



## Enabling Smarter Cities

LEGIC's Security Platform gives developers of Smart City services the power to authenticate and manage urban infrastructure, resources, vehicles and the people that use them based on secure online or offline connectivity.

**By 2050, 70% of the world's population will live in cities. Smart City technology implementing secure connectivity, authentication and credential management will be essential to satisfy the mobility, housing, security, infrastructure, and educational needs of the growing population.**

At LEGIC, we believe designers of Smart City applications need to manage how people use infrastructure and services such as buildings, shops, transportation, schools and attractions. Properly managing users and how they interact with a city's resources increases security, convenience, and efficiency.

As a leader in contactless smartcard and smartphone authentication and credential management, LEGIC's Security Platform enables Smart City service providers to securely manage users while personalizing their offerings. This results in services that are more attractive and usable, with lower operational costs.

# Don't just manage things ...



## City Infrastructure

Matching parking, public transportation, infrastructure access, tourism and social inclusion services to individual requirements depends on secure asset, device and credential management. This is where we excel.



## Mobility

For mobility services such as car sharing, micro-mobility, fleet management or e-charging networks, the use of LEGIC technology enables secure authentication of users as well as e-payment solutions via smartcards or smartphones, both online and offline.



## Smart Living

LEGIC's ICs and software services enable secure, autonomous access control to homes and rooms, home sharing, and personalized management of environmental, lighting and security conditions based on individual credentials.



## Automotive

Automotive OEMs are adopting virtual key systems for vehicle entry, ignition, personalization and trunk delivery. Hardware-based security, online/offline operation and dynamic management of a user's key configuration over-the-air is made possible by LEGIC.



## Smart Retail

Smartphone-based retail services are the future of mobile shopping. Matching products and shops with mobile consumers depends on Bluetooth® communications, customer profiling and secure authentication of shoppers on the go.



## Campus

Campus applications from classroom access to vending to follow-me printing and many other services become contactless and user-friendly thanks to LEGIC's technology which offers scalable security and convenient integration of smartcards and smartphones.

## LEGIC's Security Platform enables:

- ✓ **Device registration and authentication**  
Based on Hardware Root of Trust and state-of-the-art encryption
- ✓ **Device and infrastructure access and control**  
Based on autonomous smartcard / smartphone and multifactor authentication
- ✓ **Secure provisioning of individual credentials**  
Who can use what, when and where based on personal credentials
- ✓ **Collection of usage-based data**  
Who used what for how long, when and where
- ✓ **Scalable user authentication**  
PIN, Two-Factor Authentication or biometrics
- ✓ **High-security storage and processing**  
Based on certified Secure Element (EAL5+)
- ✓ **Programmable secure environment (EAL5+)**  
For hosting your embedded Smart City apps
- ✓ **Low-power online/offline capability**  
Ideal for battery-powered apps where both user and infrastructure may be offline such as in park houses

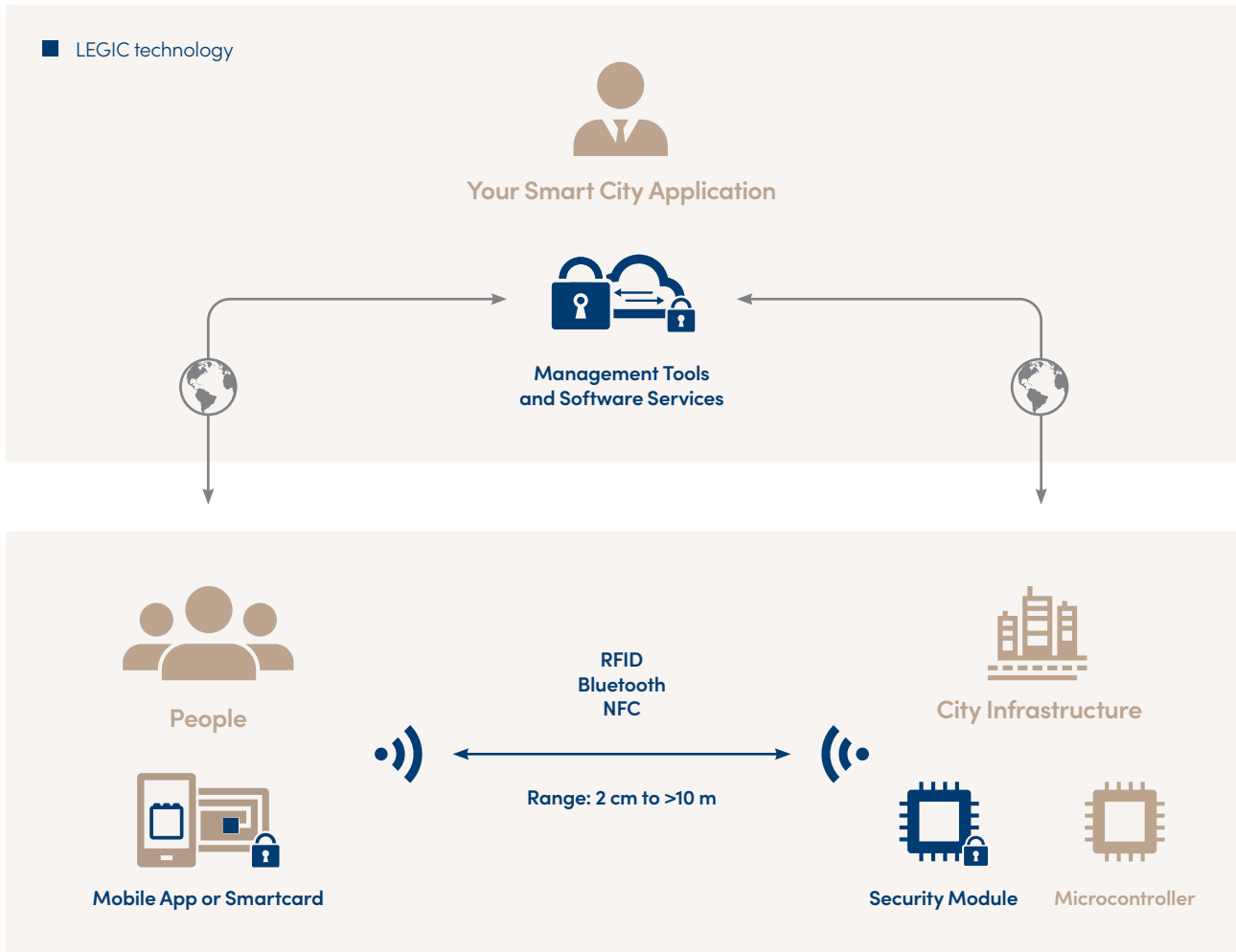
... manage how  
people use things.



## LEGIC Security Platform

# Enabling secure interactions between people and things

With LEGIC's connected Security Platform, Smart City applications can remotely authenticate, manage, and monitor the interactions between people, devices and infrastructure based on individual user credentials.



With LEGIC's Security Platform, Smart City services can:

- Manage over-the-air who may use what, where and for how long, such as **shared vehicles or tourist pass**
- Provision **smartphone access to transportation, venues or e-charging infrastructure**
- Monitor service usage for marketing, maintenance and billing for **mobile retail or mobility services**
- Implement follow-me services such as personalized **virtual terminals and printing**
- Integrate closed-loop **e-payment for vending, restaurant/canteen and micromobility services**
- Exchange secure messages between services and infrastructure to **keep service providers informed**
- Administer access rights and preferences for **car sharing users** such as rental times, navigation and comfort settings
- Send **targeted messages, special offers, and alerts** directly to the relevant audience
- **Operate offline and without mains power** – battery, online/offline operation are supported

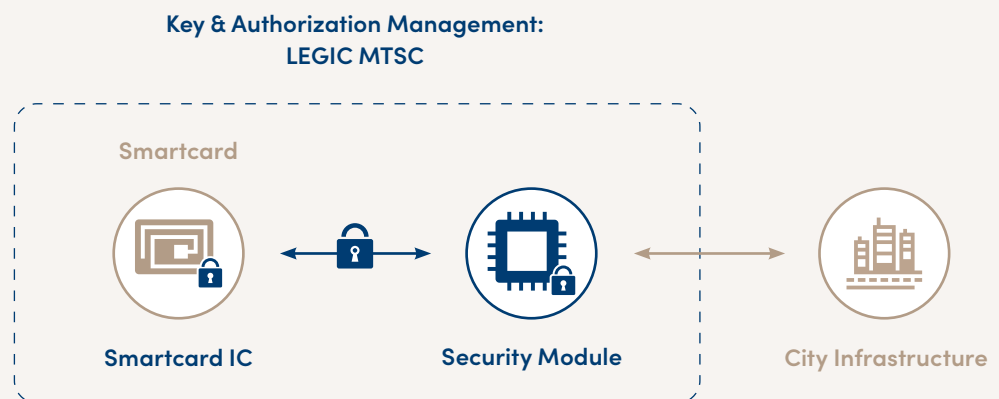
# Smartphone solution

- Long-range contactless communications >10 m
- Integrable with 3rd party smartphone apps
- Display supports interactive information
- Instant, remotely updatable/revocable permissioning – both online and offline
- Built-in multifactor / biometric GDPR-compliant authentication capability
- Real-time over-the-air software updates
- Available for iOS and Android
- 24/7 unmanned operation



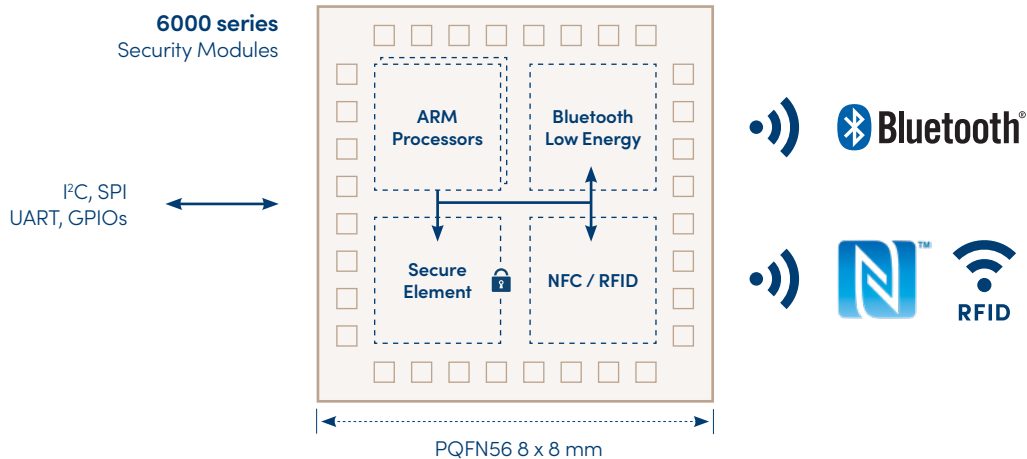
# Smartcard solution

- Short-range contactless communication (range: 2 - 20 cm)
- Ideal for close proximity, high-security apps such as e-payment, and building access control
- Rugged, long-lifetime
- Multi-factor, GDPR-compliant authentication based on Secure Element
- Smartcards need no battery or software updates
- Doubles as visual identification (badge)
- Low-cost
- 24/7 unmanned operation



# Enabling secure Smart City solutions

To help you create robust Smart City applications based on secure user authentication and credential management, LEGIC supplies a range of innovative hardware and software components that work seamlessly with each other.



## Security Module

LEGIC's SM-6000 series Security Modules are the perfect choice for innovative and secure Smart City solutions thanks to their built-in secure element technology, encrypted interfaces, contactless communications, compact size and low power consumption.

The SM-6000 series wirelessly communicates with all popular smartcards as well as iOS/Android smartphones. It works seamlessly with LEGIC's end-to-end Security Platform to enable applications to take advantage of secure and autonomous device registration, user authentication, credential management and usage monitoring.

- Perfect for high security Smart City and Mobility applications
- Supports all popular smartcard technologies as well as iOS and Android- based smartphones
- Can be designed into small electronic edge devices, while our software components can be seamlessly integrated into smartphone, desktop and web apps.
- 128KB of programmable memory in trusted execution environment, field upgradeable OTA
- I<sup>2</sup>C and SPI compatible
- On and offline operation



## Smartcard ICs

The LEGIC smartcard IC portfolio enables multi-application capability on a variety of media. It implements modern encryption methods, provides scalable security and pre-configured, confidential key material.

LEGIC's smartcard technology enables secure user authentication and credential management, supports migration scenarios and integrates seamlessly with mobile applications.

- Supports LEGIC advant and MIFARE DESFire
- Up to 127 applications can be combined on a single smartcard
- Integrable in smartcards, key rings, watches, labels, etc.
- Supports closed loop e-payment applications (LEGIC Cash)
- Transponder applets can be stored as virtualized chips on credit cards or PKI smartcards
- Part of a complete security and authorization solution using LEGIC MTSC

## LEGIC Connect

The software service LEGIC Connect enables centralized and highly flexible authentication management. It allows any kind of credential data to be distributed to smartphones of users located anywhere in the world.

With LEGIC Connect, it is easy to implement a variety of secure Smart City solutions.

LEGIC Connect consists of two components – the central LEGIC Trusted Service to distribute credential data, and the Mobile SDK to manage this data on smart devices and communicate with LEGIC Security Modules. To guarantee security, up-to-date security mechanisms and Hardware Security Modules (HSM) are used.

- 99.9% service availability
- Dedicated, geo-redundant server infrastructure (based in Switzerland/EU) with separate integration environment
- Over 5 M user registrations with double-digit monthly growth

## Support services

**LEGIC actively supports its partners and customers with extensive know-how during the development of Smart City solutions.**

LEGIC provides development tools to help you quickly and cost-efficiently develop contactless readers, authentication media and complete customized solutions. LEGIC Academy offers interactive and personalized training courses on topics you are interested in.

LEGIC partners also benefit from comprehensive know-how of our Field Application Engineers (FAE) and are part of the exclusive LEGIC partner network (ID Network).



## Key and authorization management

LEGIC offers powerful solutions to secure your Smart City projects. The patented LEGIC MTSC (Master-Token System-Control) is a globally available, unique security and authorization solution for contactless applications based on a physical Token, the Master-Token.

For smartphone key management, LEGIC Orbit allows the secure management and distribution of user-specific mobile application keys and configuration data directly to smartphones worldwide.

Instead of securing administrative rights in a Smart City application with volatile passwords, the security with MTSC is linked to a unique physical smartcard. In this way, each infrastructure owner has full authority over an installation and preserves his or her independence.

LEGIC Orbit, on the other hand, supports the secure configuration of reader devices directly via smartphone and thus enables easy onboarding of new Smart City devices or infrastructure. Key management and device configuration can be easily realized with a mobile app together with LEGIC's Mobile SDK, effectively replacing proprietary configuration devices.

- Full control and command of the security system independent of manufacturers and suppliers
- Security stays within the company
- Secure generation and distribution of customer-specific application keys which are never visible



# Enabling trusted authentication

**LEGIC, with headquarters in Switzerland, is a global leader in secure authentication and credential management for people and things. We enable secure Smart City solutions based on mobile and contactless technologies which communicate over RFID, Bluetooth Low Energy and Near Field Communication (NFC).**

Based on embedded encryption and secure element technology, LEGIC's Security Platform ensures that people and things work

together according to secure, permissioned access to machines, information, assets and infrastructure.

LEGIC's technology is characterized by scalable security, low-power online/offline operation, simplicity and investment protection. Our Security Platform reduces complexity and time-to-market for your Smart City applications.

[www.legic.com/smartcity](http://www.legic.com/smartcity)



## Flexibility

We tailor our platform to suit you. We know from experience that every project is different, and that each customer has their own requirements. Flexibility is therefore our guiding principle: You are free to choose the features you want.



## Simplicity

Smart City systems are highly complex. We strive to make your design as easy as possible. We are just as uncomplicated as our solutions. As a LEGIC customer, you will receive expert advice and support via our well-rounded consultancy service.



## Scalable security

With the unique LEGIC Orbit and Master-Token System-Control, your system's security is in your hands. Instead of insecure passwords, control of your system is linked to secure smart devices based on Hardware Root of Trust.



## Investment protection

Rely on our strong network. You have a long-term approach, and so do we. You should not have to worry about the future of your Smart City system. As part of a solid partner network, you can rely on a team to protect your technology investment.