# Human Migration, Physical & Digital Legal Identity – A Thought Paper



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**Note from the author:**

- This paper is dedicated to my friend Teddy Winkler, who is a visionary

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# Executive Summary

I've been in places where there's coup d'états and ethnic division, and also witnessed many poor people, and those forced to migrate from their homes, just trying to survive. Through my many years as an identity architect, these people have always been in my mind. As this paper illustrates, with the arrival of global warming, population growth, job automation and forced displacement, the number of migrants is now approaching hundreds of millions of people. To enable their ability to receive nutrition, health and other benefits, cross borders and reunite separated families, they will all have to prove their legal identity. I wrote this thought paper to, in some small way, contribute to their lives being better.

Our old system of legal physical identity now no longer works. We are still using technology that dates from the middle ages, paper documentation. Plus, governments employ civil registration and vital statistics (CRVS) systems that have no data or common query standards to confirm the documentation being presented is valid. Even if these standards exists, they still won't work, because the paper document doesn't tie the person holding it to the actual physical identity.

It lays out the requisite components to:

- Biometrically tie the person physically to their legal identity
- Create a legal self-sovereign physical and digital identity
- Tie legal digital twins/virtual selves to the legal physical person
- Creates a new, global independent, non-profit to do 24x7x365 threat analysis against the legal identity framework
- Addresses the risks that biometrics can be stolen requiring revocable/re-issuable biometrics

Migrants and the poor will bear the brunt of our old, outdated, legal identity systems. We, as a planet, need to rethink the systems and create a new legal identity framework to protect those who don't have the means to protect themselves.

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# Causes of Migration

There are four main causes of human migration:

- Population growth
- Global warming
- Forced displacement due to domestic political and international wars, and
- Technology driven change & job loss

These factors interact, amplifying the negative impacts that each cause on their own.

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## Population Growth:

My friend, Teddy Winkler, published an excellent book, "Living in an Unruly World - The Challenges We Face".  In it, he has a section titled "Megatrends" with a subsection "Demography and Migration".  It states:

> "The UN estimated in its 2017 median projection that we shall reach 8.6 billion by 2030, 9.6 billion by 2050, and 11.2 billion by 2100 when most analysts predict the growth of the world population to begin to level out, somewhere in between 9.2 and 11 billion."

He proceeds to discuss Africa…

> "The population of Africa is, consequently exploding, making Africa both the fastest growing continent and the region with the youngest population."

> "Forecasts put Africa's population by 2030 at 1.7 billion, becoming by 2050 2.7 billion and by 2100 close to 4.4 billion. That will be 39 percent of the total world population."

> "To sustain a given population, 2.1 children are needed per woman. In most Western societies this number is no longer reached."

> **"Africa looks, in comparison, like coming from another planet. Out of the 50 countries with the world's highest birth rates, 41 are in Africa; out of the top ten, nine are in Africa. The worst figures come from Niger (on average 7.15 children), Somalia (6.12 children), and the Democratic Republic of Congo (5.93 children), the lowest from Tunisia (2.14 children). The average for the continent lies at a staggering 4.7 children."**

> "In practical terms, this means that in the span of 100 years there are in Western societies three generations of childbearing women that succeed each other."

> "The picture is quite different in Africa where there are five generations of mothers within a century. And each of them has more children than women anywhere else in the world. To illustrate the point: In Western Europe three women (mother, daughter, granddaughter) need a century for forming their families. Let us assume each would have two children (and not the 1.3 my family produced), they would come down within a century with a total of 14 children (7 boys and 7 girls).

> **If there are five generations within a century, as in Africa, and each woman has four children instead of the less than two as in Europe, there will be as a result a grand total of 1,364 children (682 boys and the same number of girls). It is obvious that this imbalance poses a major problem."**

## Global Warming

### *The Science*
- **Carbon Dioxide**
  - 415 parts per million  - the last time the earth was at this level there were trees in the South pole
- **Global Temperature**
  - Forecast to rise over 1.5C in the 2020's
- **Arctic Ice Minimum**
  - Down 12.85% per decade. In 2012 Arctic summer sea ice shrank to the lowest level on record
- **Ice Sheets**
  - Down 428 gigatonnes per year.  Satellite data show that Earth's polar ice sheets are losing mass at a rate unknown for millennia
- **Sea Level**
  - Up 3.3 millimetres per year and credible scenarios where this accelerates in the coming years, flooding low lying areas, including whole islands.

### *It Affects Human Migration*
The excellent Wold Bank 2018 report "Groundswell – Preparing for Internal Climate Migration" states the following in its "Key Findings":

> "This report, which focuses on three regions—Sub-Saharan Africa, South Asia, and Latin America that together represent 55 percent of the developing world's population—finds that climate change will push tens of millions of people to migrate within their countries by 2050. It projects that without concrete climate and development action, just over 143 million people—or around 2.8 percent of the population of these three regions—could be forced to move within their own countries to escape the slow-onset impacts of climate change. They will migrate from less viable areas with lower water availability and crop productivity and from areas affected by rising sea level and storm surges. The poorest and most climate vulnerable areas will be hardest hit. These trends, alongside the emergence of "hotspots" of climate in- and out-migration, will have major implications for climate-sensitive sectors and for the adequacy of infrastructure and social support systems. The report finds that internal climate migration will likely rise through 2050 and then accelerate unless there are significant cuts in greenhouse gas emissions and robust development action."

**The report states unless changes occur in public policy around the planet, the potential number of human migrants by 2050 for the following regions**:

- Sub-Saharan Africa – 86 million
- South Asia – 40 million
- Latin America – 14 million

## Technological Change and Job Loss

In the late 90's Marshall Brain created a website "How Stuff Works" and sold it in 2007 for $250 million. He wrote a series of essays, "Robotic Nation" and also gave a presentation at Singularity Summit in 2008. If you go to the 9-minute mark, you'll see him talking about **the loss of approximately 3 million US jobs in the transportation industry when automated cars and trucks appear**. Fast forward to today.

29 US states have enacted legislation regarding driverless cars. China has driverless taxis already in operation. While there are still challenges in fully automating driverless cars and trucks, it's not an unreasonable expectation that over the next 10-ish years, this will become a reality. Thus, what Marshall talked about in 2008 is now literally "driving toward us".

In June 2019's Oxford Economics report "How Robots Change the World – What Automation Really Means for Jobs and Productivity**",** it states "**We estimate up to 20 million manufacturing jobs are set to be lost to robots by 2030**".

In the 2018 PWC report, "Will robots really steal our jobs?", it lays out three overlapping waves over the period to the 2030's:

1. Algorithm wave: focused on automation of simple computational tasks and analysis of structured data in areas like finance, information and communications –this is already well underway.
2. Augmentation wave: focused on automation of repeatable tasks such as filling in forms, communicating and exchanging information through dynamic technological support, and statistical analysis of unstructured data in semi-controlled environments such as aerial drones and robots in warehouses –this is also underway, but is likely to come to full maturity in the 2020s.
3. Autonomy wave: focused on automation of physical labour and manual dexterity, and problem solving in dynamic real-world situations that require responsive actions, such as in manufacturing and transport (e.g. driverless vehicles) –these technologies are underdevelopment already, but may only come to full maturity on an economy-wide scale in the 2030s

In the Sept. 2019 IBM study, "**The Skills Gap is Not a Myth, But Can Be Addressed with Real Solutions**" it states that **120 million workers may need to be reskilled or retrained in the next three years**.

Add it all up and we are entering a turbulent time regarding employment around the planet. This will lead to job loss and people moving to look for a job.

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## Forced Displacement Due to Domestic Political and International Wars

- According to the 2018 "UNHCR's Global Trends Forced Displacement in 2018", "by the end of the year, **almost 70.8 million individuals were forcibly displaced worldwide as a result of persecution, conflict, violence, or human rights violations**."

- **13.6 million newly displaced**
  - This included 10.8 million individuals displaced within the borders of their own country and 2.8 million new refugees and new asylum-seekers
- **37,000 new displacements every day**
- **3.5 million asylum-seekers**
  - By the end of 2018, about 3.5 million people were awaiting a decision on their application for asylum
- **4 in 5**
  - Nearly 4 out of every 5 refugees lived in countries neighbouring their countries of origin
- **1.7 million new claims**
  - 1.7 million people submitted new asylum claims. The United States of America was the largest recipient of new individual applications with 254,300 claims, followed by Peru (192,500), Germany (161,900), France (114,500) and Turkey (83,800).
- **138,600 unaccompanied and separated children**
  - Some 27,600 unaccompanied and separated children sought asylum on an individual basis and a total of 111,000 unaccompanied and separated child refugees were reported in 2018. Both numbers are considered to be significant underestimates
- **50% are children**
  - Children below 18 years of age constituted about half of the refugee population in 2018, up from 41 per cent in 2009

# We're Entering A Sea Change Regarding Physical Identity

It's not going to be pretty. That's my blunt assessment of what the next 10-15 years holds in store for likely hundreds of millions of people around the planet. They'll be moving to find jobs, escape famine, wars or corrupt leaders, their jobs may be gone, or move because there's simply too many other humans in the place where they live using resources that are shrinking or they just can't access.

As they move, they'll be in varying degrees of desperation. Many will likely have little to no internationally accepted legal identity documentation. Others, trying to find a place where they'll be safe, secure and able to survive, will lose their paper documents as they flee their homes and then cross borders.

My premise? Our old ways of legal physical identification do not work. We need to enable all people to be able to prove who they are.

## Civil Registration and Vital Statistics (CVS) Systems Are Outdated
The majority still use paper to document a CRVS event like a birth, etc. Even if a digital birth certificate is issued, it doesn't tie the unique identity, physically to the registration. Today, there are no standards for CRVS data, and no protocol for enabling one CRVS to instantly query all other CRVS's around the planet to check if the document is valid.

## Even if CRVS Systems Are Connected, It Won't Address the Migration Identity Problem
There is no ability to tie the person presenting an identity document uniquely to them. So, the piece of paper that the person presents, assuming they have it and want to present it, might or might not be reliable, i.e. a high level of identity assurance.

## Children Are A Big Part of the Challenge
Children, who don't have much identity documentation, form up to half of the migrant population. Thus, any traditional forms of "adult" legal identification, mostly won't work for them, e.g. driver's licenses, passports, etc. Unless the child was granted with a passport or, has a birth certificate, then they are one of the 1 billion people on the planet without a legal identity.

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# Rethinking Human Legal Identity

Here's the high-level architecture to rethink human legal identity:
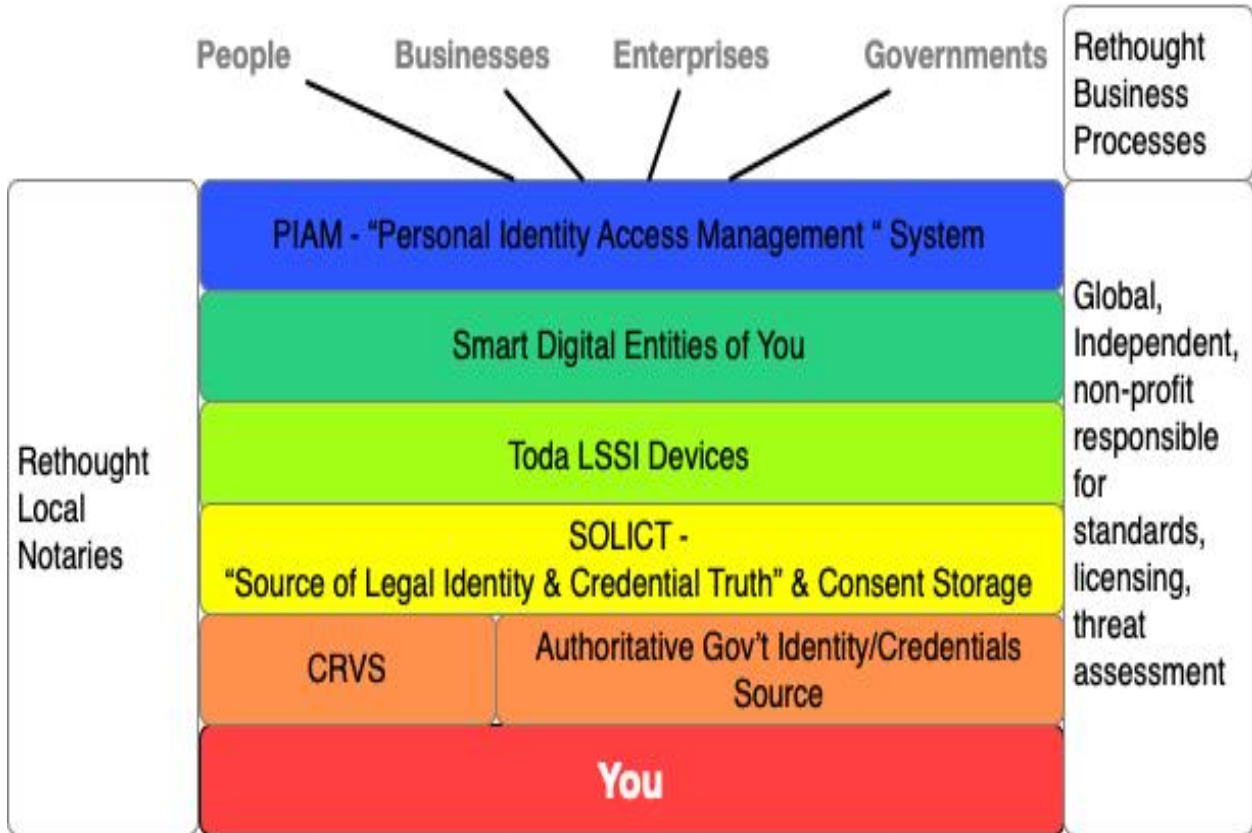
Skim this paper, "Rethinking Human Legal Identity". It lays out the architecture addressing this. At a high-level here's the summary:

- When you're born, your legal identity information plus your forensic biometrics are written to not only a new age CRVS (Civil Registration Vital Statistics) system, BUT ALSO TO YOUR SOLICT (Source of Legal Identity & Credential Truth)
- SOLICT is a database you control. It contains your legal identity information, credentials (e.g., Covid vaccination, education credentials etc.), as well as all consents given from you for use of your legal identity and credentials from cradle to grave
- LSSI (Legal Self-Sovereign Identity) devices which are ways in which you prove your legal identity. These include physical legal ID card, digital legal application, biometrically tied wristband containing your legal identity information, and a chip implanted into you containing your legal identity
- Smart digital identities of you. Depending on risk, you'll be required to legally register smart digital identities like digital twins, virtual selves, et al with the CRVS. These will be registered against your legal physical identity
- PIAM (Personal Identity Access Management) which is an AI leverage identity assistant. You can preconfigure it to release, with your consent, identity information to others. For each one, the PIAM writes the consent agreement to your SOLICT
- Rethought notaries - they're able to prove to a high degree of assurance it's really you
- New, independent, global non-profit - it's job is to set legal identity standards, as well as do 24x7x365 threat analysis against the legal identity framework e.g., governance, business processes, tech and end users

## Biometrics Are Not Secrets and Can Be Easily Stolen

Biometrics are not secrets. Just ask the German defense minister in 2014 who had her fingerprints obtained at a distance using a high resolution camera. Today, if your biometrics are obtained by criminals, you're effectively screwed because you can't revoke and re-issue them. Skim "**I Hate How We Use Biometrics Today**" - https://www.linkedin.com/pulse/i-hate-how-we-use-biometrics-today-guy-huntington/ to see my thoughts.

That's why on page 59 of this cost centre paper, it calls out for urgent research to confirm the 2015 paper of Rud Bolle. His paper suggested anonymizing biometrics such that they become revocable and re-issuable. If this is possible, the architecture heavily leverages this, significantly reducing risk of criminals stealing your biometrics. Look at the example of page 19 of the paper.

## Benefits of a Rethought Legal Identity

- Physical or digital legal identity, which the government issues, but you control i.e. a legal self sovereign identity (LSSI), which
- Also contains your forensic biometrics (e.g. fingerprints and iris), which you control, able to prove to the highest level of identity assurance who you are, which
- Enables you to determine the degree of information you want to release about yourself
- I'm a human acting anonymously, above or below age of consent, gender, name, country, state/province, city/town, address, etc., which
- Contains information about children you have or are guardian for or,
- People you're legally acting on behalf of, e.g. children, power of attorney, etc. or
- Covid vaccinations, school degrees, transcripts, etc., that
- Also contains information you're authoritative for like your will, etc.
- All of which you control in deciding who to release the information to
- Each time when you do decide to release the information, the consent for the identity and data you've agreed to release, is written to your SOLICT
- Now, you have a legal record, from your birth on, to all the consents granted to release your legal identity and data to which can be used by you, at a later date, to request removal from the datastores using acts like EU GDPR Article 17 ('right to be forgotten')
- If your LSSI device is compromised, you'd simply request cancellation of it, and a new one issued
- Your master legal identity data is written from birth, to to your own personal database which you control i.e., your SOLICT
- Which is able to prove you are you by securely obtaining your biometrics, with your consent, and can legally verify you are you, at any place on the planet, to the highest level of identity assurance
- When a civil registration event occurs to you, like a name/gender change, marriage, divorce, birth of children, etc., the local CRVS authority verifies, with your consent, your identity, via your biometrics, and updates the master SOLICT, which in turn updates your LSSI devices
- With the ability to only write to your SOLICT but never be able to delete it
- You can use your LSSI devices to anonymously prove Covid vaccinations, digitally sign documents using your legal identity, etc.
- All with a global independent body administering the standards, API interfaces, as well as doing continuous testing of the governance, business processes and technological interfaces, to ensure your legal identity remains secure
- It enables business and governments to streamline their legal identity processes, significantly reducing identity fraud
- All without the government telling you when to use your legal identity, or how to use it

## Proving Legal Identity Relationships Between Kids and Parents/Legal Guardians

Skim this article, "Legal Identity & TODA". It describes leveraging TODA, SOLICT and LSSI devices to rethink proving legal identity relationships.

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### Rapid Rate of Change
This curve hypothetically means each hour, new attack vectors are being created against the governance, business processes, tech infrastructure and end users in the legal identity framework. My premise is most enterprises and governments around the world don't have the expertise or resources to continually defend against it.

Thus, that's why the rethought legal identity framework calls out for a new, global, independent, non-profit able to do 24x7x365 threat analysis. It continually publishes these, with governments, businesses and end users responding to the threats based on risk. A low risk might take months or longer to respond to, while a very high risk must be responded to within hours. This brings current industry best practices to the world of legal identity.

To learn more about this skim pages 275-323 of this document.

## Now, Let's Apply This to Human Migrants, Young and Old

### From the Migrant Person's Perspective
- They might, or might not, want to share the legal identity information if they have it
    - **They can show their LSSI devices if they so choose**
- When they do want to be identified or, are required to by authorities, if they don't have their LSSI devices, with their consent, they'd give their names and forensic biometrics
    - These would be searched around the planet to confirm their legal identities

### From the Originating Jurisdiction's Perspective the Migrant is Fleeing From
- Has a legal responsibility, within their jurisdiction, to legally identify each person born or, who has claimed citizenship
- If the migrant has their LSSI device, the local authority could obtain, with consent from the migrants, their forensic biometrics and compare it to the one on the LSSI device, also checking the digital signature from the issuing authority
- Or, if they don't have their LSSI devices, with their consent, they'd give their names and forensic biometrics
    - These would be searched around the planet to confirm their legal identities

### From the Perspective of the Jurisdiction the Migrant is Fleeing To or Passing Through
- Want to identify people from outside their jurisdiction, who claim they're from the jurisdiction. from their actual citizens
- If the migrant has their LSSI device, the local authority could obtain, with consent from the migrants, their forensic biometrics and compare it to the one on the LSSI device, also checking the digital signature from the issuing authority
- Or, if they don't have their LSSI devices, with their consent, they'd give their names and forensic biometrics
    - These would be searched around the planet to confirm their legal identities

## From the Perspective of International Human Aid Agencies

- Want to identify the migrant and their family members
- If the migrant has their LSSI device, the local authority could obtain, with consent from the migrants, their forensic biometrics and compare it to the one on the LSSI device, also checking the digital signature from the issuing authority
- Or, if they don't have their LSSI devices, with their consent, they'd give their names and forensic biometrics
  - These would be searched around the planet to confirm their legal identities
- Be able to issue the migrant with a new set of legal identification from the migrant's SOLICT
  - Be able to issue the migrant with a LSSI device
- Protect the migrant's identity information from being misused by different jurisdictions
  - **Have policies and security infrastructure in place controlling who the identity information is released to**

### From an Identity System Perspective

- Needs to be able to biometrically determine the migrant's legal identity
  - **This is what the new legal identity framework enables**
- Protect the migrant's identity information from being misused by different jurisdictions
  - **Require consent of the person before allowing CRVS searches**
  - **Consider different levels of search capability, i.e.:**
    - **With limited consent from the migrant, only confirm the identity is from their jurisdiction without releasing identity information**
    - **With full consent confirm the legal identity information**
- Enable the migrant to legally control their own identity both physically and digitally
  - **This is what the LSSI device enables both physically and digitally**
- Be able to do securely do CRVS birth registrations, et al in remote locations
  - **This can be done by enabling health care workers to register births biometrically using the portable, secure device, via satellite.**
- Enable children's identities to be legally confirmed without identity papers
  - **The system would be able to do this by obtaining, with their parents/legal guardian's consent, the child's biometrics and searching all CRVS's for their identity**
- Have a legal identity system able to function globally
  - **The new legal identity framework would work physically and digitally planet wide**

## Leverage Covid Vaccinations to Register People

- When people come to get vaccinated, obtain with their permission, their forensic biometrics
- Do a search across all CRVS systems to see if they're registered in any CRVS
- If not, then register their legal identity as part of the vaccination process
- Issue them with their LSSI device

## Enable Migrants to Legally, Anonymously Prove They've Been Covid Vaccinated

Skim page 14 of this paper, to see a diagram showing how a person can legally, anonymously prove they've been Covid vaccinated, are above age of consent, etc.

**Does This Solve All the Migrant's Identity Challenges?**

No. There are many outstanding questions including but not limited to:

- What if a jurisdiction is using force to obtain a person's consent to confirm their identity?
- How does this apply to migrants who are mentally challenged?
- How are migrants/ identities used against them in industries like the sex trade?

My point is we are at the early design phase of the new legal identity framework. At the least, these types of questions can be considered as part of the design requirements. This is much better than the existing, old, decrepit, independent CRVS legal systems we use today.

# Summary

We are living in a major time of turbulence, and the pace of the change is increasing. The statistics shown for the four causes of migration, indicate that hundreds of millions of people will be affected over the coming years. They'll need to be legally identified. Our existing legal physical and digital identity systems wasn't made for this.

This thought paper shows how a rethought human legal identity system can be leveraged to assist migrants proving their legal identity, governments wanting to know who's crossing their borders and aid organizations wanting to legally identify migrants.

The thought paper also notes the proposed solution isn't perfect with respect to migrants. It states that a number of tough questions need to be thought of in the design phase of the new framework.

**Our existing legal identity systems are decrepit, based on technology from the middle ages, i.e. paper. Poor people, and those fleeing their countries, are the first to feel the effects of the old systems. I hope this thought paper has given, you the reader, a new way of looking at legal identity and migrants.**

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## Reference Links:

- "**An Identity Day in the Life of Jane Doe**" - https://www.linkedin.com/pulse/identity-day-life-jane-doe-guy-huntington/
- "**Revised Principles of Identity**" - https://www.linkedin.com/pulse/revised-laws-identity-guy-huntington/
- **"AI/Bots, National Security, Ethics, Privacy & Identity" - https://www.linkedin.com/pulse/governance-trust-guy-huntington-cus3c/**
- "**Rethinking Human Legal Identity**" - https://hvl.net/pdf/RethinkingHumanLegalIdentity.pdf
- **"Cost Centres – Rethinking Legal Identity & Learning Vision"** – https://hvl.net/pdf/CostCentresRethinkingLegalIdentityLearningVision.pdf
- "**Creating AI Systems/Bots Legal Identity Framework**" - https://hvl.net/pdf/CreatingAISystemsBotsLegalIdentityFramework.pdf
- **"Transformational Learning Vision"** – https://hvl.net/pdf/TransformationalLearningVision.pdf
- **"Learning Vision Flyover"** – https://hvl.net/pdf/LearningVisionFlyover.pdf
- "**My Learning Journey**" - https://www.linkedin.com/pulse/my-learning-journey-guy-huntington-7c9vf
- "**Vision: Learning Journey of Two Young Kids in a Remote Village**" - https://hvl.net/pdf/LearningJourneyofTwoYoungKidsInARemoteVillage.pdf
- "**Sir Ken Robinson - You Nailed It!**" - https://www.linkedin.com/pulse/sir-ken-robinson-you-nailed-guy-huntington/

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# About the Author – Guy Huntington



I'm an identity trailblazing problem solver. My past clients include Boeing, Capital One and the Government of Alberta's Digital Citizen Identity & Authentication project. Many of my past projects were leading edge at the time in the identity/security/change management space. I've spent the last eight years working my way through creating a new legal identity architecture and leveraging this to then rethink learning.

I've also done a lot in education as a volunteer over my lifetime. This included chairing my school district's technology committee in the 90's - which resulted in wiring most of the schools with optic fiber, behind building a technology leveraged school, and past president of Skills Canada BC and Skills Canada.

For the last eight years, I've been thinking, writing, and searching for new pieces with which to rethink legal identity architectures for AI systems, bots and AI leveraged, smart digital identities of us.  I then leveraged this to create a new learning architecture.

**I do short term consulting for Boards, C-suites and Governments, assisting them in readying themselves for the arrival of AI systems, bots and AI leveraged, smart digital identities of humans.**

**I've written LOTS about the change coming**. Skim the over 100 LinkedIn articles I've written, or my webpage with lots of papers.

## Quotes I REALLY LIKE!!!!!!:

- We cannot solve our problems with the same thinking we used when we created them" – Albert Einstein
- "Change is hard at first, messy in the middle and gorgeous at the end." – Robin Sharma
- "Change is the law of life. And those who look only to the past or present are certain to miss the future" – John F. Kennedy