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The Business of Identity Management

## When Our Legal Identity Trust Goes “Poof!”



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## Note to Reader I:

I have been writing about rethinking civil registration systems since 2006

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

Over the last several months, I have written 15 papers. Here’s a listing of them, by subject area, with links to each one:

- Example story of an identity’s lifecycle
  - [The Identity Lifecycle of Jane Doe](#)
- One-page summary
  - [New Age Identity– Privacy in the Age of Human Clones & Robotics](#)
- New laws required to do this
  - [“Why We Need to Rethink Our Vital Stats Laws”](#)
  - [“Why Your Digital Consent Matters – Including Sex”](#)
  - [“Why We Need New Biometric Laws Protecting Our Privacy”](#)
- What the new age civil registration/vital stats service does and doesn’t do
  - [“New Age Vital Statistics/Civil Registration Services: What They Do and Don’t Do”](#)
- 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”](#)
- Protecting the civil registration/vital stats infrastructure
  - [“When Our Legal Identity System Goes “Poof!”](#)
- Separating vital stats services/databases from other identity authentication services
  - [“Architecture Summary”](#)
- Creating Estonia Version 2.0
  - [“Creating Estonia Version 2.0 – Adjusting for Changes From 1999 to 2018”](#)
- Rethinking identity assurance using new age vital stats
  - [“New Age Identity Assurance – Turning it on its Head”](#)
- Rethinking Civil Registrations in Remote Locations
  - [“Where Shit Happens - Rethinking Civil Registrations in Remote Locations”](#)
- New Age Civil Registration/Vital Stats Design, Implementation & Maintenance Vision
  - [“Guy’s New Age Civil Registration/Vital Stats Design, Implementation & Maintenance Vision”](#)
- Robotics, Clones and Identity
  - [I’m Not a Robot](#)
  - [Legal Person: Humans, Clones, Virtual and Physical AI Robotics – New Privacy Principles](#)

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

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**Note to Reader II:**

This paper deals with Geomagnetic Disturbance (GMD) and High-Altitude Electromagnetic Pulse (HEMP) event proofing data centres for legal identity data.

## When Our Legal Identity Trust Goes “Poof!”

We are quickly constructing a world where we are digitizing our legal identification of identity, i.e. birth, name/gender change, marriage and death registries and biometrics to verify and authenticate an identity. If the underlying data was destroyed, it would result in a collapse of our legal identity system. **What are the chances of this system going “poof”? Actually, they’re quite high.**

## Geomagnetic Disturbance (GMD)

In the mid 1800’s there was a major geomagnetic disturbance from the sun. Called the “[Carrington Event](#)”, it caused widespread electrical damage. If this event was to occur today, it would likely wipe out most of the earth’s electrical grid. It may or may not wipe out data centre data. A smaller event, “[The Railroad Storm](#)” in 1921 occurred affecting telegraph equipment.

We narrowly avoided a similar storm in 2012. [This study](#) estimates the risk of this occurring as **12% THIS DECADE i.e. 1 in 8 chance.**

Then there’s the risk of a high-altitude electromagnetic pulse (HEMP) nuclear attack. This type of attack emits some additional energy waves that will wipe out data in datacentres unless they are EMP proofed.

Readers should:

- View this video, by Frank Gaffney, in 2017, for a US perspective on these types of attacks ( <https://securethegrid.com/a-must-see-briefing/>)
- Read “[Report of the Commission to Assess the Threat to the United States from Electromagnetic Pulse \(EMP\) Attack](#)” for a US impact of a HEMP event
- Read “[The Early-Time \(E1\) High-Altitude Electromagnetic Pulse \(HEMP\) and Its Impact on the U.S. Power Grid](#)”
- Read “[North Europe power transmission system vulnerability during extreme space weather](#)” for a European perspective on GMD events (but not HEMP)
- Read “[Developing Threats: Electro-Magnetic Pulses \(EMP\) - Defence Committee Contents](#)” for a UK perspective
- Read “[The EMP Threat to Canada](#)” for a Canadian perspective
- Read “[An Introduction to Nuclear Magnetic Pulse](#)” for a good background on EMP events

## The Effect of GMD and HEMP Events

In the US, studies have claimed that up to 90% of the population would eventually die as a result of these types of events. Why? The events would likely take down transformers. There is currently only a limited number of manufacturers of them AND it takes time to make each one. Thus, the grid would likely be mostly out for a number of years.

## Predicting GMD Storms

What is being done to predict the arrival of GMD storms? While NASA and other agencies have been working on this, the data on their efforts is currently mixed. This study “[Forecasting the Arrival Time of Coronal Mass Ejections: Analysis of the CCMC CME Scoreboard](#)” published in August of 2018, states:

- “Overall, current forecasts of the arrival time of CME-driven shocks have mean errors of 10 hours, with standard deviations of 20 hours.
- The most accurate model can forecast the arrival time of CME-driven shocks with a mean error (bias) of -1 hour, a mean absolute error of 13 hours, and standard deviation of 15 hours.
- Arrival time forecasts have not improved in accuracy during the previous six years.

## It’s All a Matter of Risk

Enterprise executives analyze the chances of an event occurring against the expected outcome and then weigh it against what they could instead spend their money and time on and the expected outcomes from this. Decisions are made based on the risk.

In today’s world, digitization decisions are made to reduce costs and offer new and/or faster electronic services to citizens. New technologies such as Blockchain and Sovrin offer citizens the ability to control most of their identity (refer to “[A Modern Identity Solution](#)”). These solutions rely upon the use of many thousands of servers around the planet.

Yet the risk of a business executive making decisions is different than that of a government leader whose government is responsible for documenting, storing and attesting that an identity document is true and legal. Without these documents, the underlying system of identity trust which makes the world operate won’t work. Thus, the underlying legal trust risk is extremely high from an GMD or HEMP event.

## A Big Red Flag

An GMD event is a big red flag. It will happen again. After the GMD event, those who survive, will need to rebuild their legal and economic systems, using the underlying identity verification data. Governments bear a responsibility to their citizens to ensure the data will survive and remain intact. So, what can be done to prepare for this big red flag event?

## Planning, Laws and GMD/HEMP Proof Data Centres

Governments and third parties like banks, telcos and insurance companies, need to pause in their digitization efforts to see what the effects would be today, if an GMD or HEMP event occurred. They should determine the following:

- Survey:
  - What electronic data exists within GMD/HEMP proof data centres and which resides in data centres that aren't GMD/HEMP proof
    - They should assume that the non-GMD/HEMP proof data centre data is lost
  - For the non-GMD/HEMP proof data, they should then determine:
    - If any paper-based records exist
    - Time, effort and cost required to reconstruct new electronic records from the paper-based ones
    - Temporarily halt plans for digitization of identity data until it can be determined that the data will be stored in an GMD/HEMP proof data centre
- Publish:
  - Governments should publish the result of their findings such that citizens now know the potential effects of an GMD/HEMP event upon their identity data
- Plan:
  - Governments should plan for GMD/HEMP proof data centres to occur as soon as possible to hold identity verification data
    - The plans and costs should be made public
- Legislate:
  - Governments should legislate that any core identity verification data must be stored in GMD/HEMP proof data centres
    - [This should include vital stats/civil registration data such as certificates for birth, name/gender change, marriage and death](#)
  - Governments should review legislation regarding financial, telcos and insurance companies and determine the requirements to store sensitive identity data to be stored in GMD/HEMP proof data centres
    - It might be useful for legislation to require these entities to publish if identity data of their customers is stored in GMD/HEMP proof data centres

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- Implement:
  - Governments should prioritize spending such that GMD/HEMP proof data centres are implemented as soon as possible
    - This might mean revamping existing data centres and/or building new ones
  - Third parties, such as banks, telcos and insurance companies should be “encouraged” to rapidly move to GMD/HEMP proof data centres

### **It's Not A Question of If, It's a Question of When**

An GMD event will occur again. It's only a question of when it will occur. In the mid 1800's, when the last major GMD event occurred, it disrupted telegraph systems. Yet, because society then wasn't as reliant upon electronic transmission and storage, it didn't stop most life from occurring. Consider today...

We rely upon our electrical grid and millions of different electronic components to store and move our data. Our cars, planes, trains et al rely upon electronics. Our movement of goods and services rely upon electricity as well as systems that produce and send traditional energy like gasoline. Our water and sewage are all dependent on electricity.

This type of event will severely disrupt us, causing loss of life and taking likely years to recover. We, as a society, need to prepare for these events.

There's some good news. This risk can be mitigated by governments and industry investing in similar technology that militaries have been using to harden systems for the last couple of decades.

One of the first places to begin is with our underlying legal identity trust systems. This can be done relatively quickly in comparison to upgrading the entire electrical grid. It's time to quickly survey, publish, plan, legislate and implement for this.



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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."

