

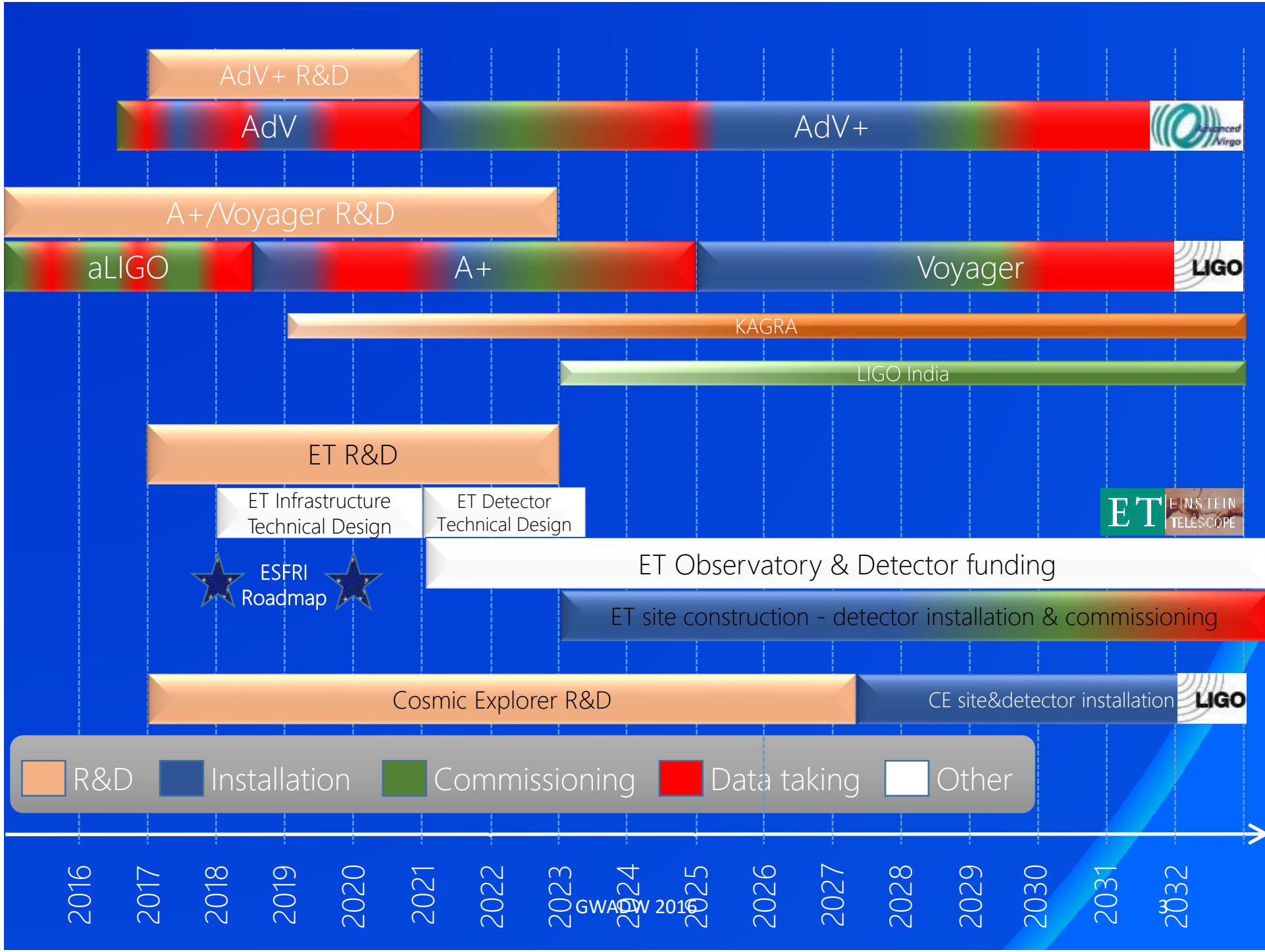
Need for coordinated R&D: the ET perspective

Michele Punturo

INFN Perugia

ET approach

- ET is a “Research Infrastructure”:
 - The focus is on the facility that needs to be studied in order to host almost every type of detector:
 - “limit the limitations” to geometry, topology, technology
 - This approach reduces the conflicts with the commissioning, data taking and upgrade of the advanced detectors:
 - All the developments implemented in aLIGO+// or AdV+// are in principle eligible in ET
 - (almost) No subtraction of human and financial resources to advanced detectors
 - Need of new competences in:
 - Civil engineering for the infrastructures
 - Legal issues
 - Organization
 - Safety
 - This reflects on the Roadmap we presented to the institutions



GWADW 2019

ET R&D

- Nevertheless “specific” R&D is needed for ET:
 - Cryo-related:
 - Materials for mirrors & suspensions
 - Silicon
 - Synergies with LIGO Voyager
 - Sapphire
 - Synergies with KAGRA
 - Cryo-coatings:
 - Common problem
 - Laser $\lambda \geq 1550\text{nm}$
 - Synergies with LIGO Voyager
 - Underground related
 - NN subtraction in underground sites (sensors and methodologies)

Most urgent issues

- These are more related to 3G rather than only ET
 - Science targets:
 - ET conceptual design study contains already a first science case
 - But the ET study opened a new sector in our field and many scientific paper have been stimulated with new achievements
 - Is GW150914 affecting the 3G Science perspectives?
 - The presence of stellar mass/intermediate mass BHBH is pushing for a better sensitivity at low frequency?
 - Network:
 - ET has been forced to born as EU initiative, now it is time to think in a global way
 - How many sites? Where? 2G+/3G hybrid network
 - Site(s)+Funding
 - Localization of the sites is a mixed scientific-financial-political issue
 - It is time to work in a **coordinated** way on these aspects

Proposal ... Ideas

