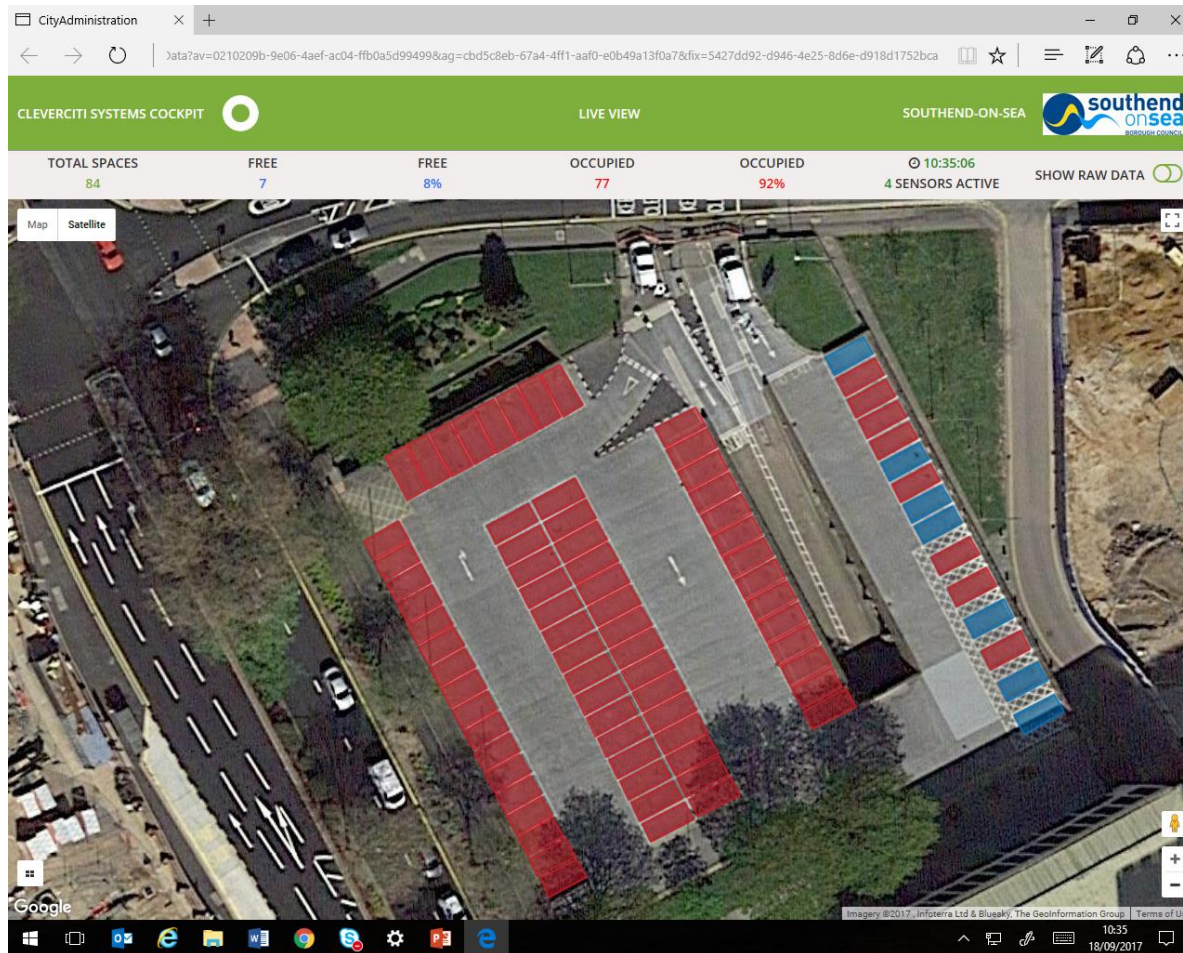


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Car park bay monitoring



Medium-term (6 months-1 year)

In the medium term, it will be essential to assess the current situation, and plan ahead for an integrated smart city platform. The aim is to develop a strong understanding of the situation and arrange all the building blocks, in order to be able to host an integrated data platform in approximately one year.

- which technologies are currently in place;
- which are future-proof, and therefore able to integrate into a platform;
- which are in need of repair or replacement; and,
- which are outdated, and will need to be upgraded to an entirely new technology.

This phase also represents a great opportunity to run trials of new solutions alongside those currently in place, in order to gauge the receptiveness of users to changes before making a large investment.

												
Dynniq	Cisco	InTechnology	Siemens	Conduent	APCOA	CleverCiti	Swarco	AppyParking	Parquery	Parkopedia	SmartParking	Everyday Travel App

Long-term (> 1 year)

Combine feeds

With a robust data platform set up, combining feeds from an array of different sensors and sources, attention can then be turned to how to maximise the value of this data.

Integrate data

The opportunities are extremely broad to integrate transport data with data from numerous other sectors, including weather, retail and pollution, to help users plan their visits to Southend, incentivise them with discounts in their favourite shops, and make the town more accessible and sustainable.

Push data out

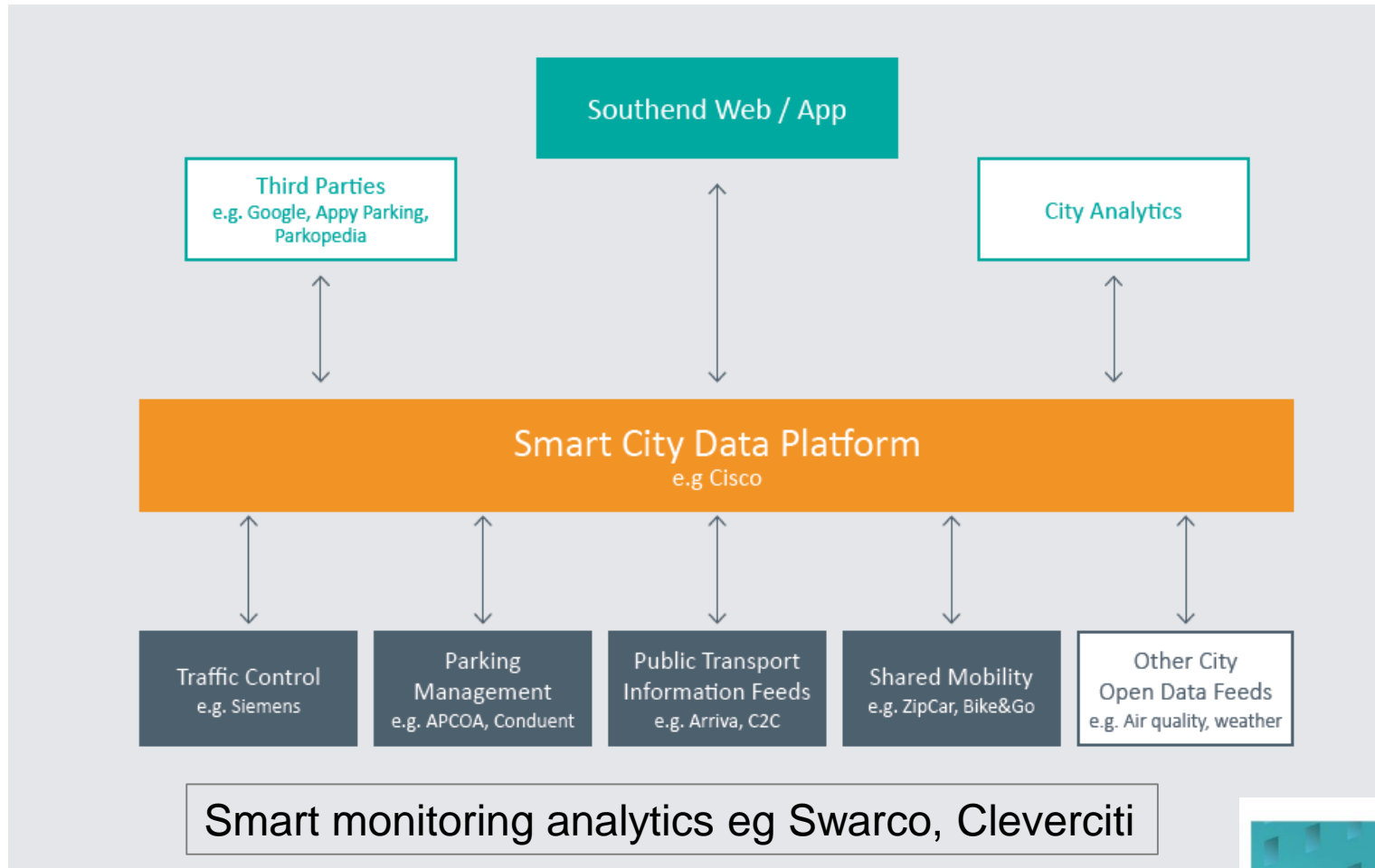
Alongside the physical infrastructure, the Council will also need to consider how to develop policies that are compatible with new technologies in the context of the growing role of data. Particularly, the Council should consider the extent of its own role in pushing transport data to the public.

New data platform

Creating a robust data platform and reliable, access-controlled APIs will provide an opportunity for third party developers to innovate, building new apps and services which can process the collected data to provide novel value to consumers.

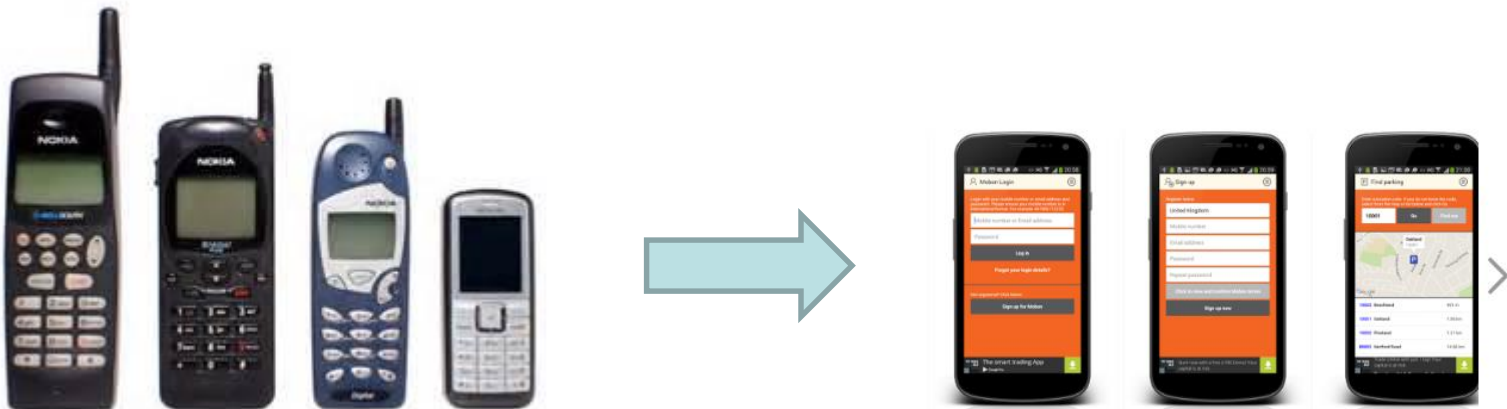
Access to data

Access to the data should be carefully managed to ensure the Council gets a good return from third parties in exchange for this valuable data.



Next steps

- A more in-depth visioning exercise, built upon evidence of user needs, city management requirements and delivery capability.
- A review of current assets, infrastructure and providers.
- Analysis of which technology solutions are needed to make the smart city vision a reality – the gaps in the current service which need to be filled.
- Selection of suppliers for these technologies based on their strengths.





The Williams Family

Impacts of technical innovations on the user experience

PRE-TRIP

On the morning of the family trip to the seaside, Laura goes to the Visit Southend website to plan her journey to Southend with her husband and two children. Bearing in mind the family and luggage on board, she decides to drive the family e-car. She finds her way easily to the travel information page, and finds an interactive map with live availability of parking spaces and charging points across Southend.

She compares prices and availability, and decides that she would be happy to pay a slight premium to reserve a space near the seafront. With a few clicks of the mouse, she has reserved and paid for a space in the Seaways car park.

DURING TRIP

Laura's connected car receives an update from the Southend traffic management system, informing her of a crash and recommending an alternative route. She is guided by VMS signs, and by push notifications to her phone and sat nav. The broad improvements to traffic management procedures across the borough have reduced congestion, allowing the family to reach the seafront with minimal delay in spite of the roadworks and crash.

NAVIGATING SOUTHEND

Upon arriving at Southend, finding their parking space is a breeze. There are far fewer vehicles circling the town searching for parking – fewer people drive to Southend these days as a result of behaviour change initiatives (such as the journey planner tool on the website highlighting available public transport options), and the majority of drivers in Southend have already reserved spaces. Additionally, Laura's sat nav provides her with clear directions to the Seaways car park.

PARKING

The barrier at the entrance raises automatically as a camera recognizes her number plate. Laura proceeds to park in an available space and plugs the e-car in to recharge. Having already paid, she doesn't worry about digging in her pockets for cash or searching for a ticket machine; instead, the family grab their luggage and head straight for the beach.

END OF TRIP

Towards the end of the day, a message to Laura's phone notifies her that her booking has almost run out, giving her plenty of time to pack up the bags and wander back to the car with the family. She quickly checks her phone for travel updates and finds that the crash has been cleared, so decides to take the more direct route home.