

**THE KEY ELEMENTS
OF A MODERN
DRIVING LICENCE**

TABLE OF CONTENT

Introduction	03
A physical document	
The art of secure document design	
Polycarbonate : the best choice for driving licences	
Driving licence issuance, personalisation and lifecycle management	
Personalisation: a key factor	
A secure digital copy	
Secure biometric code	
Contactless chip	
Mobile Driving Licence (mDL)	
The uses of the new generation driving licence	
Better inspection on the road	
Multi-modality	
Online administrative procedures	
Regulation and standards	

INTRO

An aerial photograph of a two-lane asphalt road stretching through a dense forest. The trees on the left have vibrant yellow and orange autumn foliage, while the trees on the right are mostly green. Several cars are visible on the road, moving away from the viewer. The word 'INTRO' is overlaid in large, bold, black letters at the top left of the image.

The primary purpose of driving licences is to **provide physical evidence of a citizen's qualification to drive a motor vehicle**. However, in many countries, driving licences are considered to be **identity documents** in their own right.

It is therefore necessary for them to have **the same level of physical and logical security** as a National Identity Card.

Aware of the technical and economic effort required to migrate all existing driving licences to the new standards, IN Groupe has developed a **range of driving licences that includes the secure documents and a system for issuing and managing the lifecycle of licences** that can be upgraded, giving access to digital services that will make it possible to finance the introduction of a **new generation of driving licences**.



A PHYSICAL DOCUMENT



The art of secure document design

Only graphic designers with real experience in designing secure documents can bring an official document like a driving licence to life.

All visual elements **must work together** to create a cohesive and secure document. And since a driving licence is often **an object of pride**, the visual elements must be carefully selected **to reflect the country's identity**.

Co-design workshops are **the best way** to work with the manufacturer to create aesthetically pleasing documents, integrating the selected security elements and symbols. **Renewing the design of documents every 5 to 10 years** is also recommended to stay ahead of fraud.

The portrait is **the most sensitive data** on a document, and therefore must be protected accordingly. Security prints are one of the security elements to explore.



There are **several methods to help control authorities** authenticate a document. For example, a solid line can help verify rainbow printing (in visible and UV light).

Another trick is to overlay visible and UV prints, so that authentication is intuitive.

This is called a register design.

In the example above, the mountain ridge is visible in both visible and UV light. It is also part of the rainbow printing, to give controllers **a line to follow and easily see where the colours blend.**

IN SHORT

Choose a design that represents the country

Use guilloches (visible and invisible) above the portrait, to protect it

Make a design easy to control



Polycarbonate : the best choice for driving licences

Identity documents must meet two main requirements: resistance to time and use (durability), and resistance to attack (security).

Polycarbonate meets both these requirements **perfectly**. Its mechanical and thermal resistance is high, and it allows **the personalization of data in the heart of the card**, as well as the integration of security elements fighting against counterfeiting and falsification.

Beyond the durability and security aspects, the card format, known as ID1, is generally appreciated by the public as it is more convenient **to carry in a wallet**.

A polycarbonate card is made up of **several layers of polycarbonate** of varying thicknesses that are fused together during the lamination process. During this step, pressure and heat are applied so that the layers fuse together, without the use of glue or adhesives (unlike other substrates such as PVC).

After this stage, **it becomes impossible to separate the layers from each other**, and any attempt to do so would damage them **irreparably, making them unusable**. Polycarbonate cards are also highly resistant to external environmental damage. Extensive laboratory tests are carried out on securities to certify their resistance to extreme conditions (hot

or cold climates, dry and damp environments).

It is important to note that the polycarbonate used in the production of a driving licence **is specially treated**: it must not contain **any whitening agents**, so that it will not react under ultraviolet (UV) light. This means that under the light of a UV lamp, **only the UV inks will be visible**, thus facilitating the control.

In addition, polycarbonate provides access **to a range of security features** created at the lamination stage. These laminations related features make it **easier to authenticate the document** and help detect forgery (by adding a transparent film with a false portrait printed, for example).



All polycarbonate cards should have **tactile elements** (guilloches or micro-text, on the portrait if possible), **a matte/glossy effect**, and **a super tactile effect** near one border of the card, to allow quick detection with a finger.

Thanks to polycarbonate, it is also possible to integrate **an optically variable feature** into the card structure as DOVID (Diffractive Optically Variable Identification Device).

This security element, **positioned on the portrait**, is an effective protection against the substitution of the photo or its alteration.

To enable simple and quick checks, it is recommended to have a **visually strong level 1 security** element in the optically variable feature.

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Use UV dull polycarbonate and a symmetrical structure

Choose a DOVID with a strong security element and level 1 security features





**DRIVING LICENCE
ISSUANCE,
PERSONALISATION
AND LIFECYCLE
MANAGEMENT**



The final stage of production before a driver's licence is issued is the personalisation of the holder's data at the heart of the card, thanks to laser engraving.

Lifecycle management is crucial to the **successful issuance of a document**.

The system involved in issuing a driver's licence must not only manage the tasks of enrolling drivers, validation applications, making up documents and then issuing the licence to the holder, but also

integrate a wider set of business logics (management of points, fines and continuous updating of the right to drive).

These logics can **generate statistics**, help manage the renewal of existing documents, or ensure scrupulous monitoring of documents in circulation.



Personalisation: a key factor

The purpose of a driving licence is to provide physical evidence of an individual's qualification to operate a motor vehicle

This proof must be established **with certainty**.

Certainty is derived from the security of the credential itself. This means that the individual's personal information must be **stored securely**, so that there is no doubt about his or her

qualification to drive.

The polycarbonate helps to achieve this goal. As mentioned above, the construction of the card, in several layers of polycarbonate, makes it possible to personalize **directly in the heart of the card** using laser engraving.

A number of security features such as secure printing, lamination and the optically variable feature will protect data.

In order to identify a person with certainty (and thus judge his or her right to drive), it is **necessary to be able to compare the portrait on the card with its bearer**. To do this, the portrait must remain visible:

- the security features that protect it must not **alter its legibility**.
-

- the portrait must also be **large enough** to allow for detailed personalization, and it must have a high resolution and an appropriate level of contrast.
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- the quality of the image provided for personalization, and the personalization technology (hardware and software) are also **crucial to achieve the best result in terms of security and controllability**.



Even when personalization is not part of the scope of the project, choosing a card manufacturer that has **experience operating personalization centers** can be a good idea to ensure that personalization requirements are considered at the design stage.

For added security, it can be useful **to repeat data.**

For example, the expiration date or document number is easily repeatable **in an MLI** (Multiple Laser Image), textual data can be **engraved in micro-text on the card**, and a secondary portrait can be laser engraved with a lower intensity (**called a ghost image**).


The combination of all these elements makes forgery more difficult, as fraudsters must then alter the data in several places on the card, using different technologies.

IN SHORT

Choose a card manufacturer with experience in personalization

Repeat the data by varying the technologies (micro-text, MLI)



A photograph of a middle-aged man with a grey beard and hair, wearing a light blue button-down shirt and a seatbelt, sitting in the driver's seat of a car. He is looking down at a smartphone in his hands with a slight smile. The background shows the interior of the car, including the passenger seat and headrest. The right side of the image is partially obscured by a dark red, semi-transparent overlay.

**A SECURE
DIGITAL
COPY**



Some roadside inspections require checks to be carried out that require analysis in addition to visual analysis.

During roadside checks, it is often difficult to access the driver's file remotely. To increase the level of security of driving licences, it is recommended that a solution be included that enables a **signed digital copy of biographical and biometric data to be integrated into the document.**

This enables the driver's data to be stored securely, integrally and offline.

In this way, **without connectivity**, a law enforcement officer using a smartphone can interrogate the secure digital copy to carry out a more detailed check of a driver's licence.

There are **two ways** of creating a secure digital copy:

- by integrating a **two-dimensional biometric code**
- or a **chip**.



Secure biométric code

The secure biometric code is a 2-dimensional barcode generated at high density to increase the amount of information stored on a reduced surface.

This technology can store biographical data such as the bearer's surname, first name or date of birth, a portrait and fingerprints.

To meet the security requirements of the biometric code, **two cryptographic mechanisms** are used to achieve the highest standards:

- **the digital signature**, which authenticates the issuer and guarantees the integrity of the data contained in the code, and
- **encryption by scrambling and interference**, which ensures total confidentiality of the data for the bearer.

The biometric code can be **quickly decoded using a standard camera** (e.g. a smartphone) and an application available to law enforcement agencies on Android and iOS.



Contactless chip

Integrating a contactless chip containing an international “driving licence” application compliant with the ISO/IEC 18013 standard (Part 2 and 3) as a secure digital copy is an option for integrating the biographical data (surname, first name, data of birth), bearer’s portrait and fingerprints.

Several mechanisms are available for secure access to data, including **passive authentication (PA)**, **active authentication (AA)**, **basic access protection (BAP)**, **connection establishment with password authentication (PACE)** and **extended access control (EAC)**.

The chip can be read using a contactless reader.



**MOBILE
DRIVING
LICENCE (mDL)**



Mobile Driving Licence (mDL)

Smartphones are now part of the daily lives of many people around the world. Their storage capacity and connectivity make them a tool that enables citizens to travel the information superhighway with ease.

It is possible **to create a digital duplicate of the driving licence**, whether or not it has a chip, which will be stored on a smartphone, this is the mobile Driving Licence or mDL.

This will enable drivers to present either the physical or the mobile version during a check. For online procedures and services, they will be able **to prove their identity** using the mobile version of their driving licence.

Several countries **have adopted it** as a complementary driving licence to the physical one.

Parts 5 and 6 of the ISO 18013 standard define the mobile driving licence and the tests to be carried out to verify its interoperability.

Example of the use of the Mobile Driving Licence (mDL)



The law enforcement officer can see information about Helen Smith driving rights **in real time** on his reader.

Helen Smith can return to the road with peace in mind.



**THE USES
OF THE NEW
GENERATION
DRIVING LICENCE**



DID YOU KNOW?

New generation driving licences minimize un-licensed driving in order to improve road safety

Better inspection on the road

On the physical driving licence, the data are personalized on the card body and can be visually checked.

The police officer can also check the security features in order to detect counterfeiting or falsification. The police officer can check the **biographical data and the driver qualification** in order to verify the permission to drive.

With a driving licence, as well as checking the physical data, the police officer **can check the data on the card using the digital copy.**

Biometrics allow the citizen to prove in a simple way who he is. They can use their finger, face or eye.

ISO 18013 authorizes the storage of biometric data. To perform a verification, it is necessary to extract the biometric data from the card and to entrust it to an automaton in order to perform the comparison.

This automation can be integrated into the card reader or deported to a server.



DID YOU KNOW?

The new generation driving licence generates new services and rights for citizens and can contribute to the development of public transport policy

Multi-modality

States encourage their citizens to use public transport when they travel. The same states encourage transport operators to dematerialize tickets whenever possible.

This double incentive is incompatible with the constraints of occasional public transport users.

Among these constraints, the steps to be taken to obtain a rewritable ticket or to store one or more tickets in

their wallet are the main obstacles to the adoption of occasional travel by public transport. A ticket is nothing more than a contract between a person and a transport operator.

Thanks to **the new generation driving licence**, which incorporates a microchip, this is now possible.

The chip and its functionalities **combine the dematerialization and storage of transport tickets** with proof of identity on a single medium: the driving licence.



Online administrative procedures

A punctual or regular relationship may be necessary between the driver and the administrations or private company of a country in the context of the right to drive.

For example, to make an appointment to decide on the renewal of restrictions or to file an application for a driving school.

Many governments have chosen to dematerialize administrative procedures so that they can be carried out from the citizen's home.

IN SHORT

Use the certificate in the digital copy to sign electronically and offer a full range of online services

However, it is crucial for an online service to **identify and authenticate the citizen who wishes to access a dematerialized process.**

The secure digital copy of the driving licence can incorporate these mechanisms in order to guarantee to the State the identity of the citizen carrying out the online procedures. This identification can be achieved by recording and electronic certificate linked to the driver in the digital copy. This certificate can also be used to digitally sign documents, offering a full range of online services.

Example of online access to a car rental service

Florine Dupont has to share her personal details with the car rental company. The car rental company does not know Mrs Dupont.

Florine Dupont connect online with its new generation driving licence to the car rental service.

The registration form is automatically filled in with reliable, certified and secure information.



The car rental company can lend the car to Florine Dupont in complete confidence



Regulation and standards



**THE RIGHT
TO BE
YOU**

Keep in touch and learn more
information about us →



v4.0