

nextcity 

Keeping tomorrow on the move



## Journey experiences: Cubic looks toward Nextcity...

The global population is growing at a tremendous rate, metropolitan and suburban areas are 'morphing' into mega-cities reducing the distance between those cities, towns and commercial and industrial districts. As a global population, we're all increasingly aware of the environmental impact of our journey choices and the need to change our behaviours.

All of these factors add up to more transport journeys and a notable need to consider how each of us will go about our journeys in the future.

Ever at the forefront of transport innovation, Cubic has a vision for how to help keep the world on the move into that evolving future – Nextcity. Managing director for Cubic Australasia, Matt Cole, gives us an insight to the possibilities that Nextcity opens up...

### Welcome to Nextcity

In the future, governments, regulators and planners will be under greater pressure to identify more innovative ways to build new, and increase existing, transport infrastructure capacity within major city constraints. However, infrastructure alone will not be enough to manage the sizeable challenges of how the transportation landscape will change in the future.

Consequently, transport stakeholders will be under increasing pressure to find ways to predict, influence – and then manage – transport demand so that it can be best met and optimised, safely, with existing transport supply capacity. It's clear that this will require the capture of higher-quality, truly integrated, real-time and concise information about how a city's population is choosing to move and – most importantly – why that population moves in the way that it does, whether it's by public transport, personal vehicle, taxis, bicycles or any other mode of travel.

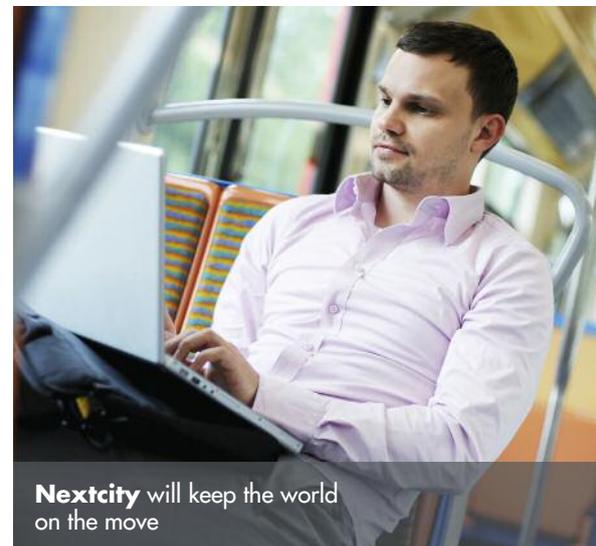
And so, welcome to Nextcity – Cubic's vision for a fully-integrated, whole-of-transport, journey and payments

management system that will enable transport operators to regulate demand by setting fees across all modes within a region, as well as empower their customers with information to manage how they travel.

### Fare factors

As it is today, a person's journey choice is going to be influenced by three factors: the overall cost, the timeliness and reliability of the journey mode. Going forward, we can expect to add a fourth dimension: environmental impact. If transport stakeholders can understand, at a macro and micro level, which factors are most prevalent in causing congestion points and bottlenecks in their cities, they can take appropriate action to vary these factors to influence demand and therefore maximise supply. To do this they will require more dynamic systems.

Attempts are already being made to address this. In public transport, operators have attempted to level demand using peak and off-peak fares. In private transport modes, particularly motor vehicles, regulators have tried to

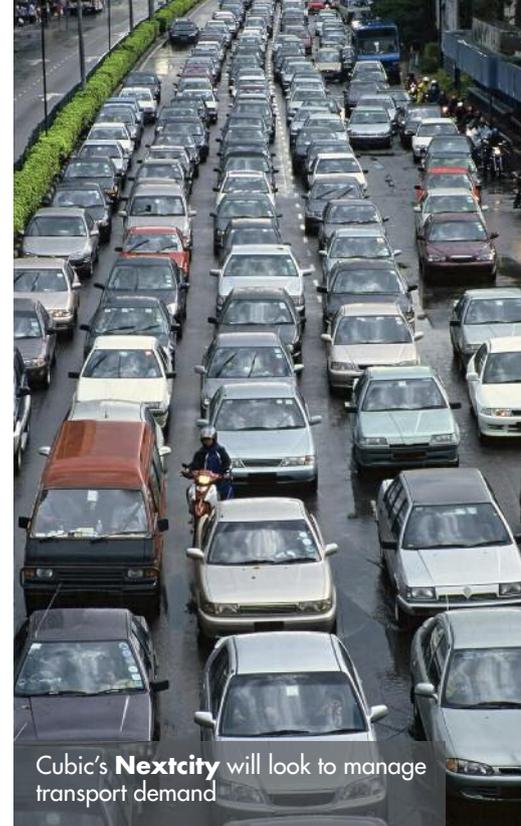


**Nextcity** will keep the world on the move

manage demand by increasing parking costs, introducing toll systems, and latterly, variable tolls, with congestion charging being the most recent method of demand management. These solutions are playing an important role – but to be effective the whole-of-transport must be integrated.



Metropolitan and suburban areas are 'morphing' into mega-cities



Cubic's **Nextcity** will look to manage transport demand

### Data power

For many years, Cubic has been keeping the world of public transport on the move with their smart-enabled integrated Automated Fare Collection (AFC) systems. Transport operators that have deployed Cubic's systems have enjoyed the major benefits that integrated electronic payments systems have had on their transport operations. Taking payments away from points of boarding – such as at the driver's door of a bus – has had a tangible impact on journey speed and reliability, with some operators being able to rewrite bus timetables as a result of reduced boarding times. However, the real benefit has been derived from integrated information and integrated fare structures. Accurate and frequently

collected passenger data empowers transport operators' decision-making processes.

Electronic payment equals electronic journey transactions which in turn equals data, which, with the right system, becomes information. Cities and regions with an integrated AFC system, such as the Oyster® card in London, the Clipper® card in San Francisco and the go card in Brisbane, have been able to access a wealth of data on what their ridership is doing – where they come from, where they go, the route they take and the times at which they travel. Better understanding of demand allows for better understanding of supply and capacity needs.

Operators with integrated AFC systems have also been able to offer integrated and more dynamic fare structures. Cubic

systems around the world offer a wide range of integrated fare policies directed at rewarding multi-modal passengers who utilise the whole public transport system. The list is endless, from free transfers, daily, weekly, monthly, yearly products, pay-as-you go usage that 'caps' at the equivalent daily or weekly product, loyalty of usage discounts over a variety of time periods, to dynamic and configurable peak/off-peak pricing. The commonality is that the integrated fare policy exists to optimise the demand-supply of the whole public transport network and as a result, in all of these cities, the public transport fare structure can be extremely complex without providing any burden to the passenger, who is able to 'set and forget' and be reassured they will get the best fare based on their usage.



**Nextcity** can integrate with the payment and information systems of other transport modes



Nextcontact will provide the public with live transport updates

## Nextcity heralds the future

Public transport is the best possible starting point for Nextcity. The learning and benefits derived in public transport can now be taken in to the whole-of-transport environment and integrated into private modes of transport such as bicycles, motor vehicles (parking, tolling, congestion charging, electronic refuelling), long-distance rail and commuter flights and so on. Nextcity will be a platform of Cubic systems that can integrate with the other payment and information systems of other transport modes without the need to replace any of the existing infrastructures.

The platform will be the next evolution of Nextfare®, Cubic's AFC platform that has already been deployed in over a dozen cities and regions around the world, including Miami, Los Angeles, San Diego, Minneapolis, San Francisco, Atlanta, New Jersey-Philadelphia, New Jersey-New York and Brisbane.

Cities with the Nextcity platform will be able to have a single Customer Relationship Management (CRM) portal called 'Nextcontact'. This will be web, mobile and smart-phone enabled for their entire population to receive 'push and pull' information on a customised basis for all modes of transport, both public and private. Cities will be enabled to educate their population – on a real-time basis – of the cost, timeliness, reliability and environmental impact of their personal journey choices.

Cities with the Nextcity platform will have a single data repository called 'Nextinfo' which will provide dynamic, integrated, configurable and real-time valuable information on all journeys occurring within each city. Creating an holistic view of a city's transport journeys will remove the information silos that currently exist among the different operators, agencies and regulators and empower these transport stakeholders to understand the demand for, and use of, the existing transport infrastructure to best determine where excess capacity exists, and where new capacity is required.

Finally, cities with the Nextcity platform will be able to create an integrated charging policy utilising a single account-management and payments engine called 'Nextaccount'.

This payments engine will leverage Cubic's ability – already proven within the global public transportation industry – to configure extremely complex and multi-modal fare structures and provide transport stakeholders with the ability to charge for the use of the public and private transport assets on a whole-of-transport basis. All of the benefits and flexibility of the public transport fare structure could now be extended to include bicycle schemes, tolling, parking, congestion charging and even taxi rides, without the need for major infrastructure replacement.

Accounts within Nextaccount could even be linked so that the fare policy

could apply to a whole family's journey choices, not just an individual's. When linked with a settlement and clearing system, 'Nextledger', the city would also be able to automate the monetary flows and reconciliations between all of the city's transport operators.

The opportunity to understand, predict, manage and influence the use of Nextcity's transport asset will be significant. It's what is needed in global cities and it's what is coming next: so be on the look-out for Cubic's 'Nextcity'.

Cubic is actively developing the 'Next' family of systems that will make Nextcity concepts a reality. Look for our regular updates in Collection Point in forthcoming issues, but please contact [nextcity@cubic.com](mailto:nextcity@cubic.com) for interim information.

nextcity

nextledger

nextfare

nextcontact

nextaccount

nextinfo

## What's next from Cubic? ...The Nextcity family

### Nextfare

A suite of software products that are designed to work as a system and together function as an end-to-end mass-public transport fare collection system for multiple transport agencies. Integrated into more than 15 systems around the world, the Nextfare platform has been designed such that the majority of the software is 'common' to all agencies and only specific and configurable parts of the system are agency distinct.

The system can only accept payment media (i.e. magnetic tickets or contactless smartcards) that carry the agency-specific security keys and is therefore not interoperable with payment media from other payments systems. In this offering the transactions are created by the interaction between the payment media and the reader sitting within the payment device.

The Nextfare central system includes the fare collection and payments engine, CRM systems, data and information management systems, asset and device service management systems and a settlement and clearing system.

### Nextaccount

A next-generation account-based fare collection and payments engine designed to work as part of a complete transport fare collection and payments system for multiple transport agencies. The central system has been designed such that the majority of the software is 'common' to

all agencies and only specific and configurable parts of the system are agency specific. Cubic will be rolling it out in PATCO and Vancouver, and is also working with London on their implementation of bankcard – or account-based – ticketing.

The Nextaccount payments system uses serialised payment media (a bank card, transport smart card, NFC phone, for example) as an account token, and creates transactions centrally, by account, from captured transaction fragments. The token can be understood by any readable device with adequate security provisions for communicating in the required protocol.

Nextaccount can co-exist with other end-to-end transport legacy fare collection systems (such as Cubic Nextfare) and leverage the other functions within those systems. It can also be deployed in conjunction with other next-generation Cubic central systems – Nextledger, Nextcontact, Nextdata, Nextinfo.

### Nextledger

An integrated suite of next-generation Cubic central system products and commercial off-the-shelf (COTS) third-party products which will serve as an integrated clearing and settlement system. Nextaccount will record all of the transportation journey transactions and output to Nextledger the necessary accounting and monetary adjustments that need to be made. Nextledger will

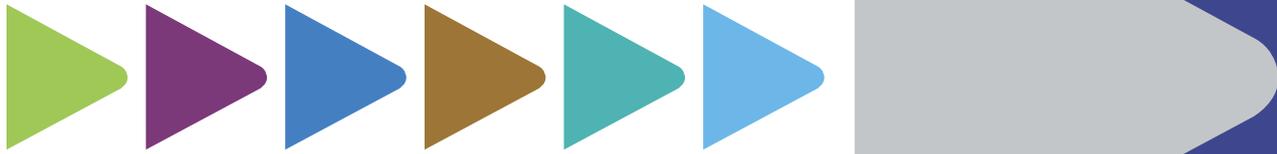
then connect with the banking system to action the necessary inter-agency monetary transactions.

### Nextcontact

An integrated suite of next-generation Cubic central system products and COTS third-party products which will serve as a web and smart-phone enabled transport fare collection CRM platform comprising customer-assisted channels such as retail points of sale, Integrated Voice Response (IVR)/call centre systems and customer information and data repository. Nextcontact will also include customer self-service channels such as interactive website, mobile website, smart-phone applications and Short Message System (SMS) capability.

### Nextinfo

A next-generation Cubic Management Information System (MIS) central system product which pulls data from all operating systems within a transport environment and integrates and presents the data in real-time, interactive information formats to enable transport stakeholders to understand the travel patterns within the city.



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