

# Digital material passports

Global Forum on Steel Excess Capacity (GFSEC)

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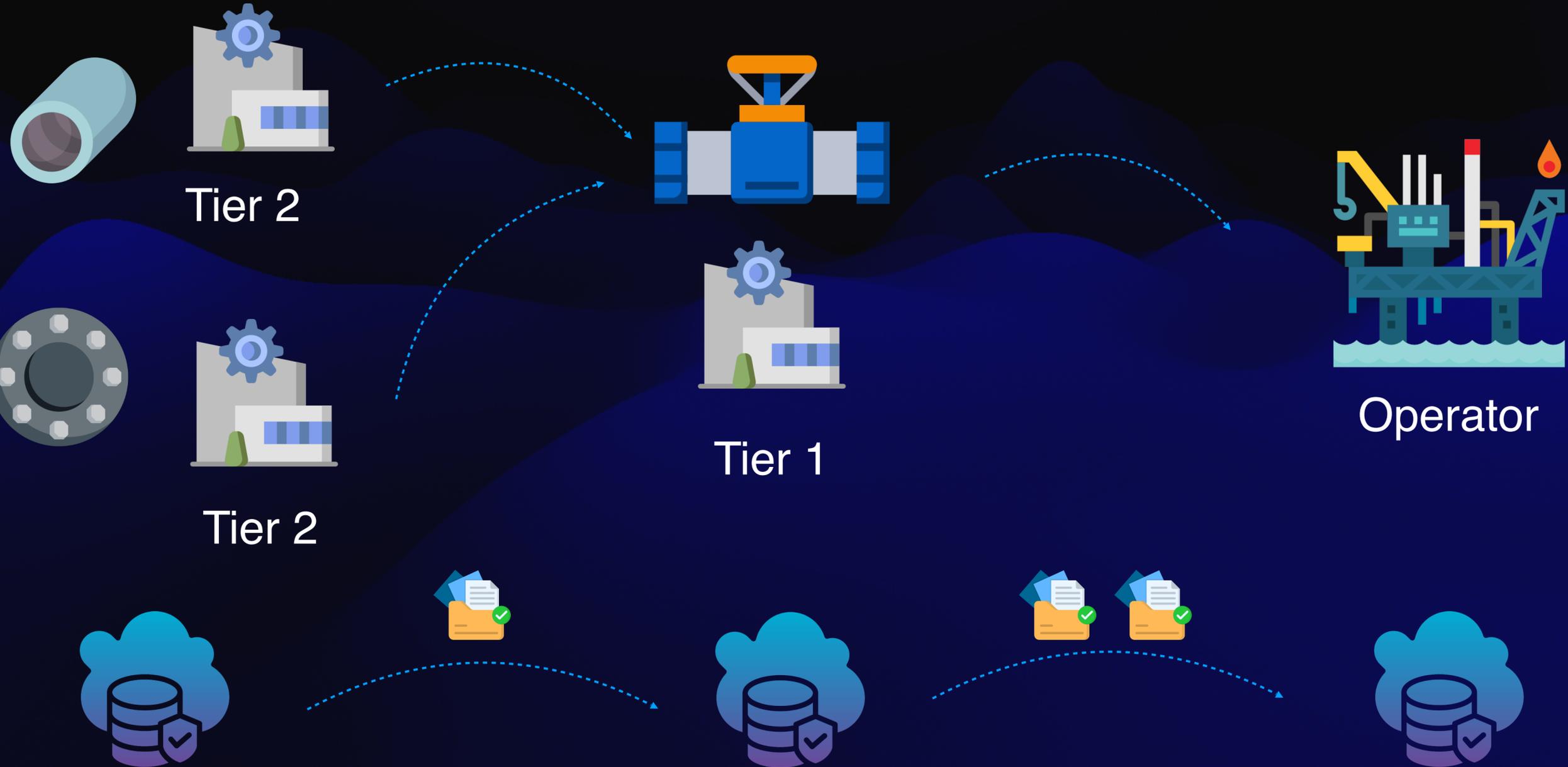
# Today's topics

- What are digital material passports
- Why they exist
- How it could help solve the excess steel problem
- How the technology works
- What the legislator can do

# What are Digital Material Passports?

A Digital Material Passport (DMP) serves as a digital twin for material moving through a supply chain. It contains all relevant data regarding a material utilized in a product. This passport contains information like material properties, manufacturing details as well as its environmental footprint.

# Digital supply chain



# What problem does it solve

- Large amounts of documents that are printed, signed, scanned, emailed
- Difficult to determine products origin
- Counterfeit material
- High reliance on man power insuring compliance
- Potentially border crossing documentation

# Types of counterfeit

- Fake products
- Country rebranding / hiding origin
- Fake documents
- Modified documents

# What about excess material?

- Create an ecosystem that makes sure no steel can enter the supply chain unseen
- But not all steel trade is visible to one party

# Border control and taxes

- ◎ Digitalize legal documents to cross a border
- ◎ Tax brackets
- ◎ Sanctions
- ◎ Conflict minerals

# Sustainability aspect

- Carbon tracing
- Improving recyclability / reusability
- Easier to repair
- Reduction of paper / data storage
- Reduction of waste material

# The enabling technology

# Distributed ledger



- ◎ Store information irrefutably in time
- ◎ Mathematical proofs of the data
- ◎ Traceability of who added what, in what point in time
- ◎ Digital signatures

# Cryptographic identification



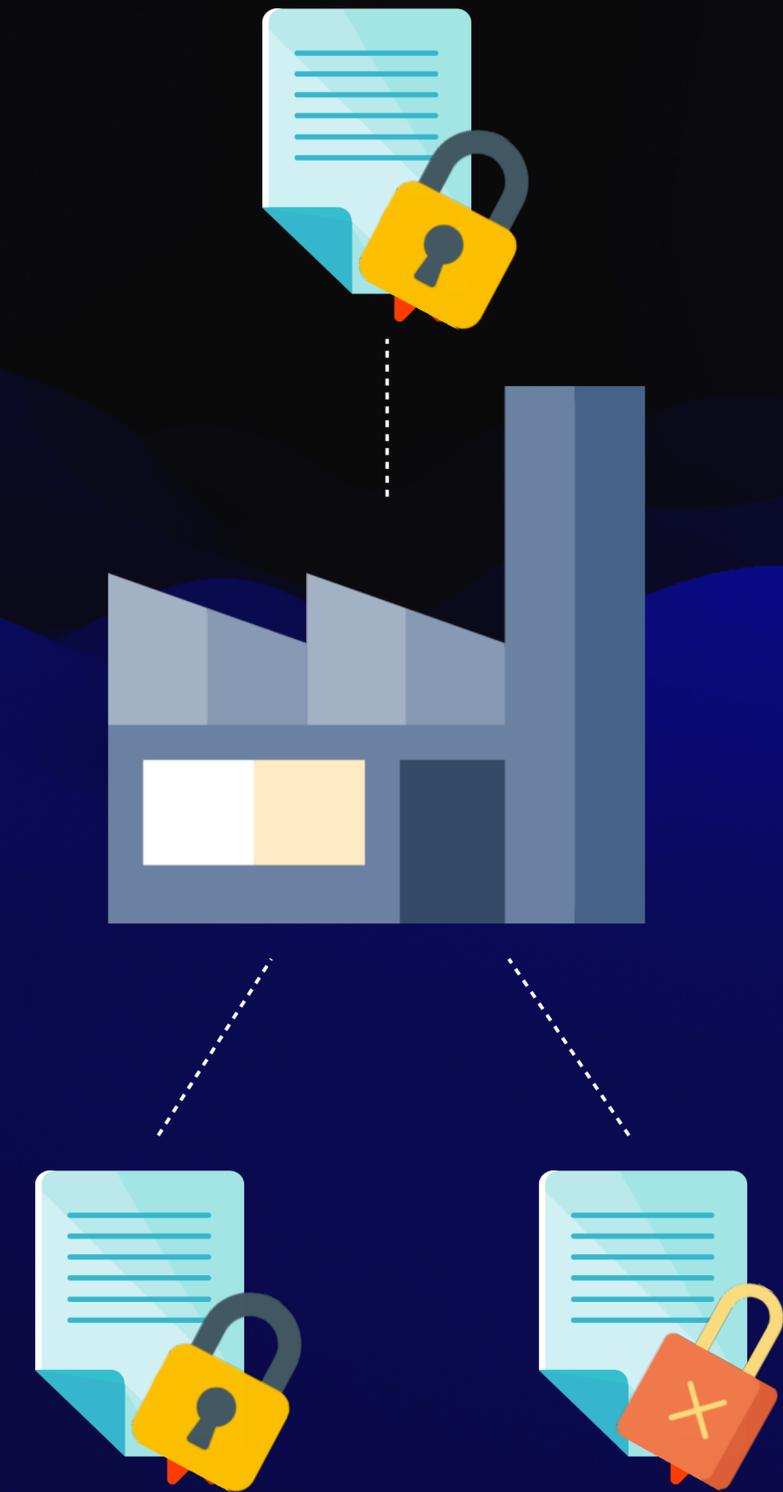
Public Key



Private Key

# Proof of origin

- Certificates can only be created by a qualified **mill**
- Instead of sending copies and certified copies, we **transfer the ownership** of the product
- **Quantities cannot be changed** by parties other than the original manufacturer
- End customers **can verify independently** if a certificate is real, unchanged and belongs to that product.



# What can the legislator do?

- Legalize digital forms of documentation (other than PDF)
- Accept digital documentation at the border
- Enforce the use of digital material passports

**Q&A**