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The Business of Identity Management

Legal Person: Humans, Clones, Virtual and Physical AI Robotics – New Identity Principles



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Note to Reader:

I have been writing about rethinking civil registration systems since 2006

- [“The Challenges with Identity Verification”](#)

Over the last year and a bit, I have written 32 papers, including two proposals, on the impacts from the technological tsunami. Here’s a listing of them, by subject area, with links to each one:

- Thought Papers
 - Artificial Intelligence & Legal Identification – A Thought Paper
 - [Artificial Intelligence & Legal Identification](#)
 - Human Migration, Physical and Digital Legal Identity – A Thought Paper
 - [Human Migration, Physical and Digital Legal Identity](#)
 - Digital Twins/Virtual Selves, Identity, Security and Death – A Thought Paper
 - [Digital Twins/Virtual Selves, Identity, Security and Death](#)
- Proposals and Discussion Paper:
 - Bot Legal Identity Proposal
 - [Proposals for Identification of Bots \(Physical and Virtual Robots\)](#)
 - Human Legal Identity Proposal
 - [Proposals Paper – Incremental Approach to Implementing New Age Legal Identity](#)
 - Background Information on Legal Identity, Data, Consent and Federation
 - [Background Information on Legal Identity, Data, Consent and Federation](#)
- Example story of an identity’s lifecycle
 - [The Identity Lifecycle of Jane Doe](#)
- Technological Tsunami Wave of Change
 - [Harnessing the Technological Tsunami Wave of Change](#)
- Legal Privacy Framework for the Tsunami Age
 - [Legal Privacy Framework for the Tsunami Age](#)
- One-page summary
 - [One Pager - The Age of AI, AR, VR, Robotics and Human Cloning](#)
- Technological Tsunami and IAM
 - [Technological Tsunami & Future of IAM](#)

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- New age identity, data, and consent
 - [Privacy Gone – AI, AR, VR, Robotics and Personal Data](#)
 - [I Know Who You Are & What You’re Feeling - Achieving Privacy in a Non-Private World](#)
 - [Consent Principles in the New Age – Including Sex](#)
 - [Policy Principles for AI, AR, VR, Robotics and Cloning – A Thought Paper](#)
 - [Legal Person: Humans, Clones, Virtual and Physical AI Robotics – New Identity Principles](#)
- Kids and Parents Privacy
 - [Young Children Data Privacy Challenges in the Tsunami Age](#)
 - [Kids Privacy in Non-Private World - Why Even Super Hero’s Won’t Work](#)
 - [Children & Parent Privacy in the Tsunami Age](#)
- Robotics, Clones, and Identity
 - [Legally Identifying Robots?](#)
 - [Rapidly Scaling Robot Identification?](#)
 - [Virtual Sex, Identity, Data & Consent](#)
 - [I’m Not a Robot](#)
- New age civil registration legal identity framework
 - [“Why the New Age Requires Rethinking Civil Registration Systems”](#)
 - [“What New Age Civil Registration Won’t Do.”](#)
- New Age Assurance
 - [“New Age Assurance – Rethinking Identity, Data, Consent & Credential”](#)
- Deploying AI, AR, VR, robotics, identity, data and consent in challenging locations
 - [“Where Shit Happens”](#)
- Protecting the civil registration/vital stats infrastructure
 - [“When Our Legal Identity System Goes, “Poof!”](#)
- New age architecture principles summary
 - [“New Age Architecture Principles Summary”](#)
- Leveraging Blockchain and Sovrin
 - [“A Modern Identity Solution: New Age Vital Stats/Civil Registries, Self-Sovereign Identity, Blockchain, Kantara User-Managed Access & EMP Resistant Data Centres”](#)
- Creating Estonia Version 2.0
 - [“Creating Estonia Version 2.0 – Adjusting for Changes From 1999 to 2018”](#)
- New age civil registration/vital stats design, implementation & Maintenance Vision
 - [“Guy’s New Age Civil Registration/Vital Stats Design, Implementation & Maintenance Vision”](#)

All papers are available off my website at <https://www.hvl.net/papers.htm>.

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Executive Summary:

This paper deals with principles of legally identifying people, robots and clones. It must be able to legally differentiate:

- People from each other
- Human clones from the population
- Human clones from each other
- Real people from robots either humanoid or virtual
- Humanoid robots from each other
- Virtual robots from each other

The paper describes the suggested legal identity principles:

- A person's legal identity must be able to differentiate themselves from the rest of the population, including human clones of oneself, as well as any virtual or physical robot resembling them
- A person's biometrics/behavioral data used shouldn't be able to legally identify them, which can also profile them
- A person should have ways of legally anonymously identifying themselves
- A person is able to have multiple personas either physical and/or digital
- When a person interacts with government, governments, or financial enterprises, there MUST only be one physical identity per person
- The person or robot's legal identification MUST be kept separate from other government and industry identity and contact systems
- A person or physical robot should have the right to live off the grid
- At death, a person's biometrics, if available, will be used to verify their identity
- A robot, either virtual or physical, must be legally identified
- A person is able to have one or more virtual selves
- When over or more virtual/physical robots interacts with governments and/or financial enterprises, they must be legally tied to a human's identity and/or have their own separate legal identity
- Virtual selves and physical robots should have ways of legally anonymously identifying themselves
- When robots, either physical, virtual or combinations thereof, are acting together in singularity, there should be a legal definition of personhood that applies to them and their actions

It then discusses each one, highlighting them with Jane Doe use cases.

The principles are the underpinnings of our ethics as we move forward. We need to create a legal identity framework that's flexible. Where fast paced scientific/technical changes are determined to have merit, it must enable global legal modification.

Legal Person: Humans, Clones, Virtual and Physical AI Robotics – New Identity Principles

Introduction

The old question “Who am I?” has legally taken us, as a society, down many roads. The definition of a “legal person” is complicated.

If one reads the Wikipedia on “legal person” (https://en.wikipedia.org/wiki/Legal_person), one quickly learns that there are “natural persons” and “judicial persons”.

“Natural persons” (https://en.wikipedia.org/wiki/Natural_person) can, in some jurisdictions be legally defined before a person is born while in many other jurisdictions, it begins when a person is born (i.e. commonly birth registration and issuance of a birth certificate). Judicial persons (https://en.wikipedia.org/wiki/Juridical_person) are non-human legal entities “authorized by law with duties and rights and is recognized as a legal and as having a distinct identity”.

For the last couple of hundred years, our societies have used civil registration systems, like birth registration, to legally identify someone and issued paper-based certificates, e.g. birth certificates to legally attest to their identity. The point of this post is that this no longer works. Why? The advent of human cloning, virtual/physical robots and technology to easily duplicate paper-based registrations render these systems obsolete.

We need a new legal framework. One that can legally differentiate:

- People from each other
- Human clones from the population
- Human clones from each other
- Real people from robots either humanoid or virtual
- Humanoid robots from each other
- Virtual robots from each other

This is not a tweak of existing old school technology. It requires us to rethink the underlying legal framework of who we are.

Let me potentially muddy the waters even further. Using one’s imagination, it’s not hard to envision a future where:

- Physical robots create their own virtual robots
- Virtual robots create physical robots
- Physical robots are merged, via genetic engineering, with human biometrics

This puts the cat amongst the legal identity pigeons.

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I've been asking myself this dumb question; "How are we going to be able to differentiate all of the above, legally speaking, whilst still protecting privacy?"

Note that I said "privacy" and not "our privacy" or "human privacy". Why? Because in the future, one can see that robots will likely require their privacy as well. So, yes, it's very complicated.

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Legal Identity Principles

Before crafting a new legal framework, FIRST, we need principles relating to legal identity. Here's my suggested principles:

- [A person's legal identity must be able to differentiate themselves from the rest of the population, including human clones of oneself, as well as any virtual or physical robot resembling them](#)
- [A person's biometrics/behavioral data used to legally identify them, shouldn't be used if it can also profile them](#)
- [A person should have ways of legally anonymously identifying themselves](#)
- [A person is able to have multiple personas either physical and/or digital](#)
- [When a person interacts with government, governments, or financial enterprises, there MUST only be one physical identity per person](#)
- [The person or robot's legal identification MUST be kept separate from other government and industry identity and contact systems](#)
- [A person or physical robot should have the right to live off the grid](#)
- [At death, a person's biometrics, if available, will be used to verify their identity](#)
- [A robot, either virtual or physical, must be legally identified](#)
- [A person is able to have one or more virtual/physical robots](#)
- [When over or more virtual/physical robots interacts with governments and/or financial enterprises, they must be legally tied to a human's identity and/or have their own separate legal identity](#)
- [Virtual/physical robots should have ways of legally anonymously identifying themselves](#)
- [When robots, either physical, virtual or combinations thereof, are acting together in singularity, there should be a legal definition of personhood that applies to them and their actions](#)

Legal Identity Principle Discussion

A person's legal identity must be able to differentiate themselves from the rest of the population, including human clones of oneself, as well as any virtual or physical robot resembling them

When Jane Doe is born, she needs to have a legal identity able to differentiate herself from:

- The rest of the planet's population
- As well as possible clones of herself
- As well as any virtual or physical robot resembling her

In "[Policy Principles for AI, AR, VR, Robotics & Cloning - A Thought Paper](#)" I suggest fingerprints be used at birth to be followed by iris during her first year of school. These need to be researched to ensure they are sufficient to differentiate Jane from the rest of the population including human clones.

As this paper discusses, robots also need to be legally identified. Today, the published science papers don't foretell technology where a robot can be biometrically made to resemble a human. So, assuming a robot has its own legally provable robot identification unit, this principle can be upheld.

However, the moment technology appears where a robot can be made having another person's biometrics and/or a human can acquire the other person's biometrics via genetic engineering, adhering to this principle will become extremely challenging.

A person's biometrics/behavioral data used to legally identify them, shouldn't be used if it can also profile them

When Jane Doe is born, some biometrics should be used to verify her legal identity. However, these shouldn't be able to profile her.

In 2006, I wrote my first paper "[The Challenges with Identity Verification](#)". I suggested the use of DNA. I took criticism from people who didn't like the idea of a government having a DNA database with which they potentially could profile people. After consideration, I agreed with the criticism. That's why I have suggested the use of fingerprints and iris.

The advent of AI/AR/VR/physical environments will likely create behavioral data which could also, hypothetically, be used to profile people. As the technology progresses, a close eye should be kept on this. If it does evolve, then use of these behavioral biometrics should also not be used in legal identity verification.

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A person should have ways of legally anonymously identifying themselves physically and digitally

Jane Doe should be able to prove she's a human and/or of legal age without having to reveal her legal identity. Examples of this include Jane wanting to:

- purchase alcohol
- enter a virtual reality sex environment

For each of the above, she would have control of her legal anonymous identity to present either physically or digitally. It won't have her name or address, but will legally verify she's a human of a minimum age.

A person is able to have multiple personas either physical and/or digital

Jane Doe is able to call herself Gamer Girl, Sally Smith, John Doe or whatever, either physically or digitally. She can portray herself however she wants with as many different personas as she wants. However, when her legal identity is required, she will only have one legal identity both physically and digitally linking her to the identity Jane Doe.

When a person interacts with government, governments, or financial enterprises, there MUST only be one legal identity per person

Jane Doe can call herself whatever. However, when she interacts with her government's services she MUST have only one legal identity. This will be verified by the new age civil registration service.

When Jane Doe wants to interact with financial enterprises, she will only have one legal identity. This will be verified by the new age civil registration service.

Thus, for government and business, if Jane Doe was attempting to portray herself as Sally Smith, the system would prevent this.

If Jane Doe tries to enter another country without her identity documents, the other government would be able to search all of the planet's civil registration services' databases to verify Jane via her biometrics. I realize the potential impact of this.

We live in the age of nation states, each with their own laws, ethics and morals. Some of them mistreat and kill their citizens unfairly. Today, to escape this, millions of refugees try to cross borders. What they don't want to happen is to be recognized and sent back.

However, here's the irony of this new age. Technology has shrunk the planet. As people are enabled to easily move around the planet electronically and physically, identifying them becomes more important from a business and government perspective.

I don't have a magic wand to solve the problem. However, in the next principle, we can mitigate some of the risk to the person.

The person or robot's legal identification MUST be kept separate from other government and industry identity and contact systems

Jane Doe wants her privacy protected. She doesn't want the government or industry to have one database identifying her, her address, etc. Therefore, the new age civil registration system MUST be kept separate from any other government or industry identity system. In essence, this principle protects against government/industry building one mother of all databases on an identity.

If Jane Doe reaches a certain age where the government wants to use her identity to serve her and also establish one contact address etc., it should do the following:

- Verify her identity via the independent new age civil registration system
- Obtain her legal consent to join the new service
- Obtain some of her biometrics etc. to verify and/or authenticate her

The same applies to robots. Robots should be registered in a new age civil registration system. Other information about the robot, beyond its identity, should be stored in different, separate government and industry systems.

Let's return to the refugee problem above. Jane Doe is fleeing country X to country Y or, entering a refugee camp in a border area, not bringing any identity documentation. The country or refugee camp, would be enabled, by law to obtain Jane's biometrics and then submit them to the planet's new age civil registration services. They would find Jane Doe in country X.

However, they would only be able to verify her legal name. They wouldn't be able to see Jane Doe's address, history etc.

This brings up the issue of audit trails for Jane Doe's civil registration entry. Country X would likely be able to see Jane Doe's identity was searched from Country Y or a refugee camp. All of the practical realities need to be addressed when deploying this globally.

The principle of separating legal identity verifications system is key for the next one...

A person or physical robot should have the right to live off the grid

Jane Doe, for whatever reasons, decides she doesn't want to be part of society and its networked way of living. She MUST have the ability to live off the grid if she so chooses. Her physical robots she owns should also have the same ability.

Given this, all Jane and her physical robots would have in the way of identification is their new age civil registration identity. However, once she or her robots decide to interact with governments and/or financial enterprises, then she is "back on the grid" and must comply with the laws of the land.

[At death, a person's biometrics, if available, will be used to verify their identity](#)

When Jane Doe dies, if the biometrics used to register her identity are still available, these will be used to verify her.

Let's say Jane was born in Country X but dies in Country Y. The medical coroner in Country Y would obtain Jane's biometrics, if available, and legally be able to search all the planet's new age civil registration systems to confirm her identity. A legal notice of her death would then be sent from Country Y's to Country X's new age civil registration systems.

[A robot, either virtual or physical, must be legally identified](#)

If a virtual or physical robot is created, it must be legally identified. I've written two papers addressing this:

- [Legally Identifying Robots \(Robot Identification\)](#)
- [Rapidly Scaling Robotic Identification?](#)

I'm proposing:

- Robotic Identification Unit (RIU) be created
 - This MUST be secure to prevent malicious parties attempting to obtain the RIU and masquerade as another or, insert another RIU into the robot
- Robots identities be legally registered with the new age civil registration service
 - This must be designed to be highly automated meeting the requirements of "insane speeds" of robot creation

[A person is able to have one or more virtual/physical robots](#)

Jane Doe can have one or many virtual selves or physical robots. They may or may not look like her or act like her.

[When over or more virtual/physical robots interacts with governments and/or financial enterprises, they must be legally tied to a human's identity and/or have their own separate legal identity](#)

Jane Doe has virtual/physical robots that she wants to interact with government and/or financial services. For these, she will be required to prove she's the owner of them and/or that they are acting on her behalf.

This can become complicated. Real life is "messy" with all sorts of different permutations and combinations of ownership, agreements and authorization. Here's an example why:

- Jane Doe rents or leases a virtual/physical robot
 - She wants to use them to interact with government and/or financial services
 - There must be a legal consent chain from the robot's owners to Jane allowing herself to do this
 - Jane and the robot's owners must be able to prove this to the government and/or financial enterprise

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Then there's independent robots to consider. Companies are currently in the early stages of producing independent robots, e.g. [Sanctuary](#), etc. These will likely become independent legal entities.

In the future, they might be able to create virtual robots and/or virtual robots can create independent physical ones. What happens when one of these robots is contracted to provide goods/services for other people. What if it commits a crime, etc.? This requires new laws rethinking identity.

Virtual/physical robots should have ways of legally anonymously identifying themselves

Jane enters a virtual sex environment. She wants to know who her partner or partners are. Are they virtual selves of other people or, are they AI generated?

Let's say John Smith is one of the partners. He, like Jane may not want to reveal their identities. There is a third partner, X, generated by the AI system.

Jane and John might choose to use virtual selves. These should have the ability to anonymously identify themselves as well as revealing they are human generated and are of legal age of consent.

In the environment, they will see "X". It must appear in a way that both Jane and John realize "X" is an AI generated robot. In the environment, they will see each other, recognizing they are human generated but not knowing their names. Only if they provide their consent, will their legal names be used.

When robots, either physical, virtual or combinations thereof, are acting together in singularity, there should be a legal definition of personhood that applies to them and their actions

The ability for robots to act together, learning together, in singularity, poses new challenges in identity verification. Here's some examples illustrating this:

- Robot 12345 and robot abcde are separate robots yet able to act in singularity
- Robot 6789 has many different "bots" it's using which are only portions of robot 6789. All the bots are acting in singularity

I don't pretend to have answers addressing the above. Yet, this reality is unfolding before us. How do we legally define "singularity" at the identity level? This requires serious consideration and discussion.

Summary

The suggestions above need to be debated and agreed upon between all countries in the world. It does no good if one country creates their own. Why? Because in today's world, people and robots, both real and virtual, can easily move around across borders.

I'm not a legal expert. However, what I am is an identity guy, pun intended, who acts as a catalyst to assemble people, across disparate enterprises, to create identity systems that work and maintain themselves. Before creating new new laws and regulations, **FIRST, WE, AS A PLANET, NEED TO TALK ABOUT IDENTITY PRINCIPLES.**

It is the underpinnings of our ethics as we move forward. Once we can come to terms with a list of principles relating to legal identity, we can assemble the legal and technical experts to determine how we're going to implement this.

We need to create a legal identity framework that is flexible. Why? The pace of scientific and technical change can quickly render today's legal solution as tomorrow's obsolete one. Thus, countries need to work together to determine a framework where changes can be relatively quickly made and implemented.

This paper only addresses legal identity. Equally important are data and consent principles. I discuss these in the paper "[Policy Principles for AI, AR, VR, Robotics & Cloning - A Thought Paper](#)".

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About the Author

Guy Huntington is a veteran identity architect, program and project manager who's lead as well as rescued many large identity projects with many of them involving identity federation. His past clients include Boeing, Capital One, Kaiser Permanente, WestJet, Government of Alberta's Digital Citizen Identity and Authentication Program and Alberta Blue Cross. As one of his past clients said "He is a great find, because he is able to do high quality strategic work, but is also well-versed in project management and technical details, so he can traverse easily from wide to deep. With Guy, you get skills that would typically be encompassed in a small team of people."

Guy consults globally on the incoming technological tsunami wave of change.

