Defragmenting the Construction Industry

Jaan Saar
Head of Digital Construction
Ministry of Economic Affairs and Communications
Estonia

© Berta Vosman

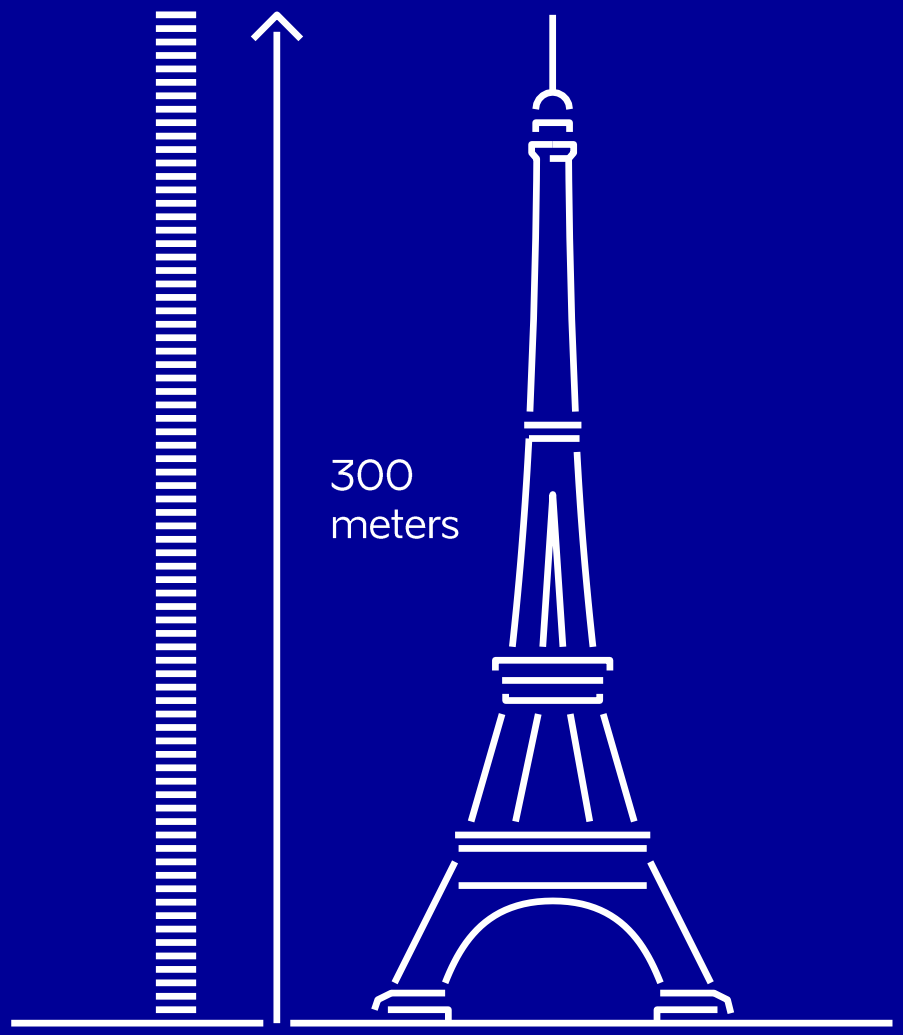
EU BIM Task Group General Assembly / 2nd October 2019 / Brussels, Belgium

a modest country that extends beyond its borders

+ population: 1.3 million
+ area: 45,339 km2
+ currency: Euro
+ member of: EU, NATO, WTO, OECD, DIGITAL 9
+ ICT sector: 7% of GDP

we are a digital society

+ ‘the most advanced digital society in the world’ — WIRED Magazine
+ 99% state services are online
+ digital signatures save 2% of GDP
+ a few hours to start a company
+ hassle-free e-taxation



A stack of paper saved each month

building registry

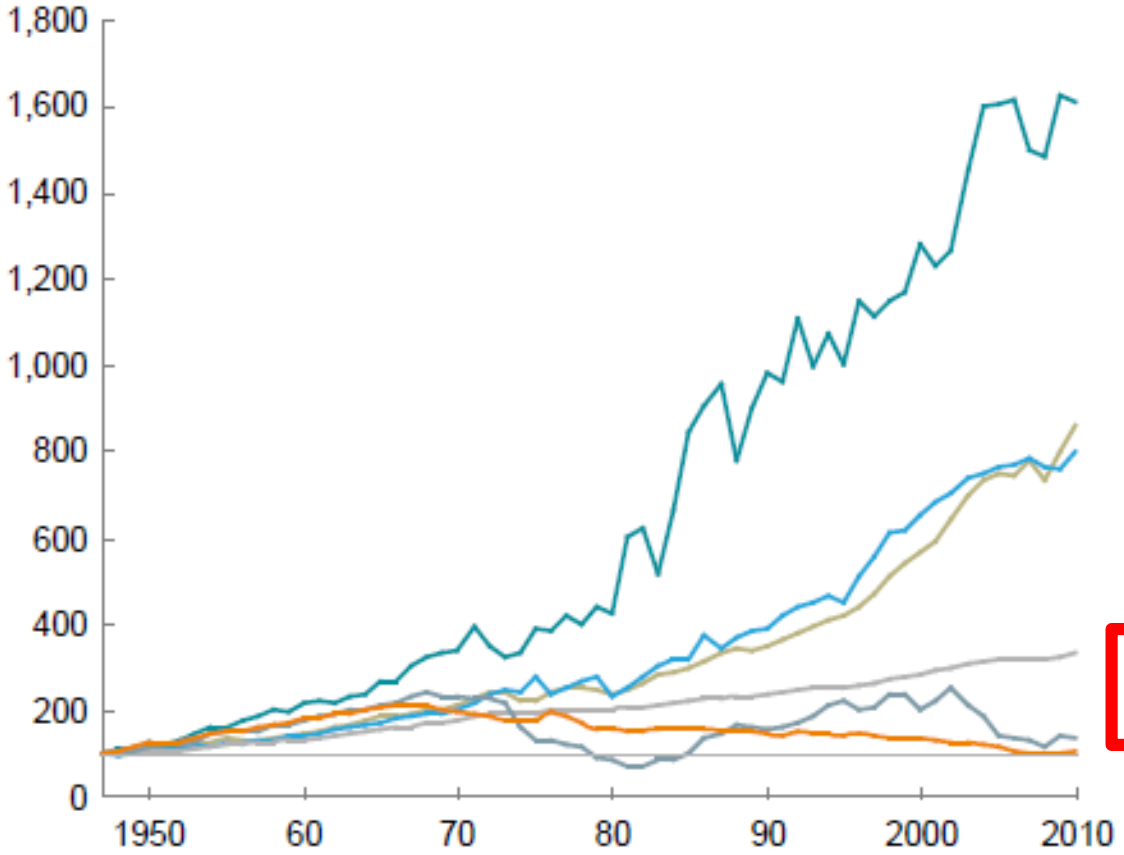
National database for all buildings

+ over 3 million data requests monthly via e-government services
+ over 32k procedures handled yearly
+ 400GB database
+ 2.8 million documents

© Anneli Arusaar

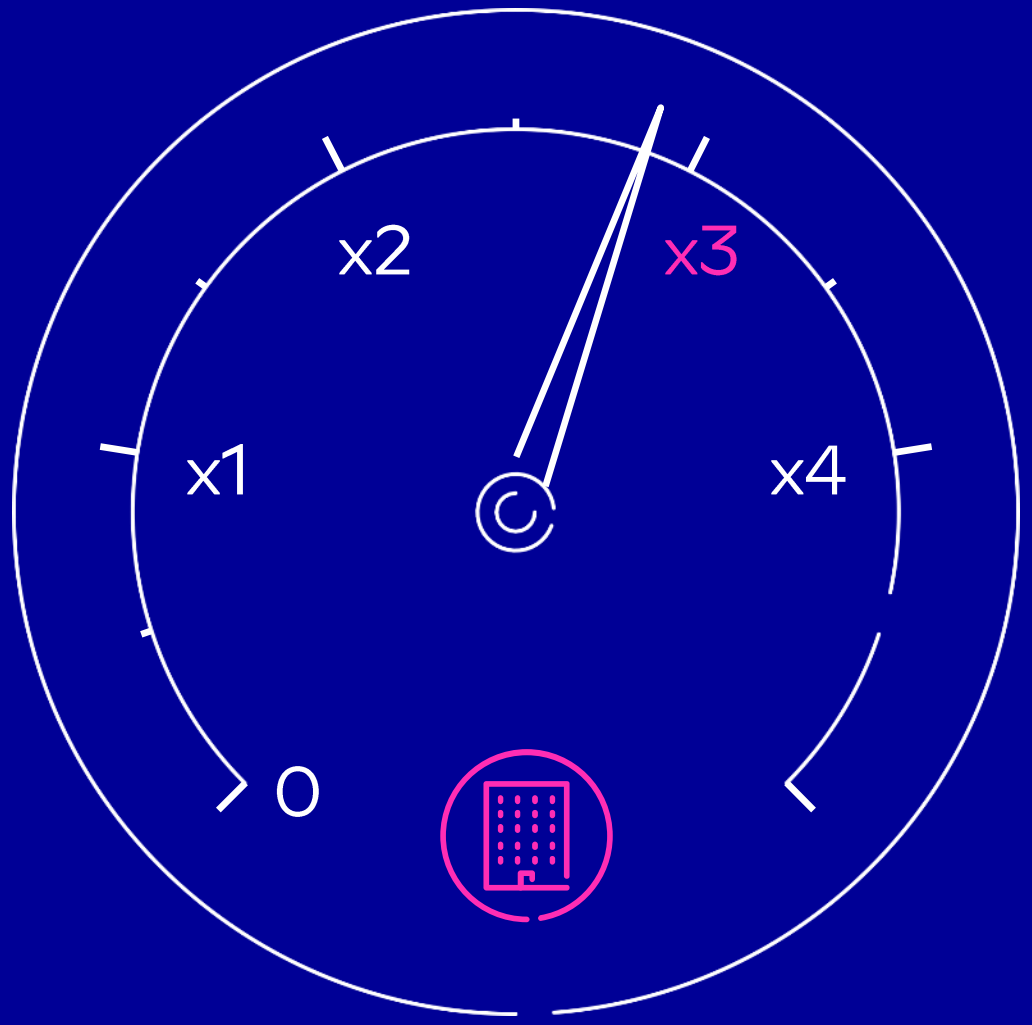
where is the problem?

Gross value added per hour worked, constant prices
Index: 100 = 1947



	Compound annual growth rate, 1947–2010 %	Total change
Agriculture	4.5	16.1x
Manufacturing	3.5	8.6x
Wholesale and retail	3.4	8.0x
Overall economy	1.9	3.3x
Mining	0.5	1.4x
Construction	0.1	1.1x

objective for construction: increase productivity x3



+ Government aims to increase construction sector productivity x3 by 2030
+ Current productivity is below EU average

complexity

+ Large amount of stakeholders
+ Fragmented nature of the industry
+ Long building lifecycle
+ least digitized

role of government

Legislation

Direct and influence adoption of new solutions using relevant legislation

Process improvement

Map and improve existing processes, support adoption of new tools and methods

Education

Develop educational curriculums and government orders to develop skills for innovative

Create the environment for secure and reliable data exchange

>> e-construction platform

e-construction platform

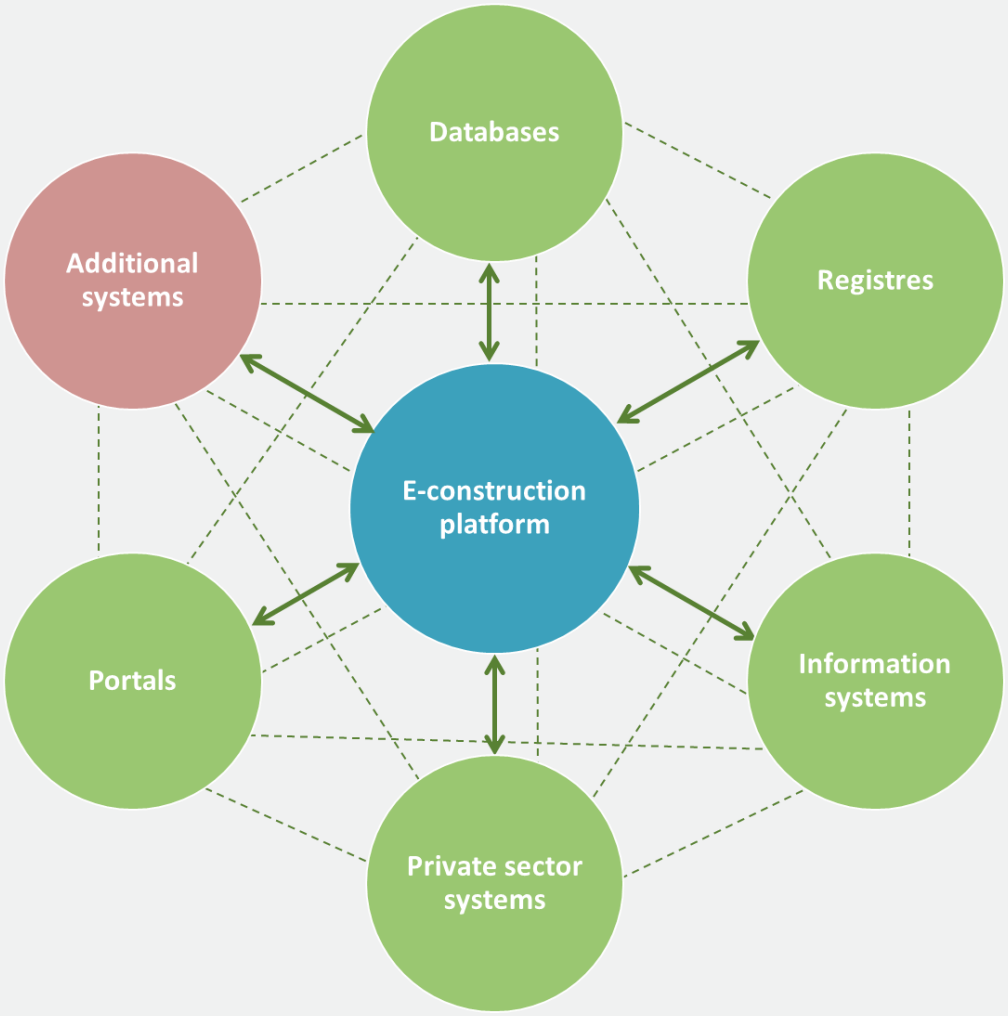
lossless exchange of standardized and trustworthy data between all stakeholders throughout the building lifecycle

+ Better data management = improved decision making
+ BIM becomes the norm
+ more efficient and transparent public processes
+ added value from new digital products and services

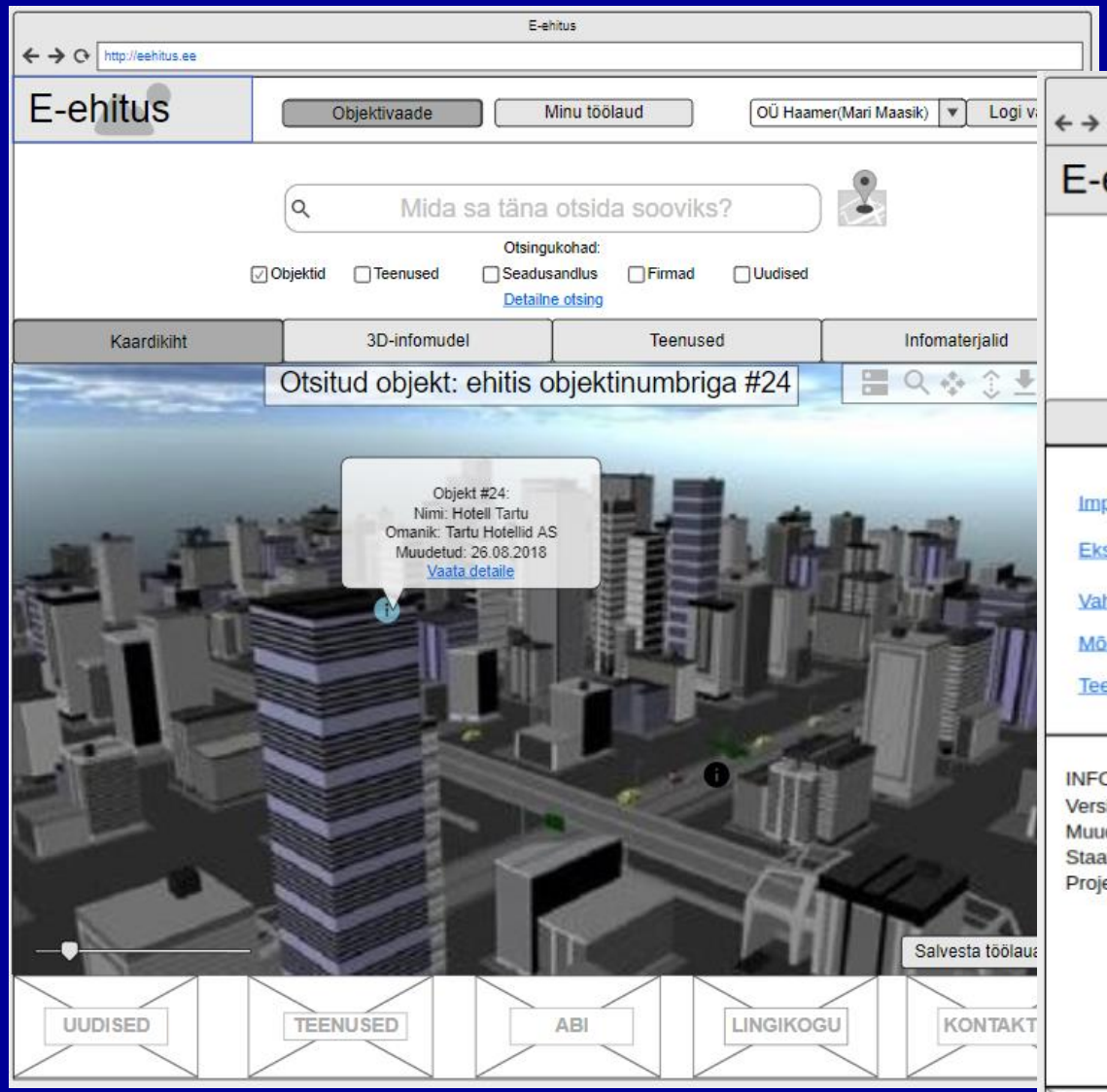
© Taaniel Malleus

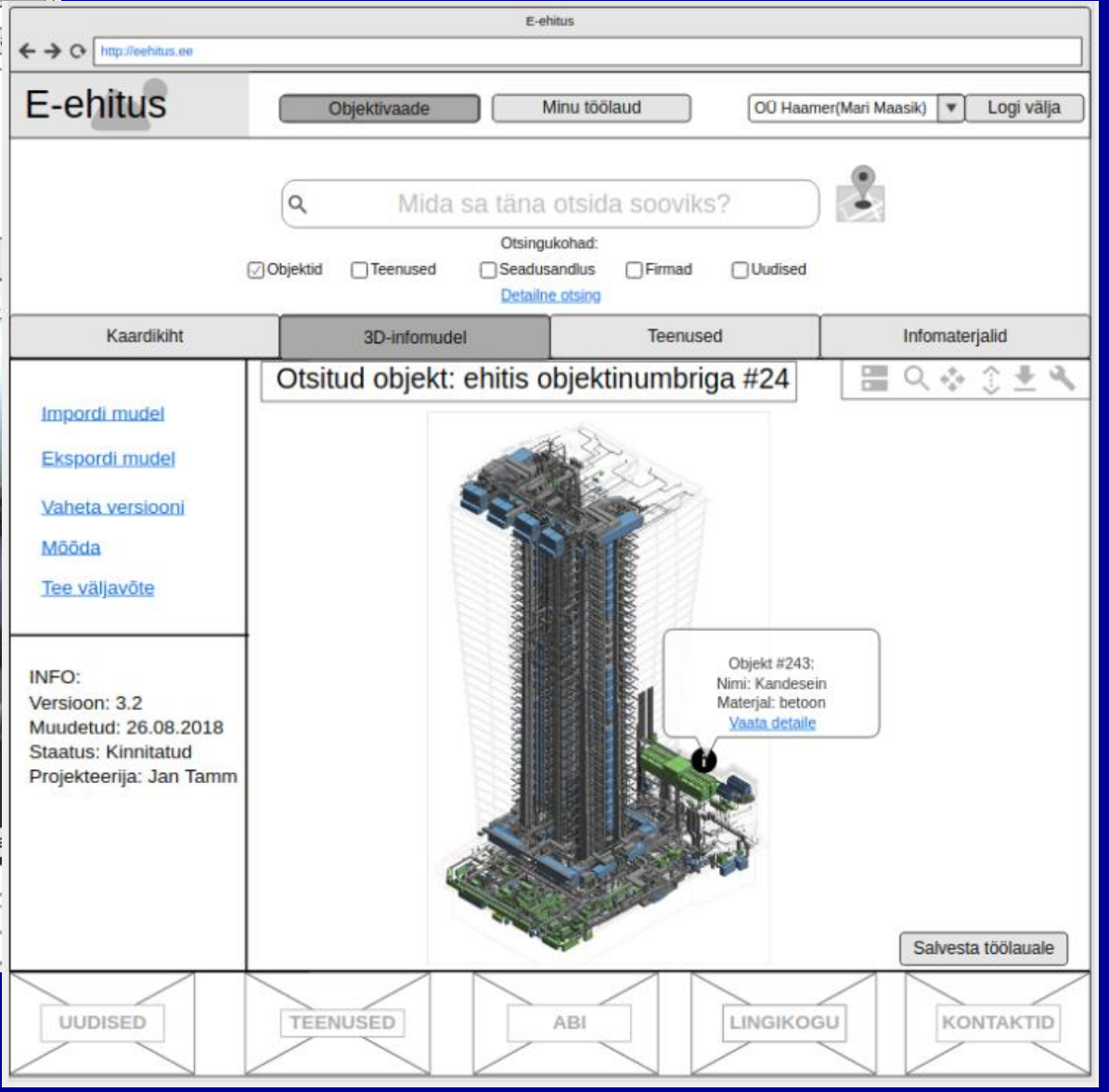
integration

connecting built environment data and services without a centralized or master database

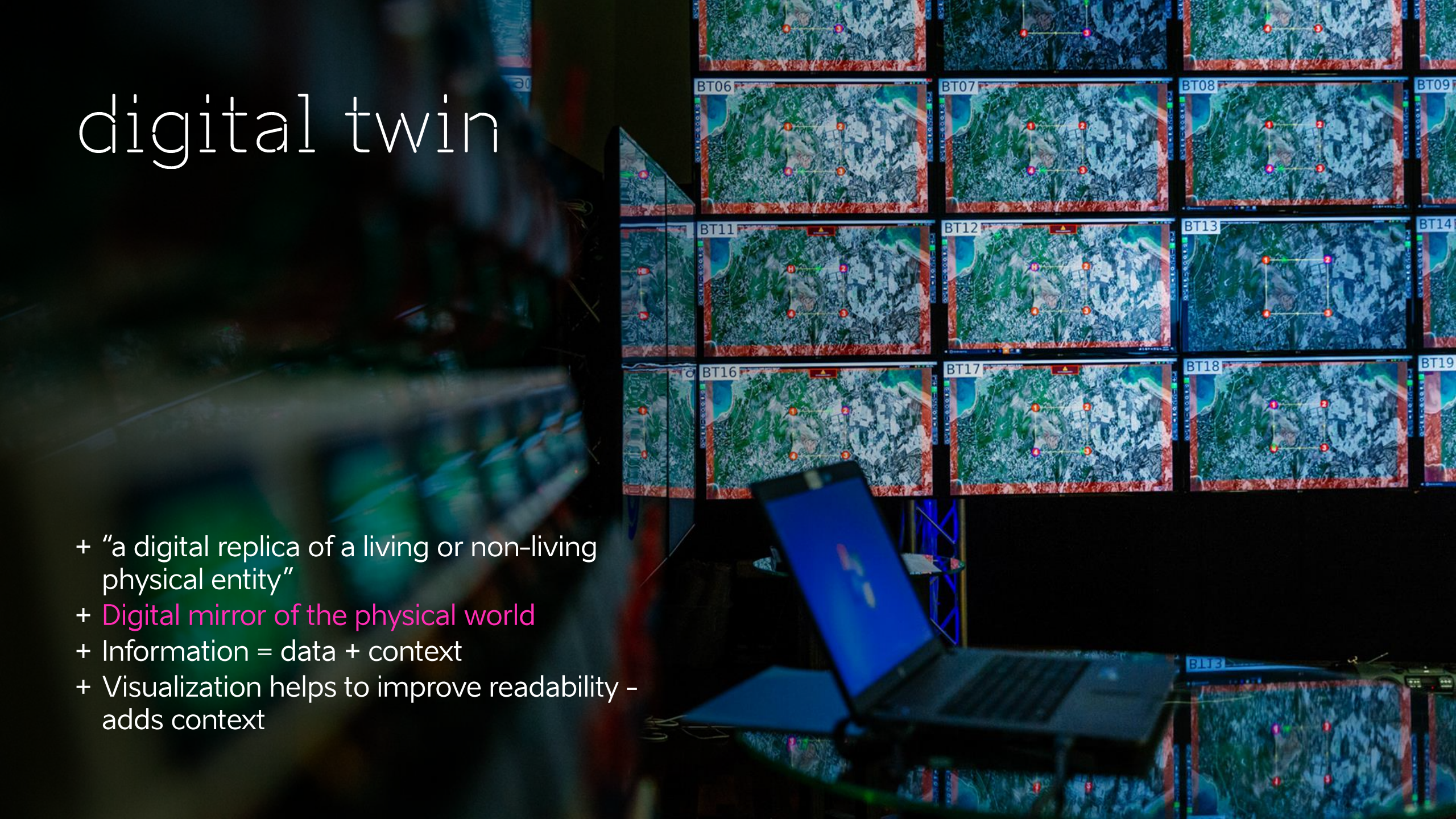


+ using existing e-gov infrastructure (x-road)
+ open platform and API-s
+ secure by design with e-ID authentication
+ KSI blockchain used for integrity verification of government registries
+ access point to digital twin


E-ehitus
http://eehitus.ee
E-ehitus
Objektivaade
Minu töölaud
OÜ Haamer(Mari Maasik)
Logi v
Mida sa täna otsida sooviks?
Otsingukohad:
Objektid
Teenused
Seadusandlus
Firmad
Uudised
Detailne otsing
Kaardikiht
3D-infomudel
Teenused
Infomaterjalid
Otsitud objekt: ehitis objektinumbriga #24
Objekt #24:
Nimi: Hotell Tartu
Omanik: Tartu Hotellid AS
Muudetud: 26.08.2018
Vaata detaile
Salvesta töölaua
UUDISED
TEENUSED
ABI
LINGIKOGU
KONTAKT


E-ehitus
http://eehitus.ee
E-ehitus
Objektivaade
Minu töölaud
OÜ Haamer(Mari Maasik)
Logi välja
Mida sa täna otsida sooviks?
Otsingukohad:
Objektid
Teenused
Seadusandlus
Firmad
Uudised
Detailne otsing
Kaardikiht
3D-infomudel
Teenused
Infomaterjalid
Otsitud objekt: ehitis objektinumbriga #24
Impordi mudel
Ekspordi mudel
Vaheta versiooni
Mööda
Tee väljavõte
INFO:
Versioon: 3.2
Muudetud: 26.08.2018
Staatus: Kinnitatud
Projekteerija: Jan Tamm
Objekt #243:
Nimi: Kandesein
Materjal: betoon
Vaata detaile
Salvesta töölauale
UUDISED
TEENUSED
ABI
LINGIKOGU
KONTAKTID

digital twin



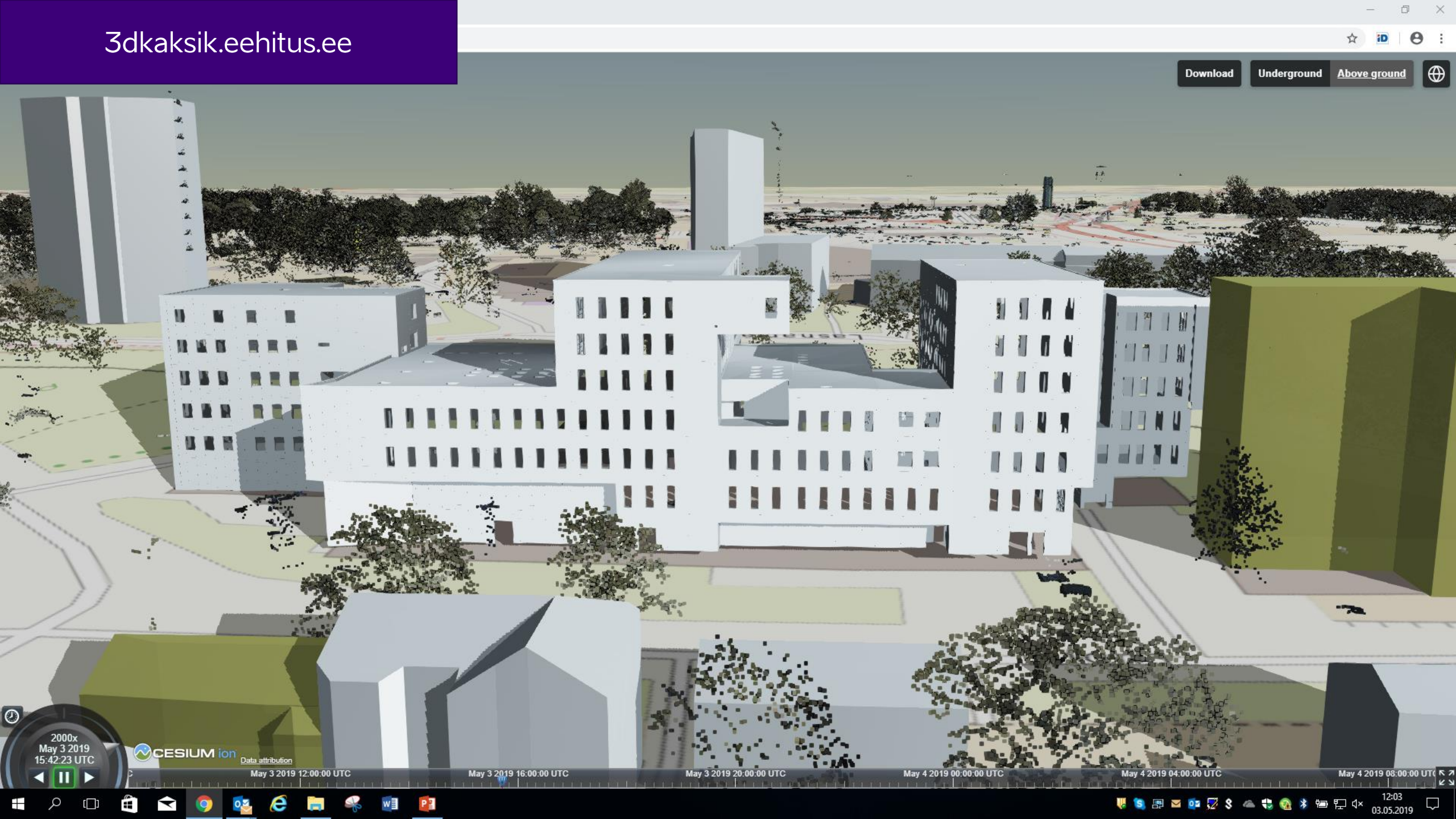
+ “a digital replica of a living or non-living physical entity”
+ Digital mirror of the physical world
+ Information = data + context
+ Visualization helps to improve readability – adds context

proof of concept

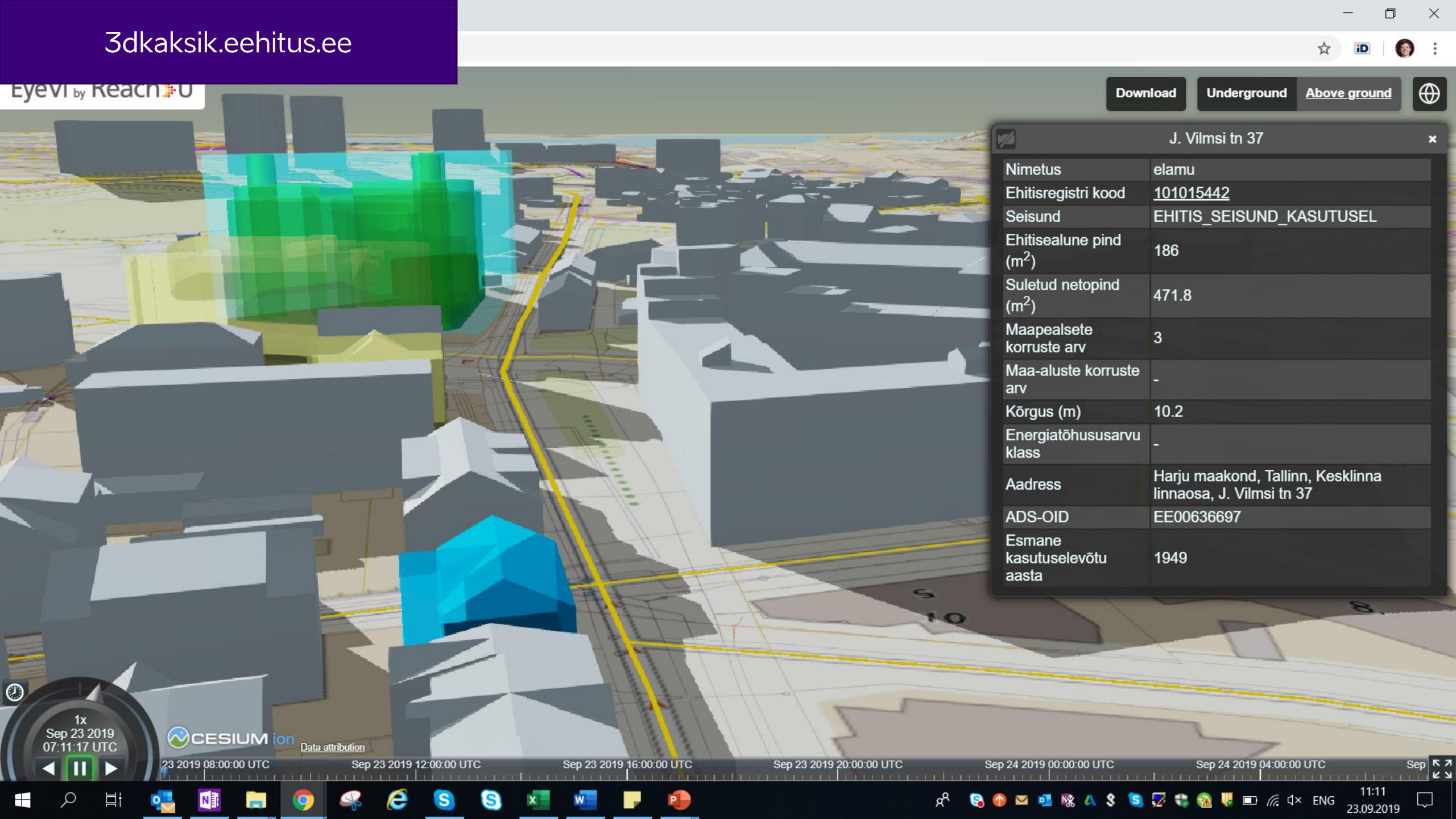
- Proof-of-concept solution showing small part of Tallinn
- ~240 buildings in LOD2
- Connecting data from 8 different sources
  - Vector maps
  - Point clouds
  - 3D models (BIM)
  - Mesh modesl
  - Metadata
- http://3dkaksik.eehitus.ee/

https://www.youtube.com/watch?v=ZO5K2iXRyps

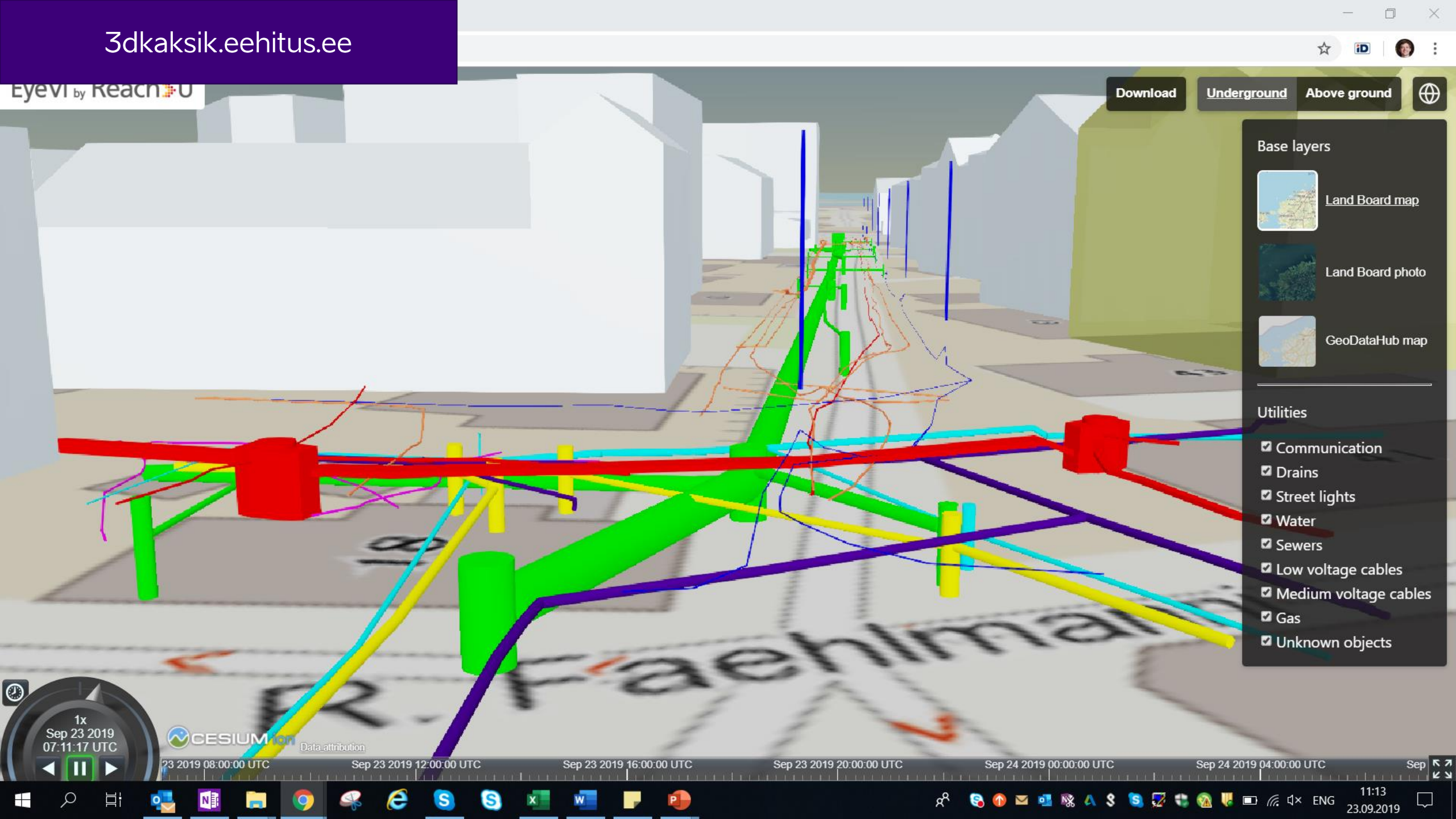
3dkaksik.eehitus.ee



3dkaksik.eehitus.ee

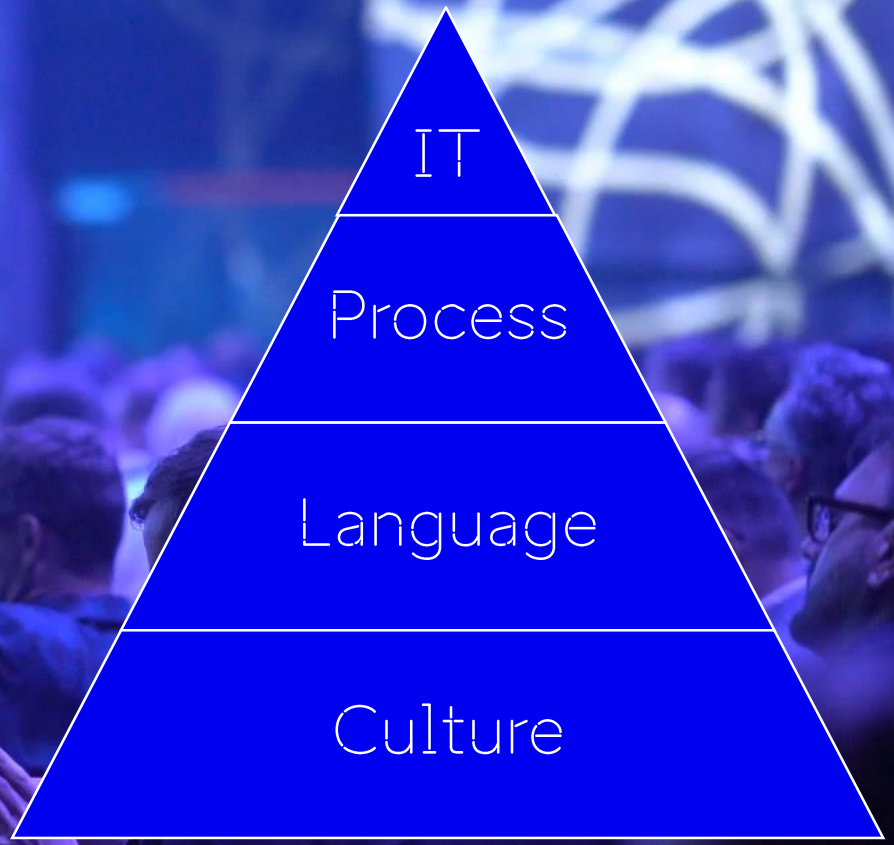


3dkaksik.eehitus.ee



collaboration

between public and private



+ Public procurers as the model client
+ National digital infrastructure for construction
+ Active participation and support from private sector, open sharing of knowledge
+ international co-operation

© Virgo Haan

collaboration partners

+ Estonian Public Clients BIM Group (Buildings and Infrastructure)
+ Municipalities (e.g. Tallinn)
+ Government agencies and ministries
+ Digital Construction Cluster
+ Industry associations
+ Universities and schools
+ EU BIM Task Group
+ Nordic and Baltic public authorities

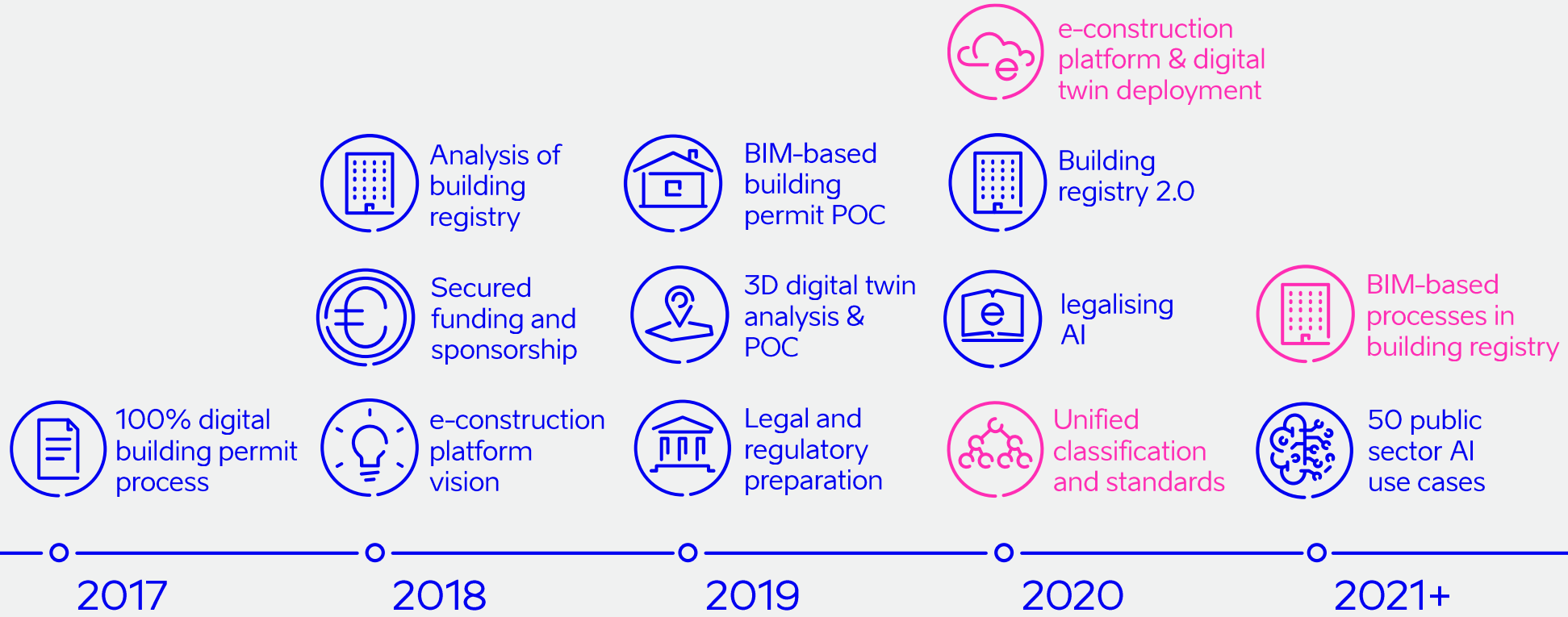
agility

start-up mentality
in government

+ over 600 startups in Estonia
+ 4 unicorns - #1 in start-up friendliness
+ deliver incrementally
+ fail fast and improve
+ build to scale-up

© Liina Notta

e-construction roadmap

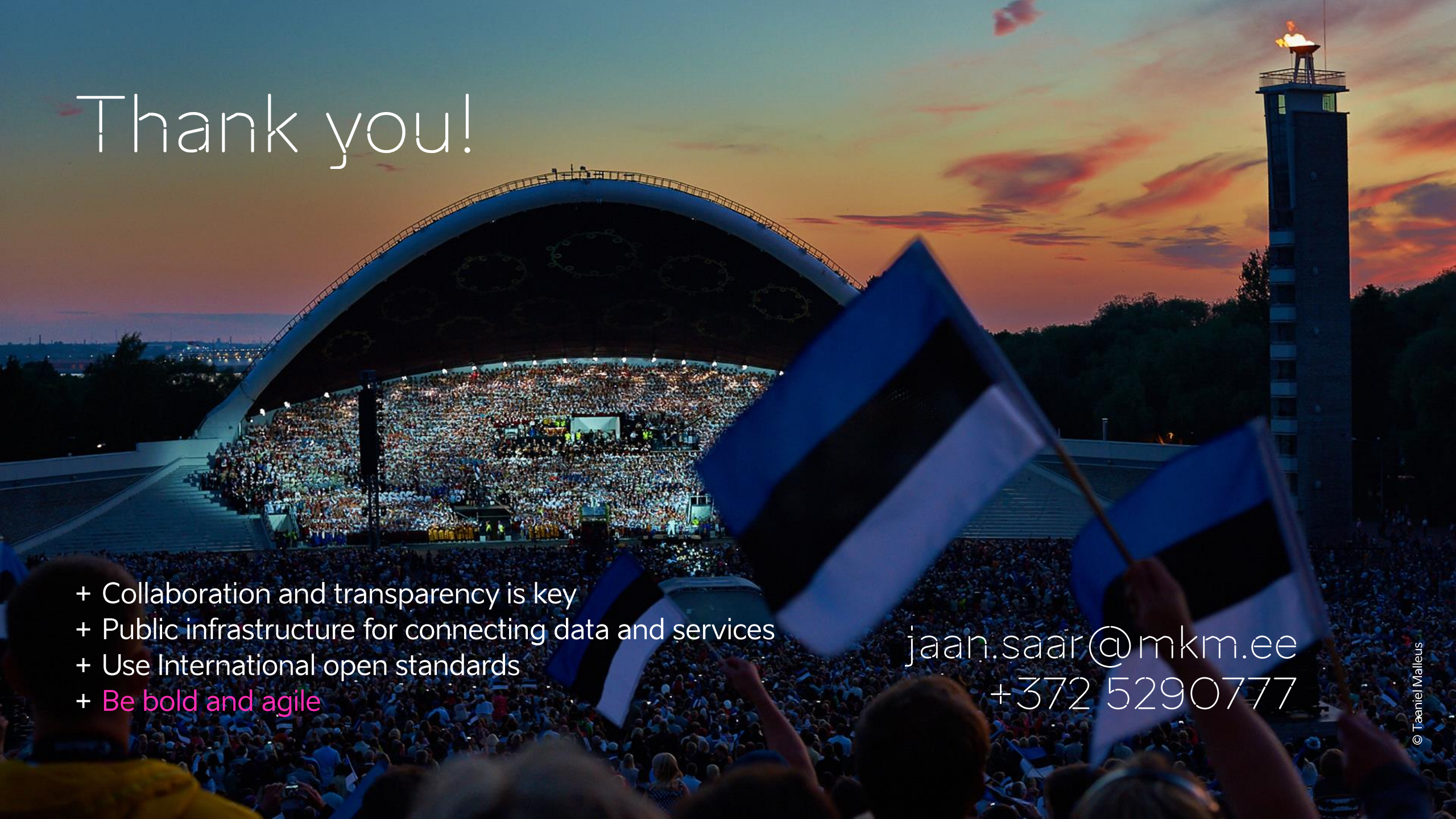


digital leadership
The strongest leadership brings enlightenment.
+ Technology or money is not the solution
© Kristoffer Vaikla

join 33,000+ e-residents

© Renee Altrov

Thank you!



+ Collaboration and transparency is key
+ Public infrastructure for connecting data and services
+ Use International open standards
+ Be bold and agile

jaan.saar@mkm.ee
+372 5290777

© Taaniel Malleus