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Documenting national identities

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What is a national ID?

Today, passports and other forms of national ID might seem ubiquitous to those of us living in a globalised world, where we're often asked to present some form of valid national ID to confirm "who we are" and "where we are from". However, this hasn't always been the case. It is only 500 years ago that King Henry V of England introduced the Safe Conducts Act 1414 which inscribed into law what can be considered the earliest identity document – a passport – which served as a means of helping his subjects "identify" their origin in foreign lands. However, the concept of an identity document didn't gain traction until after World War I. Photographic identification appeared as early as 1876 but became more widely used only in the 20th century.[1]

Today, most countries around the world issue a formal identity document or card (often credit card sized), which typically includes the bearer's photograph, personal details such as full name, birth date, address, gender, citizenship and a unique number which can be checked in a database.

Acceptable national IDs around the world

Depending on which part of the world you're from, documents considered valid as acceptable proof to verify your identity may vary. While passports are mandatory and essential national ID for international travel, within your country's borders, other forms of ID can be issued by a central or state government authority. For an ID to be considered acceptable, at the very least, it should include the bearer's full name, date of birth, photo and signature. Again, this may vary – in Afghanistan, the official identity card – Takzira – does not request for a date of birth, and the absence of birth certificates has only complicated matters. So much so, that a generation of Afghans aren't aware of their actual birth date and for convenience, have selected January 1st as their birthday.[2]

Acceptable forms of ID include a driver's licence, voter's ID, military identification card, citizenship card or resident card.[3] Most such cards have a validity period – as an example a driver's licence may be issued for a period of 20 years, after which it needs to be renewed.

[1] https://en.wikipedia.org/wiki/Passport#History
[2] https://www.straitstimes.com/asia/january-1-marks-mass-birthday-in-afghanistan
[3] https://www.aadnc-aandc.gc.ca/eng/1516981589880/1516981605387

![MAGiCARD logo]

Countries with National IDs

This map by the World Privacy Forum shows countries where national IDs – cards, e IDs or some form of national ID number exists.[4] Privacy International estimates that as of 1996, around 100 countries had laws that mandated ID cards.[5] A more recent report by Accuity Market Intelligence - the Global National eID Industry Report 2017 - estimates that 136 countries currently have or will implement National eID programmes by 2021. Annual issuance will peak in 2019 at 679 million chip-based eIDs or card-based systems that integrate biometrics annually.[6] This suggests a growing trend of electronic IDs or eIDs which are digital or plastic cards that integrate biometrics.

National IDs are not mandatory in all countries. For example, Australia, Canada and the United Kingdom are some countries in the developed world which do not have national IDs.

What forms of ID exist in these states?

- **Australia:** Class A identification documents in most Australian states include state government issued IDs, Australian passport or residency/citizenship documents (issued by the federal government), or foreign passports.

- **Canada:** Prior to 2012, citizenship cards were issued to new Canadians upon naturalisation and established Canadians (upon request). After these were discontinued, driver's licences issued by the provinces are the primary form of identification. For non-drivers, all provinces and territories except Quebec issue separate photo identification cards. Alternative IDs include health cards (issued by the provinces) and passports (issued by the Canadian federal government).

- **United Kingdom:** The concept of a compulsory national ID was explored with Identity Cards Act 2006. The initial cards, not yet compulsory, issued on request, were abolished by the Identity documents Act 2010. Currently, citizens can submit a passport or a driving licence as ID proof. Alternatively, the UK government's PASS scheme allows private companies to issue proof of age cards to UK residents, primarily for young people to prove age in the purchase of age-restricted goods and services.

[4] https://www.worldprivacyforum.org/2017/07/national-ids-around-the-world/
[5] https://en.wikipedia.org/wiki/List_of_national_identity_card_policies_by_country
[6] http://www.acuity-mi.com/GNeID_Report_2017.php

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Let's consider countries with some form of national ID. Some countries like Luxembourg, Panama, and Sri Lanka always expect the bearer to carry the ID card, while others like Germany, Italy, Greece and Netherlands do not. The rules also vary greatly around age of issue and penalties.

In the United States, the passport and social security cards are perhaps closest to the concept of a national identity document. In general, IDs issued by states for e.g. driver's licences are considered as valid ID. But over the last decade, municipal ID cards are gaining popularity. Some cities including Detroit, Chicago, New York City, Oakland California and San Francisco are issuing ID cards that let residents who do not possess a driver's licence access benefits such as food assistance, library services and discounts at local businesses, specific to their jurisdiction. These cards are particularly useful to certain segments of the population - young people, the elderly, the homeless and immigrants.[7]

- Age of issue: Many countries require citizens to obtain cards around 16 years (Albania, Azerbaijan, Botswana, Egypt, Dominican Republic, to name a few) or 18 years e.g. Bangladesh, Bolivia, Congo, Ecuador, Honduras, Morocco, Poland, and Tunisia, to mention a few.

However, in some countries it starts as early as birth e.g. Turkey, or at age 12 as in the case of Belgium, Cyprus, and Malaysia, while Czech Republic, Oman, Qatar and Slovakia are among those countries that mandate IDs at 15 years.

- Penalties: In Botswana, there are penalties for not obtaining the national ID card (Omang) within a month of turning 16 years, in Estonia, there is no penalty for not having the card even though its compulsory by law. Penalties for not carrying the card also exist in some countries. North Korea is one country which imposes strong fines on citizens not carrying their cards and there are others which take a similar punitive approach to enforcement.[8]

[7] https://www.govtech.com/gov-experience/Municipal-ID-Card-Programs-Take-Hold-in-US-Cities.html
[8] https://en.wikipedia.org/wiki/List_of_national_identity_card_policies_by_country

The case for National IDs

National IDs offer definitive advantages to both the nation as well as the bearer, and ease the process of identification of citizens.

National security: We live in a time where no nation in the world is free from the threat of terror. Identity documents serve as a means of verifying an individual's identity, and allow law enforcement to determine whether the bearers of these documents are indeed who they claim to be. With the help of biometrics and other security-enhancing features, it is possible to mitigate the risk of identity theft, fake IDs and ID fraud.

Many countries with compulsory IDs mandate possession of the ID and require bearers to show their IDs if demanded by authorised personnel for e.g. the police, immigration officials, etc. under specified circumstances. Failure to produce this documentation might result in detainment until the identity is proven. This proves particularly useful in mitigating risks to national security - access and mobility of unauthorised persons in sensitive areas can be restricted, and security risks can be neutralised.

Convenience to individuals: Not only does an identity card or document reduce the risk of identity theft, it can ensure that an individual's citizen rights are protected. Individuals whose identity is verifiable can gain access to their country's labour market, exercise their right to vote, and avail social security benefits. In South Korea, the ID card includes the citizen's unique resident registration number, which is required for government and private business, for example, opening bank accounts and creating online accounts with web sites and gaming networks.[9]

In Albania, the national ID card - Letërnjoftimi – introduced by the government in 2009, serves as proof of identity, citizenship and residence. The card is accepted as a travel document in Bosnia and Herzegovina, Kosovo, North Macedonia and Montenegro.[10]

Furthermore, public and even private institutions in the education, public healthcare or finance sectors typically request some valid national or state-issued identification from their consumers for anything from college admissions to loan access or even the simple task of opening a savings bank account. The benefits of a national ID that links health and credit history can be immense - the survivor of an accident might be able to access immediate and urgent medical care with the national ID; first responders could access the necessary information by swiping the card or entering the registration number into a centralised database.

9 https://en.wikipedia.org/wiki/List_of_national_identity_card_policies_by_country#Countries_with_non-compulsory_identity_cards
10 https://en.wikipedia.org/wiki/Albanian_identity_card

Right to cross borders/ travel: IDs can also grant the bearer the right to travel across specific borders. In the European Union, an EU citizen can use their national ID card to travel within the EU borders in lieu of a passport if the card complies with certain technical standards and states citizenship.[11]

Savings for the public and private sectors: A robust ID system with unique identities that is interoperable can reduce fraud in Government-to-People (G2P) transfers, lower administrative costs, and increase tax collection. It can identify ineligible beneficiaries and eliminate duplicates and ghosts from public programmes, while secure authentication mechanisms can prevent impersonation and leakages. In Uganda, verifying the identities of civil servants against the national ID database reportedly saved the government US$6.9 million in less than a year by removing some 4,664 ghost workers from the public payroll.[12]

Companies in the financial services, telecoms, e-commerce, aviation and other sectors must also verify and authenticate the identities of their users at various points in the customer life-cycle. A reliable ID system can save businesses money by reducing theft and fraud, decreasing administrative and transaction costs for customer onboarding as well as the compliance and liability costs associated with managing personal data. In Pakistan, Telenor leveraged the national ID and government-mandated SIM registration to double the customer base for its Easypaisa payments service in less than a year.[13]

[11] https://en.wikipedia.org/wiki/List_of_national_identity_card_policies_by_country
[12] https://medium.com/world-of-opportunity/id-systems-and-the-public-purse-what-do-they-cost-and-what-do-they-save-3b35444c70c4

The case against National IDs

While the benefits are manifold and hold the promise of a better and more secure future for citizens in general, there are several risks associated with national ID projects.

Misuse to target groups: In the past, IDs have been misused, as in the case of the World War 2 where French citizens were identified for deportation to concentration camps based on their national ID cards.[14] Even today, in countries with marginalised or persecuted groups, civil rights advocates fear that national IDs might increase the incidences of racial and ethnic profiling, with some minorities being asked to constantly prove their citizenship or immigration status.[15]

Invasion of privacy: There are concerns around the use of biometrics – especially the collection and storage of this data, and its possible misuse. Certain groups resist the idea of collecting biometrics as it is perceived as a threat to personal data privacy, especially in the context of microchips being implanted under the skin. Critics of national ID programmes fear a big-brother society where the government authorities may use this information to track individuals.

While the information is restricted and confidential, critics argue that those officials who have access to this information might accidentally or deliberately release it or abuse it.[16] There is also a legitimate fear that hackers might access this sensitive data.

Costs: National ID programmes are expensive to implement and administer, and might cost billions of dollars especially if one is considering a fool-proof system that can spot ID fraud reliably. Consider the infrastructure that would be required to set up such a system – smart cards, smart card readers, training of personnel, personnel and other overheads, and possibly, the cost of integrating this system to other databases across government agencies if the ID serves multiple purposes – health, financial, right to vote, and proof of residence.

The World Bank has developed a costing model as part of its Identification for Development (ID4D) initiative. The model is based on data collected from 15 countries with varying levels of development and diverse approaches to identification.

As per the report, the startup phase of the national ID project saw the following six categories accounting for over 90% of the overall expenditure:
(1)   Human resources
(2)   Credential (i.e. the card)
(3)   Enrolment infrastructure
(4)   Central IT infrastructure
(5)   Physical establishments (e.g., for enrolment)
(6)   Information and awareness campaigns
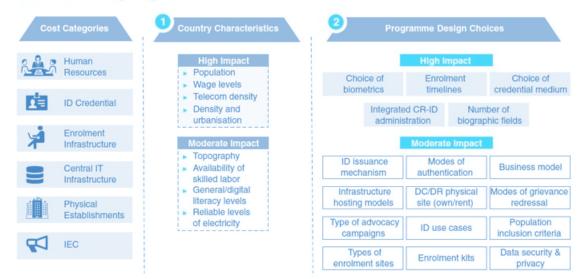
14 https://en.wikipedia.org/wiki/List_of_national_identity_card_policies_by_country
15 https://tcf.org/assets/downloads/tcf-debatenationalIDcard.pdf
16 https://medium.com/world-of-opportunity/id-systems-and-the-public-purse-what-do-they-cost-and-what-do-they-save-3b35444c70c4
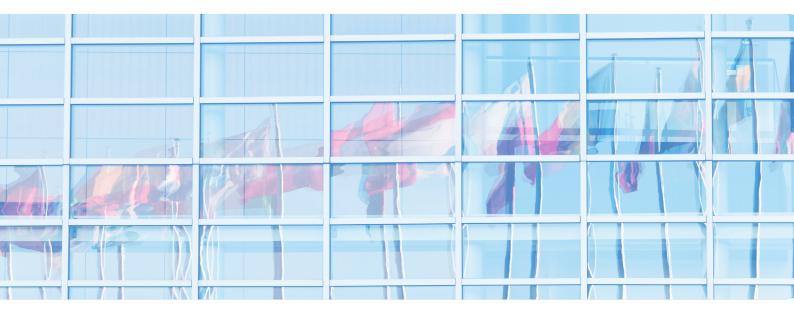
Factors Influencing ID System Costs

Cost Categories
Human Resources
ID Credential
Enrolment Infrastructure
Central IT Infrastructure
Physical Establishments
IEC

1 Country Characteristics

High Impact
- Population
- Wage levels
- Telecom density
- Density and urbanisation

Moderate Impact
- Topography
- Availability of skilled labor
- General/digital literacy levels
- Reliable levels of electricity

2 Programme Design Choices

High Impact

Choice of biometrics	Enrolment timelines	Choice of credential medium
Integrated CR-ID administration	Number of biographic fields	

Moderate Impact

ID issuance mechanism	Modes of authentication	Business model
Infrastructure hosting models	DC/DR physical site (own/rent)	Modes of grievance redressal
Type of advocacy campaigns	ID use cases	Population inclusion criteria
Types of enrolment sites	Enrolment kits	Data security & privacy

Source: Understanding Cost Drivers for Identification Systems

Within each category, (1) country characteristics and (2) design choices influenced costs. For example, the average wages within a country will impact human resources expenditure, one of the largest cost categories.[17]

[17] http://vikaspedia.in/e-governance/online-citizen-services/government-to-citizen-services-g2c/all-about-aadhaar/17-benefits-of-aadhaar-card#section-2

Technology as a game changer

Since national IDs are so critical to an individual's status within the state, and the country's socio-economic system, there is every need to ensure that these IDs are robust and cannot be easily replicated, forged or compromised.

Over the years, technology has and continues to play a key role in securing and validating national ID systems. More and more countries are moving towards electronic and digital IDs, with policy makers and businesses considering the conveniences and how these systems streamline identity setup and validation. But these systems are not without their own risks.

Digital IDs could pose a serious threat to privacy and human rights. The push for biometric IDs especially where technology has advanced to such a great extent with near-perfect facial recognition, scanning iris and gait. All this data is collected and stored in biometric databases set up in a way that these identifiers are centralised, insecure and opaque. The fear of this data being leaked or misused is legitimate.

India's biometric ID programme, Aadhar, which aims to provide those eligible, with a unique identity number (though a photo card is also issued). It is linked to various government schemes, subsidies and benefits, income tax filing, and required as proof to open a bank account and obtain a mobile number.[18]

Since its launch nearly a decade ago, there have been multiple reports of vulnerabilities in the enrolment system, security breaches and data leaks. One Indian newspaper reported that it was possible to purchase an individual Aadhar holder's demographic details for just Rs. 500 (US$7) though this and the other reports were strongly denied by the authorities running the programme.[19]

Then there is the risk that an individual's digital identity can be tracked in real time, with geo-location identifiers. The possibilities that come with technology concepts like the Internet of Things, machine learning, and Artificial Intelligence might be the stuff science fiction is made of. However, the risks of these systems making decisions on an individual's behalf, and connecting one with other individual identities without consent, are real.[20]

Estonia's eID programme goes way back to 2001, and serves as the unique key to access public services – from healthcare to business registry, from i-voting to e-residency. Every Estonian ID card has a smart chip for authenticating the holder. In August 2017, Petr Venda, a researcher on cryptography and security at Masaryk University in the Czech Republic, notified Estonia that an algorithmic flaw in the smart card chips used for its ID cards meant that all the eID cards (800,000) issued since autumn 2014 were at risk of digital identity theft.[21]

[18] https://qz.com/india/1501568/in-2018-supreme-court-backed-indias-aadhaar-despite-data-leaks/
[19] https://www.wired.com/story/digital-ids-are-more-dangerous-than-you-think/
[20] https://e-estonia.com/card-security-risk/
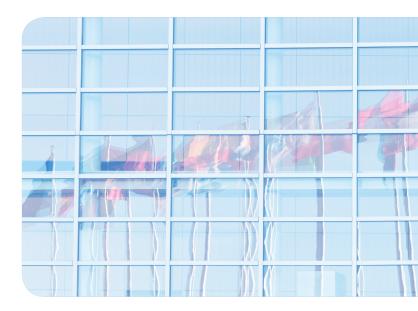[21] https://www.packagingdigest.com/smart-packaging/how-holograms-can-stop-counterfeiting

The risks associated with digital IDs can be mitigated with the issue of **physical IDs**. These continue to be the accepted and popular format in many parts of the world. Typically issued in ID1 or ID2 card formats, these include photo identification as well as security elements - microprint, holograms, ultraviolet print, microprint, bar code and secure watermarks - designed to make them tamper-proof and difficult to forge.

Advances in holograms are a reliable means to deterring fraud and counterfeiting, and typically used as an overt first-line authentication in ID cards.[22] Hologram designs can be customised to suit the card issuer's needs. Features such as 2D holograms, guilloche patterns, animated effects, flipping images, ghosting image and pseudo colouring are visible to all while secure elements such as micro-text that is readable only via 8x, 10x and 12x magnification.

The highest level of security offered by **holograms** include secure elements that can only be deciphered using forensic equipment such as Optical Variable Devices of microscopes. These include laser converted text or guilloche patterns revealed with lasers and micro-text above 3,000 DPI.[23] Distinctive holograms such as the 3D hologram with the characteristic 'A' in the lettering used in UK's PASS card scheme deter forgeries.[24]

Secure watermarks also serve as a first line of defence against counterfeiting. Cards bearing a watermark are virtually impossible to forge. Watermarks such as HoloKote®, the technology originally developed and patented by Magicard, are easy to implement, cost-efficient and a simple yet solid way to add an additional layer of security. While printers offer a standard set of stock images, it is also possible to customise the watermark based on the card issuer's needs for a one-time setup fee. The flexibility in layout design - to place a single layer, single tile or several lines of watermarks further secures the ID.[25]

[22] https://www.cr80news.com/news-item/holograms-on-campus-cards/
[23] https://www.highspeedtraining.co.uk/hub/fake-id/
[24] https://www.idsecurityonline.com/blog/using-watermarks-can-increase-your-security.htm
[25] https://magicard.com/knowledge-centre/new-magicard-600-delivers-pioneering-id-printer-security-features/

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Digital shredding With the European Union's General Data Protection Regulation (GDPR) coming into effect in 2018, it is good to consider an ID card printer with technology such as Magicard's digital shredding™ capabilities. Once the cards have been printed, data is fragmented and dispersed, rendering it irrecoverable.[26] This helps protect the data and reduces the risk of counterfeiting.

Ultraviolet (UV) print serves as covert second-line authentication and make it difficult to forge the card. UV images are cost-effective and easy to implement. These could be photographs, logos, symbols or simple text, and are visible only when the card is examined under ultraviolet light.[27] The driver's licence issued by the State of California, United States includes UV print. Under ultraviolet light, the following images and text appear - image of the cardholder's photo, birth date, Golden Gate Bridge and Coit Tower.[28]

[26] https://www.secureidnews.com/news-item/uv-printing-adds-covert-security-features-to-passports-and-cards/
[27] https://qz.com/1255666/if-you-want-privacy-youre-going-to-have-to-fight-for-it/
[28] https://www.hipaajournal.com/rights-of-data-subjects-under-gdpr/

The Future of National IDs

As the world moves towards digital ID systems, governments are using the ease of digital ID implementation to expand the reach of their systems to protect and serve their people on a scale that analogue systems never could. This also means that these IDs are becoming far more important than before. In China, digital IDs are becoming pervasive so much so that the government's social credit system will rate the trustworthiness of its 1.3 billion citizens based on their online behaviour and tax payments, and this could impact their critical aspects such as creditworthiness and employment opportunities.[29]

In Europe, the winds are blowing in a different direction – since GDPR came into effect in May 2018, there is a strong emphasis on protecting an individual's rights to privacy. This requires that organisations seek the individual's consent in how their personal data may be collected and used. They also have the right to ask for this data, request rectification, and limit how this data is processed and transferred. The individual also has the right to be forgotten, and also be informed when their data is compromised.[30]

In Asia as well, countries are becoming more cautious about how personal data is used and stored. In 2018, Singapore's data protection authority, the Personal Data Protection Commission revised advisory guidelines for the country's National Registration Identification Card (NRIC) after consulting with the public. It limits how private organisations manage NRIC details, stating that these organisations may only collect, use or disclose NRIC numbers if it is required under the law, or an exception under the PDPA, and if it is necessary to accurately establish or verify the identities of the individuals to a high degree of fidelity. The restrictive guidelines reflect the growing acceptance among private organisations that data breaches are harmful to individuals and the excessive use of NRICs is bad for business.[31]

The Philippines National Privacy Commission has also assured the country's citizens that protecting their data privacy rights is top priority while implementing the national ID programme called the Philippine Identification System (PhilSys). The NPC will promote internationally accepted data protection and privacy standards for PhilSys, including deploying a protocol - Privacy by Design. Furthermore, it will apply the Commission's Data Privacy Accountability and Compliance Framework while implementing the system.[32]

As privacy rights advocates around the world push for greater transparency in the process of data collection, greater respect for the individual's privacy and protection of the personal data collected, governments around the world are responding favourably. Around the world, regulatory bodies are taking steps to enforce stricter rules around the methods of collecting, storing and accessing personal data pertaining to national IDs. This is a step in the right direction, given that the benefits of national IDs far outweigh the risks. The ability of individuals to choose and control how their data and IDs are used is imperative, because no one knows how the usage of these IDs will evolve, and what the future holds.[33]

[29] https://qz.com/1255666/if-you-want-privacy-youre-going-to-have-to-fight-for-it/
[30] https://www.hipaajournal.com/rights-of-data-subjects-under-gdpr/
[31] https://iapp.org/news/a/singapores-updated-national-id-advisory-guidelines-progress-and-a-glimpse-into-the-future/#
[32] https://www.rappler.com/nation/208983-data-privacy-priority-national-identification-system-philippines
[33] https://qz.com/1255666/if-you-want-privacy-youre-going-to-have-to-fight-for-it/