



Einstein Telescope

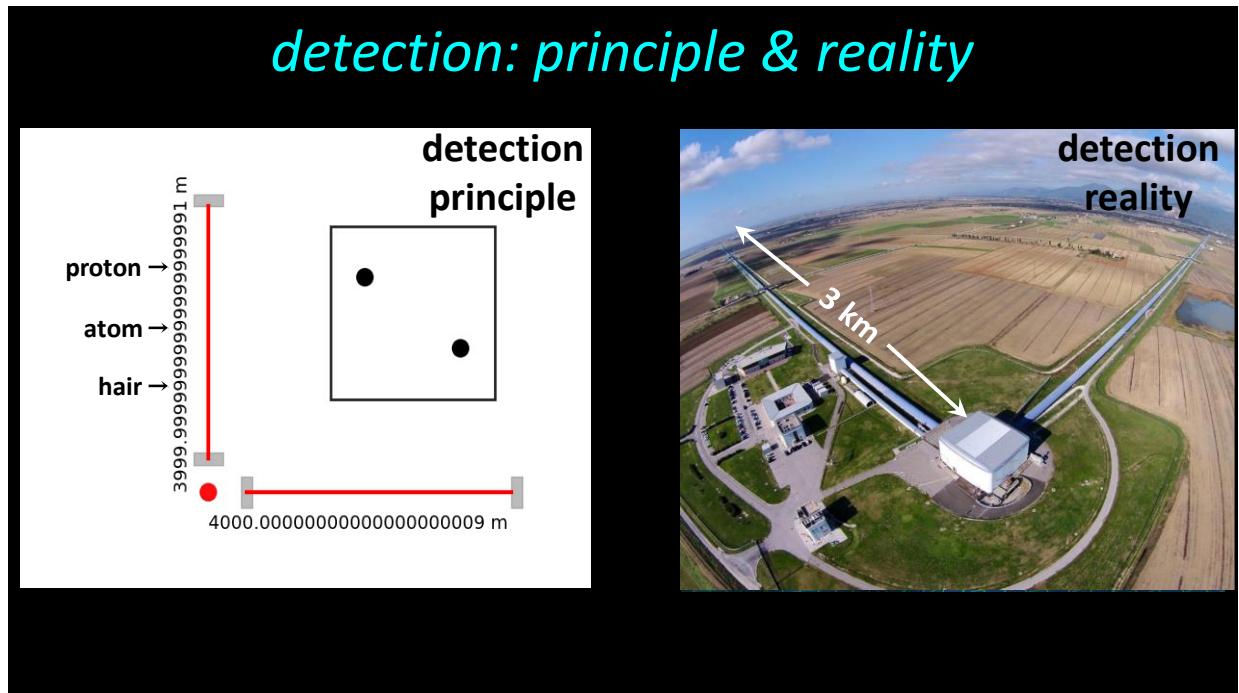
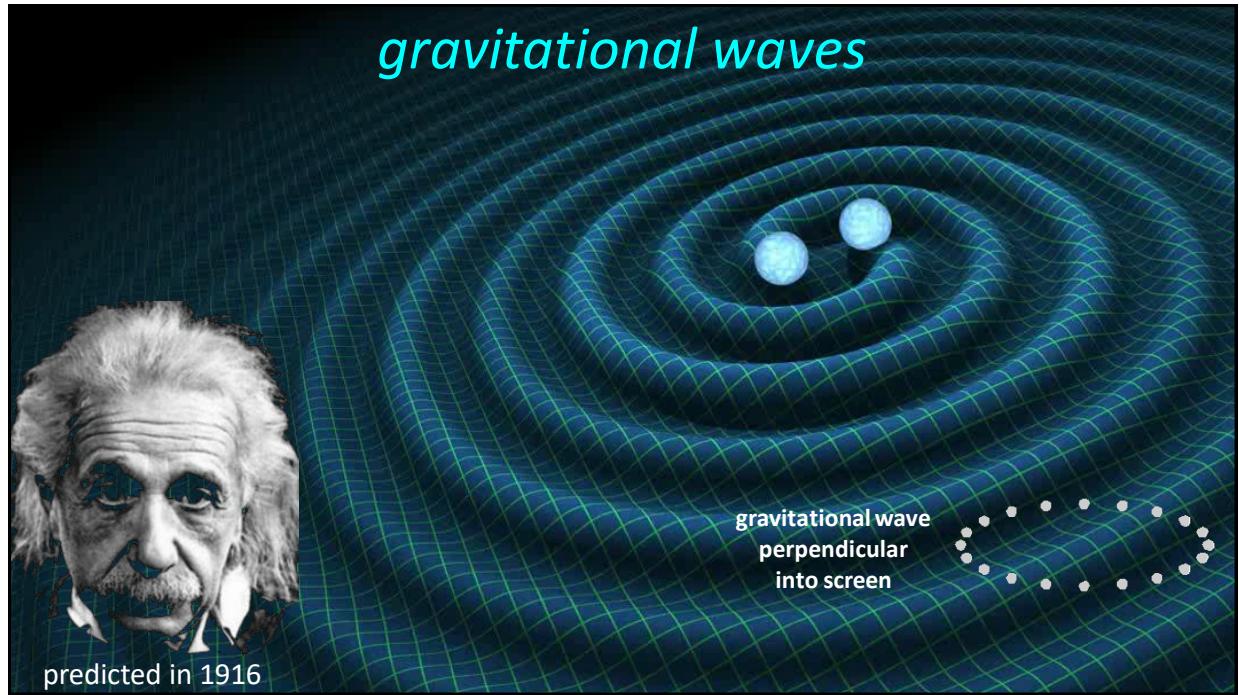
Christophe Collette (Université de Liège)

Frank Linde (Universiteit van Amsterdam)

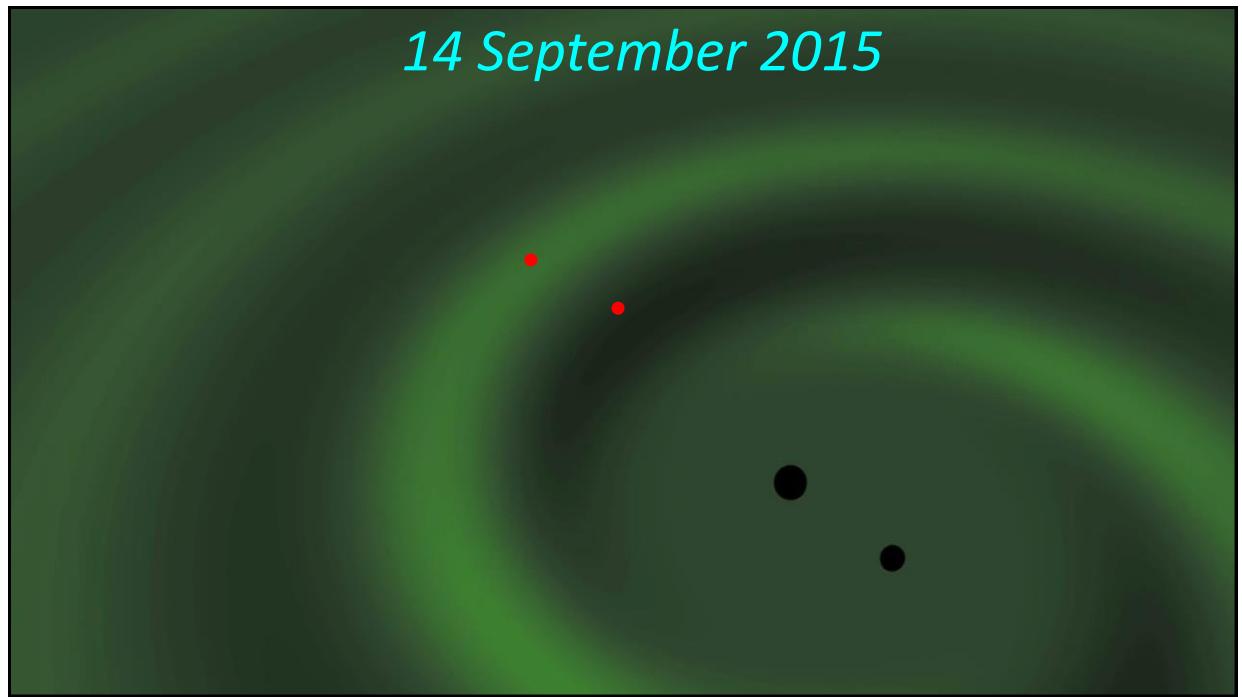
Martijn Rumpen (Provincie Limburg/NL)

Friday, 6 March 2020, Brussel

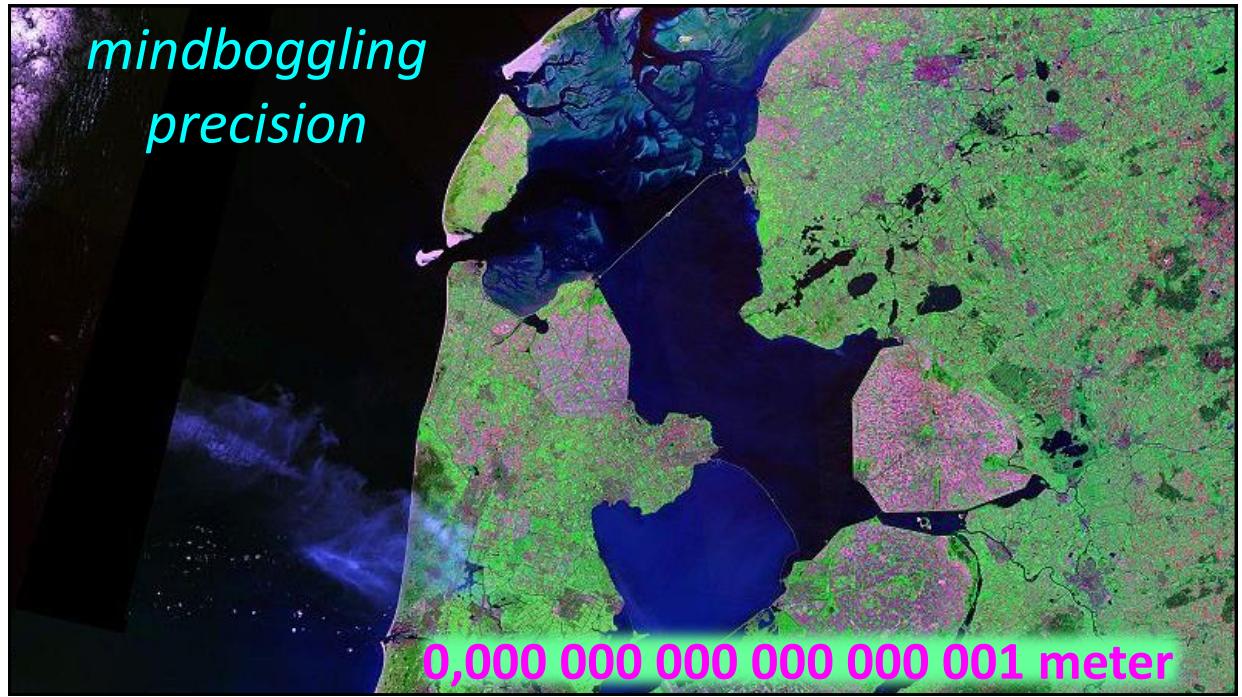




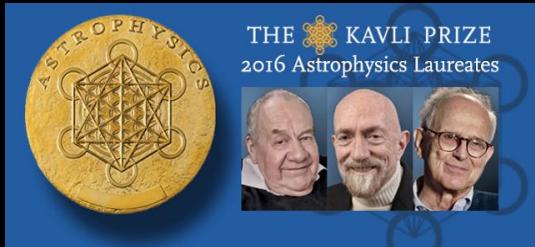
14 September 2015



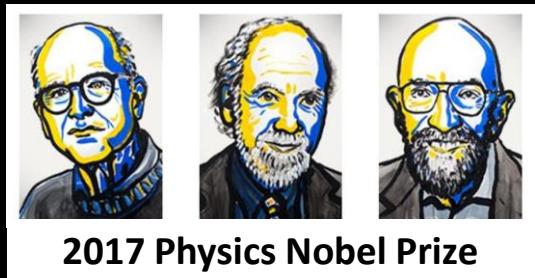
*mindboggling
precision*



revolutionary *new window* on our Universe



...proven track record ...

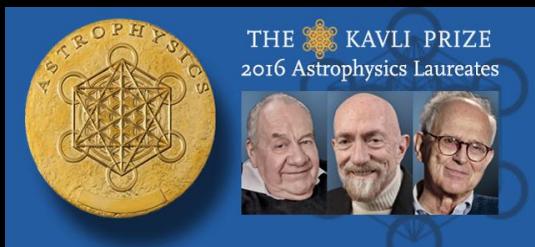


2017 Physics Nobel Prize

gravitational waves:

- *from all corners of the Universe*
- *from the earliest times (Big Bang)*
- *foretells ('alerts') cataclysmic events*

revolutionary *new window* on our Universe



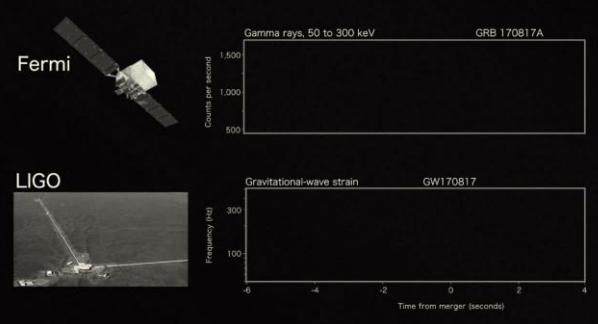
...proven track record ...



2017 Physics Nobel Prize

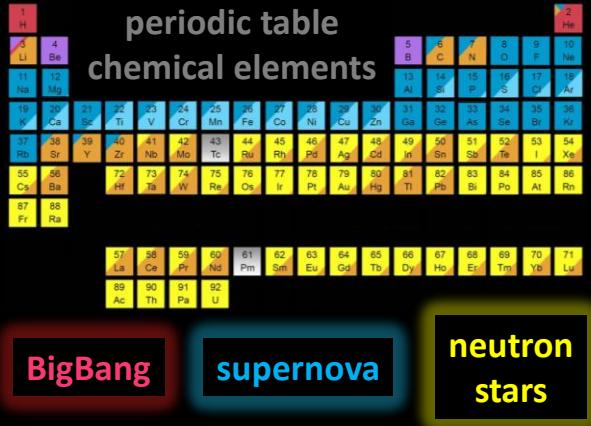
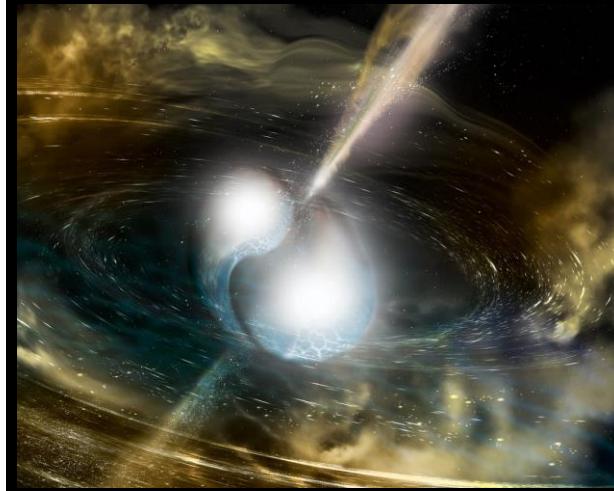
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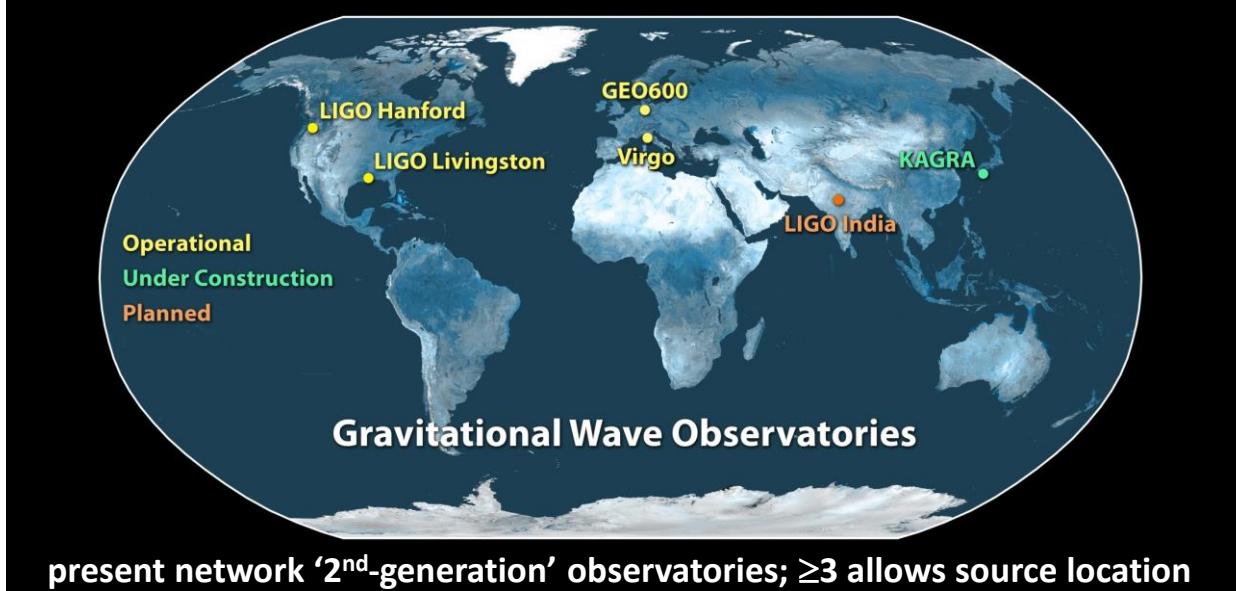


coalescence of two neutron stars

1st publication (3623 authors) in collaboration with ~ 70 telescope consortia;
large fraction of worldwide telescopes were pointed at GW170817 • • •



worldwide interest/collaboration





gravitational waves & multi-messenger astronomy

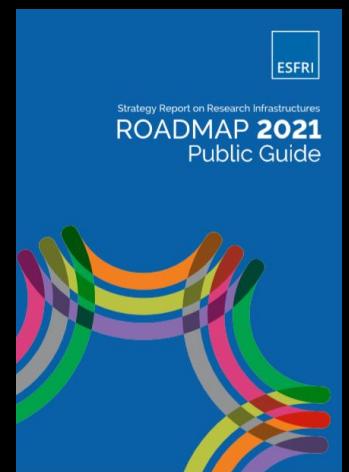
global

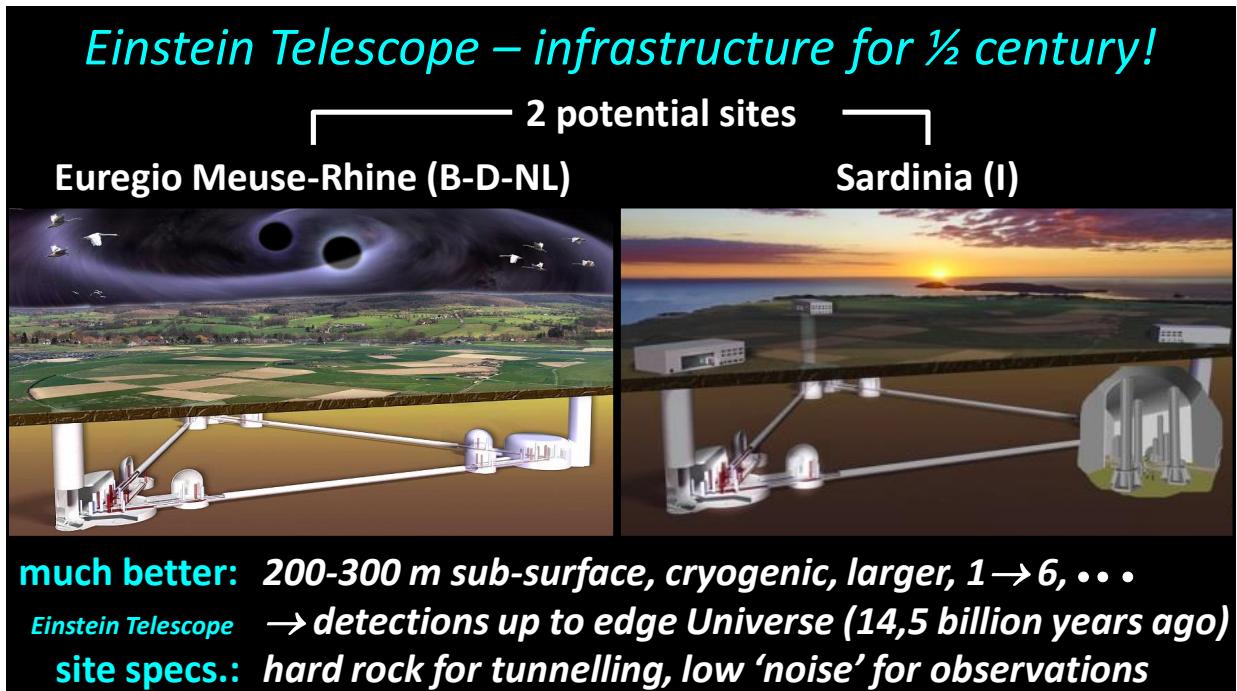
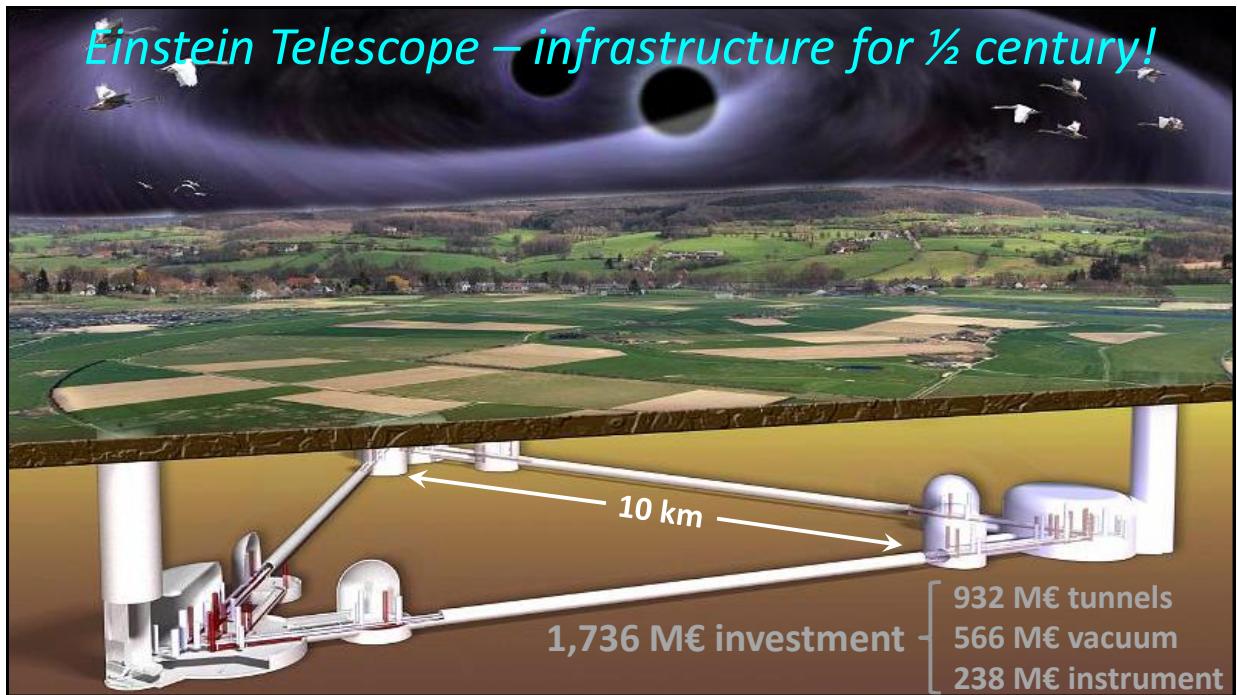


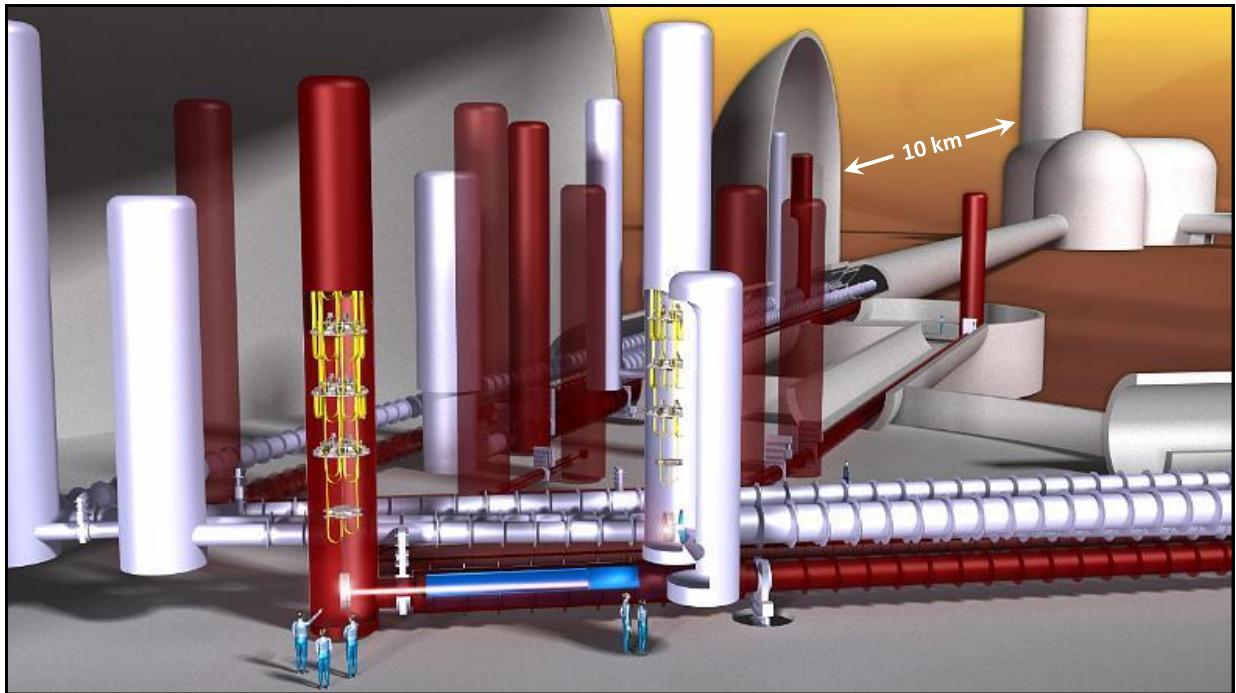
europe



ESFRI roadmap
2021 update







essential ingredients: *collaboration!*

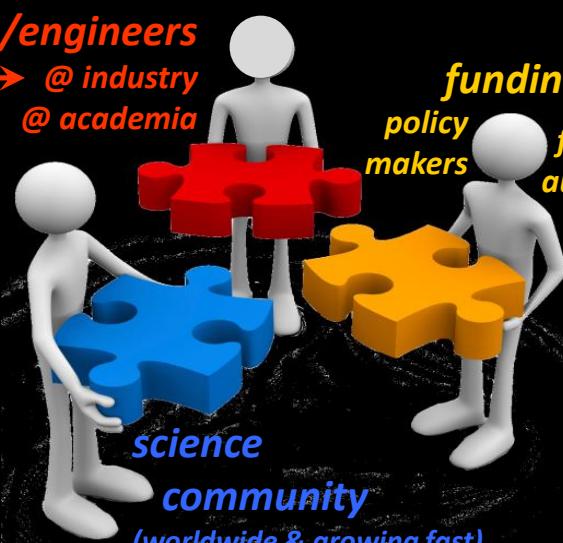
technicians/engineers

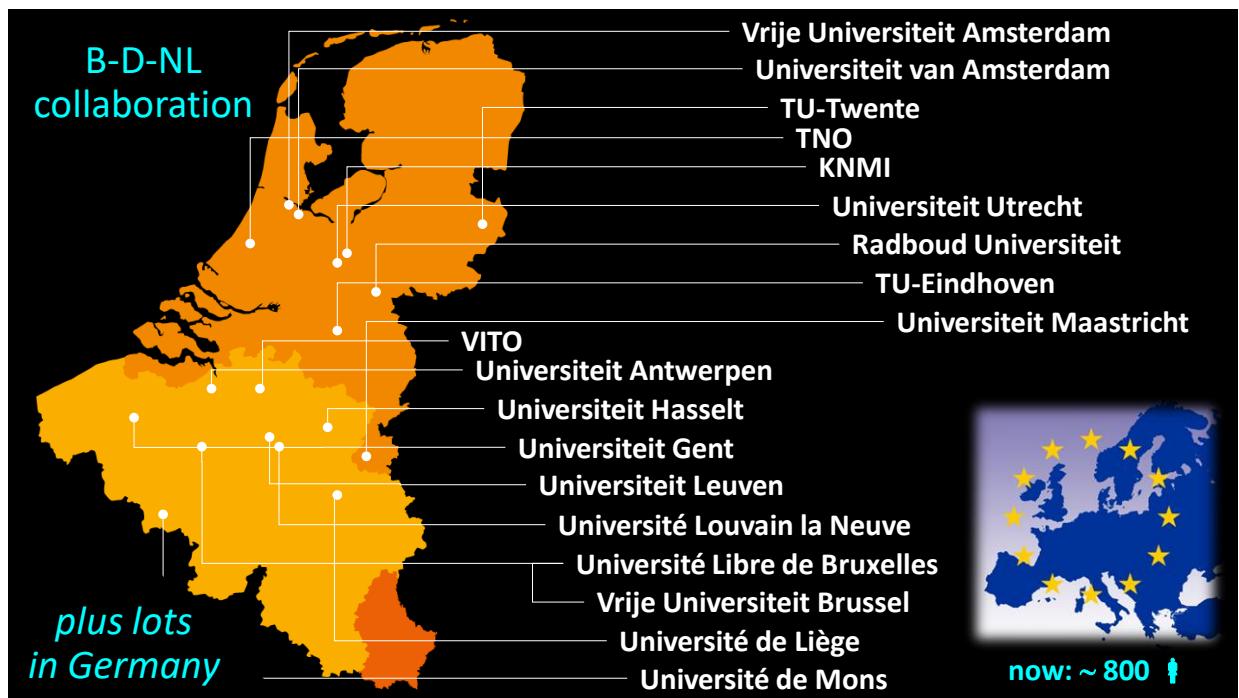
←→ @ industry
@ academia

funding

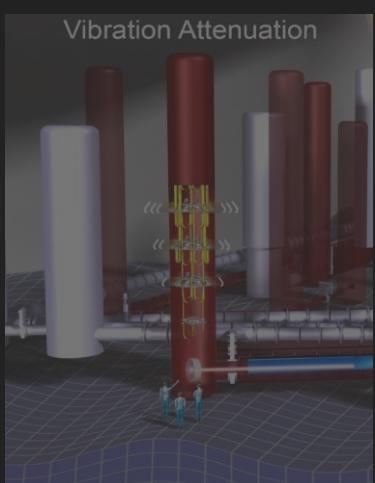
**policy
makers**

**funding
authorities**





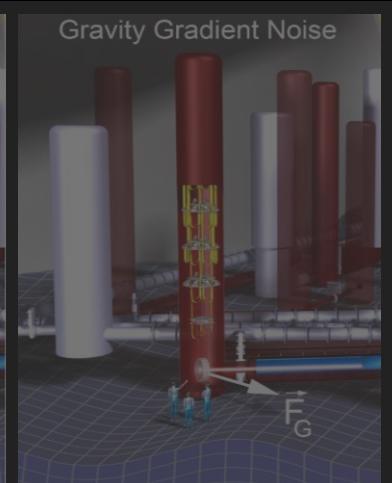
geology (seismic=vibrations) is important

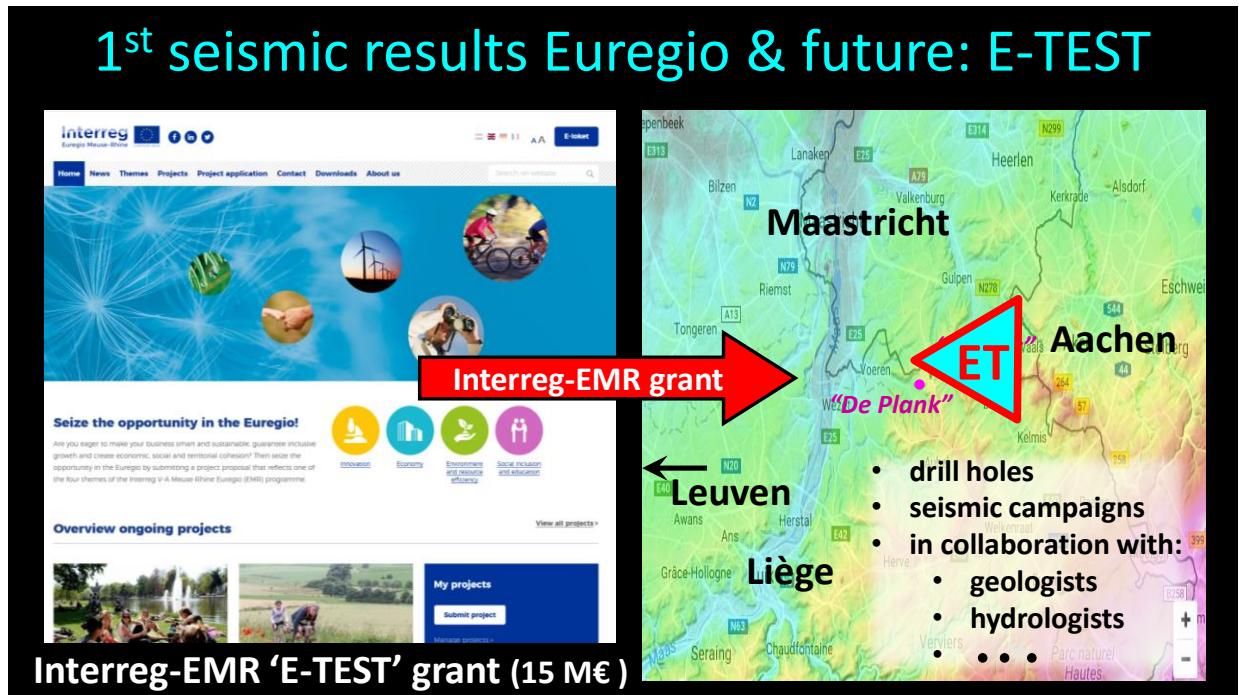
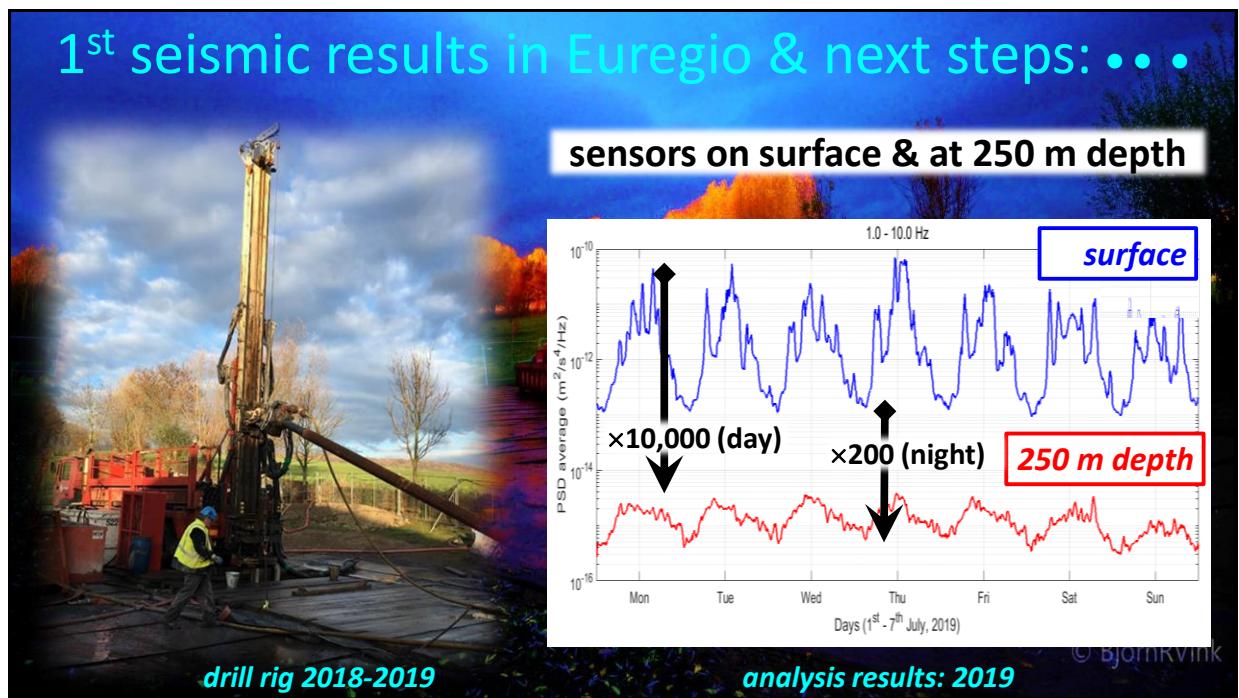


vibrations are 'easy' to attenuate → no problem

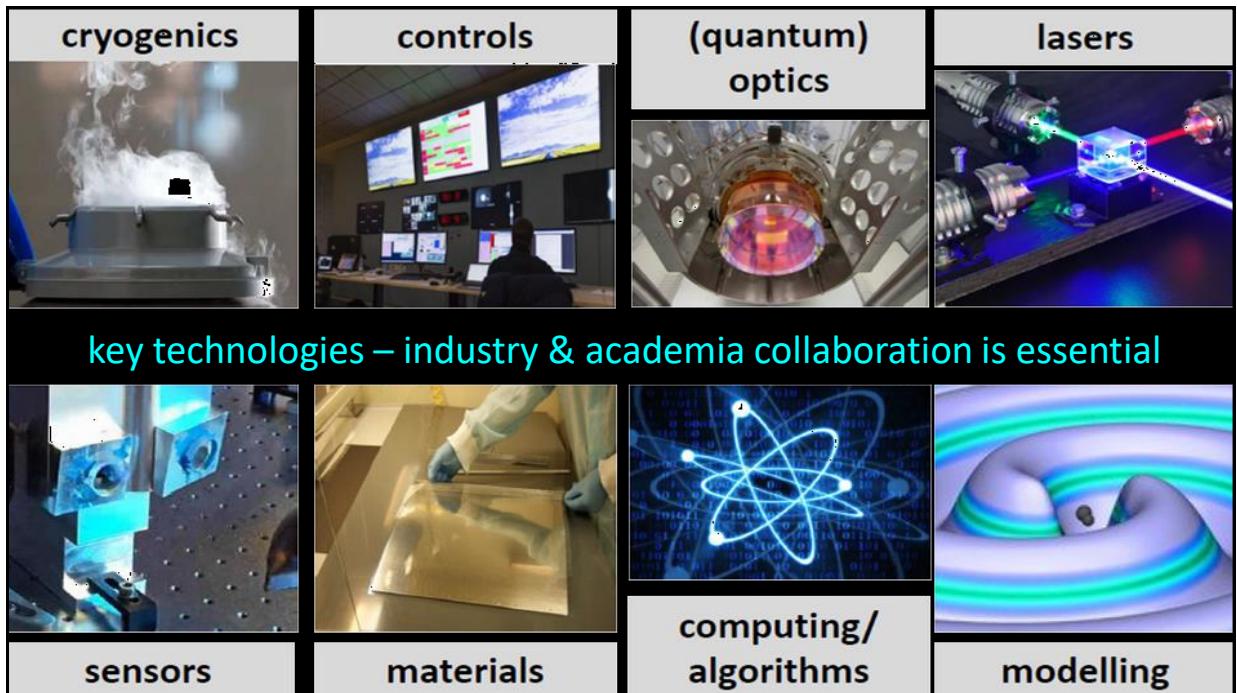
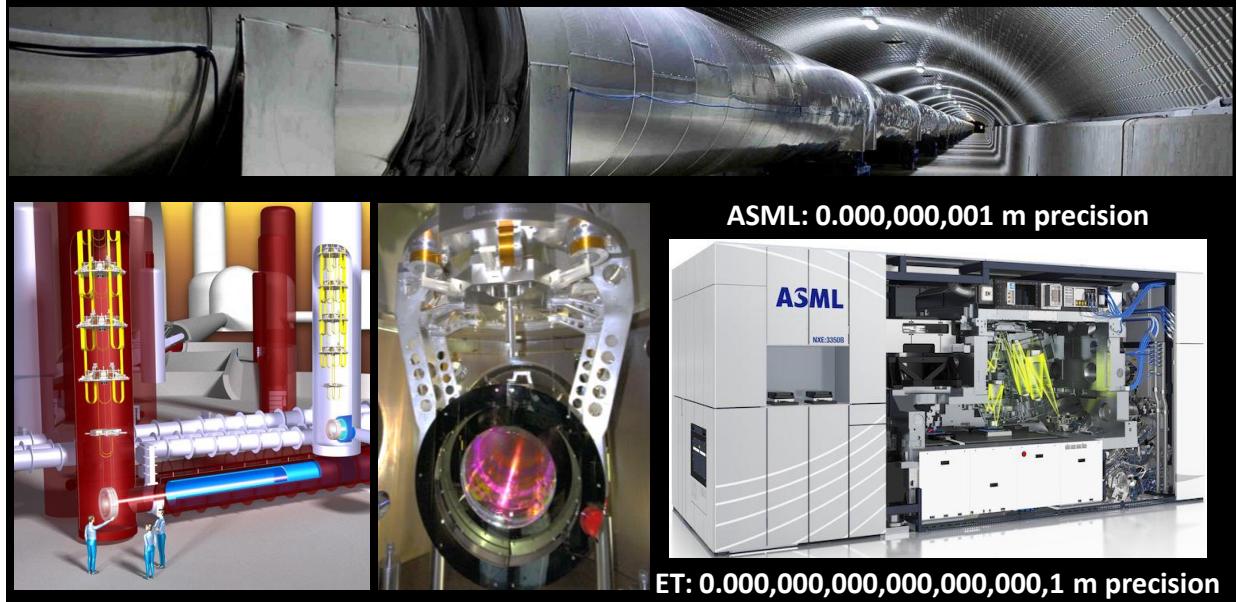


can't shield local fluctuations gravitational field = GGN
→ quiet site and/or active GGN compensation





Einstein Telescope: extremely challenging technology





collaboration with industry

Interreg Vlaanderen-Nederland
Europees Fonds voor Regionale Ontwikkeling

INNOVATIE

R&D Field Lab
ETpathfinder

Stichting Nederlandse Wetenschappelijk Onderzoek Instituten (NWO) en een consortium van Nederlandse en Vlaamse universiteiten staan achter de ontwikkeling van de ETpathfinder. R&D-faciliteiten waar nieuwe technologieën tot stand kunnen komen voor state-of-the-art industrieën kunnen worden. Met ETpathfinder kunnen voorbeeldelijke testen worden gedaan die daarna op grote schaal worden uitgevoerd in de uiteindelijk geplande Europees Einstein-telescoop.

www.grensregio.eu

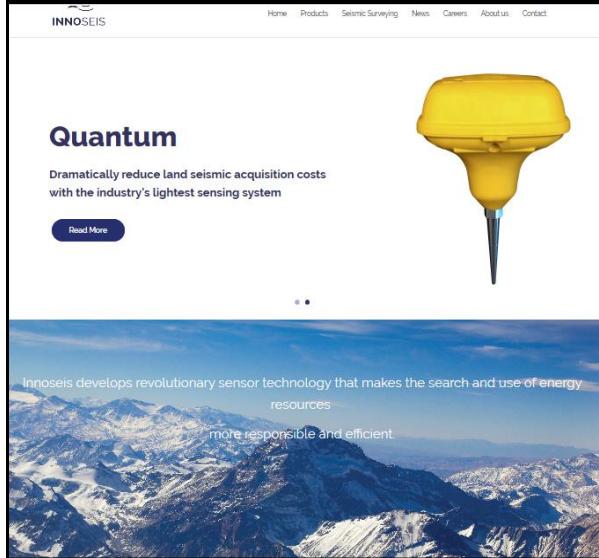
Interreg Vlaanderen-Nederland subsidieert grensoverschrijdende projecten voor slimme, groene en inclusieve groei.

20+ industries @ 1st ETpathfinder Industriële AdviesRaad

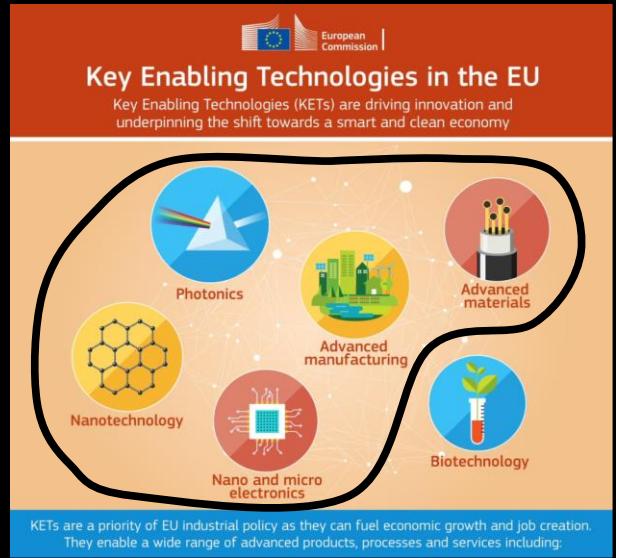
A photograph showing a group of approximately 20 people seated in rows, attending a meeting. They are dressed in professional attire, including suits and ties. The room has large windows in the background, and a man in a suit is visible standing near a glass display case containing various scientific or technical equipment.

spin-off example & opportunities

InnoSeis: industry's lightest seismic sensors



Opportunities:

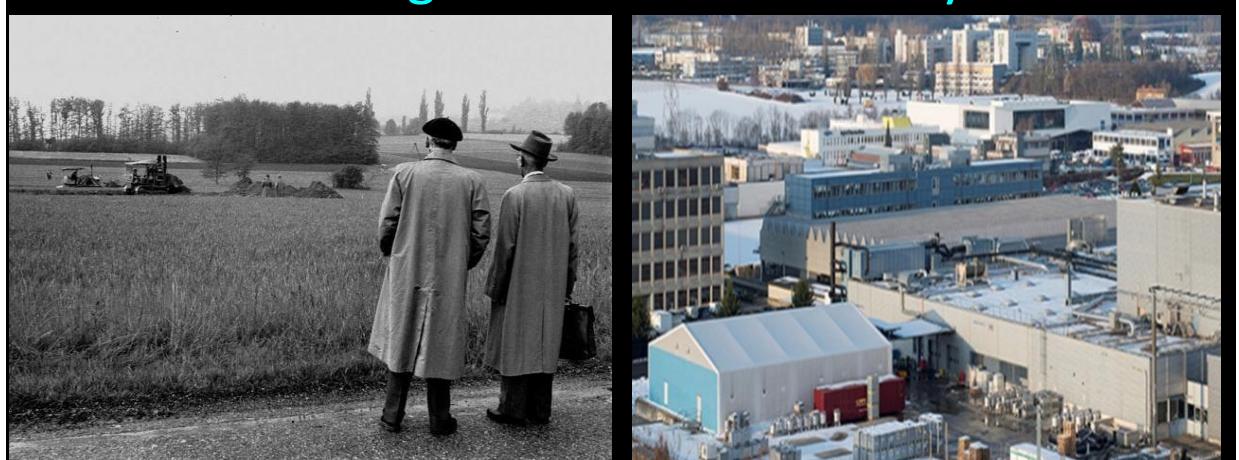


Key Enabling Technologies in the EU
Key Enabling Technologies (KETs) are driving innovation and underpinning the shift towards a smart and clean economy

- Photonics
- Advanced materials
- Advanced manufacturing
- Nanotechnology
- Nano and micro electronics
- Biotechnology

KETs are a priority of EU industrial policy as they can fuel economic growth and job creation. They enable a wide range of advanced products, processes and services including:

Another 'green-field' laboratory •••



Meyrin (Switzerland): 1954

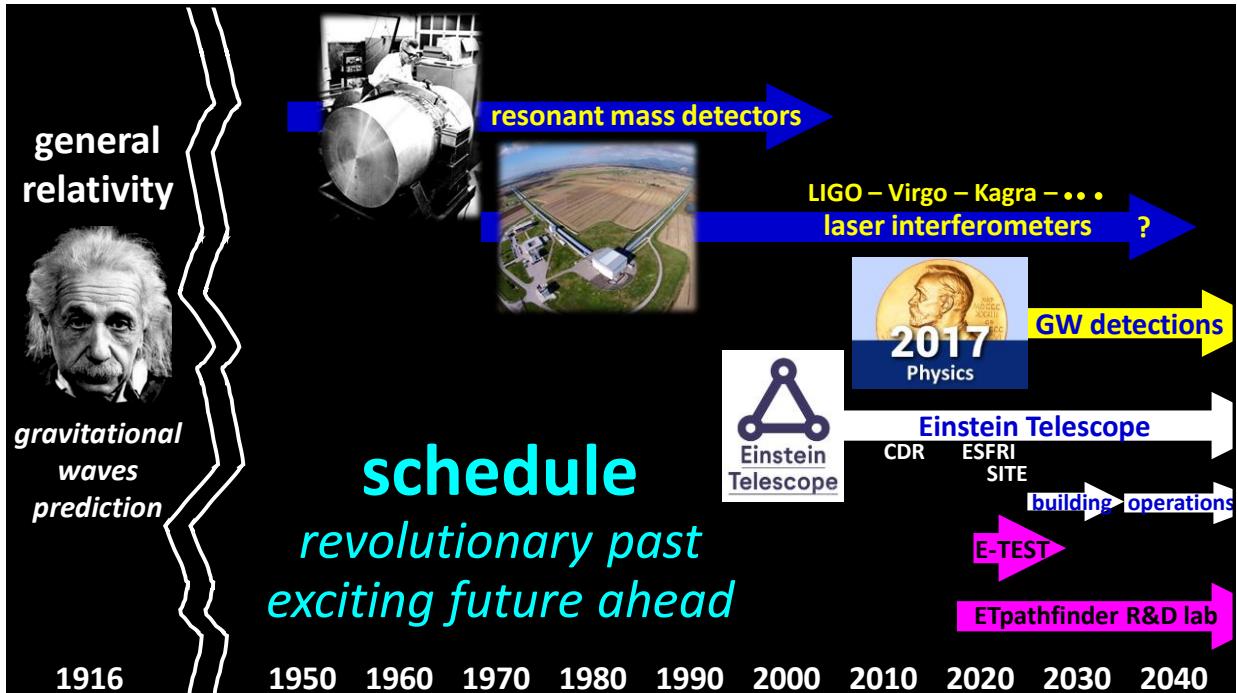
CERN

zone industrielle & artisanale de Meyrin-Satigny: 2017

Euregio-EMR & ET: *a perfect match*



languages
schools
universities
institutes
easy to reach
culture
geology
R&D laboratory
regional support
national roadmaps
• • •
€-funding?



political momentum 2020-2023

