



JUMPING JIVE

WP7 – The Future of VLBI

Tiziana Venturi

INAF, Istituto di Radioastronomia

Co-leaders: M. Lindqvist (OSO), Z. Paragi (JIVE)



Goals of the WP

Revision of the scientific roadmap for VLBI

Because of the progress in the field of astrophysics and the changes in the radio astronomy landscape it is timely to **revisit the EVN science case**. **In consultation with the user community and global partners** we will define the most important science areas for future VLBI array.

Deliverables

D7.1: Meeting 1, kick-off meeting among the WP members - month 7

D7.2: Meeting 2, here we will invite external experts to take part in the discussion - month 15

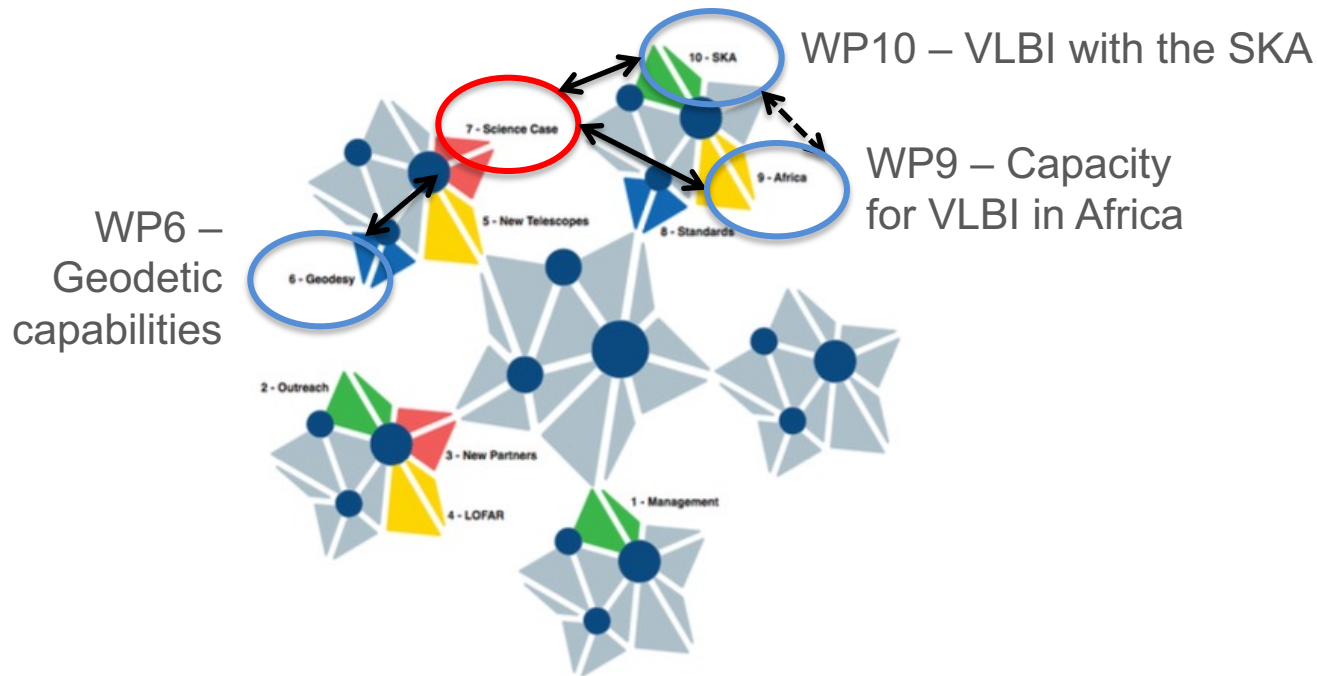
D7.3: Meeting 3, the available draft of the white paper will be discussed and improved - month 30

D7.4: White Paper delivered - month 45 **main deliverable**



Relations to other WPs in the project

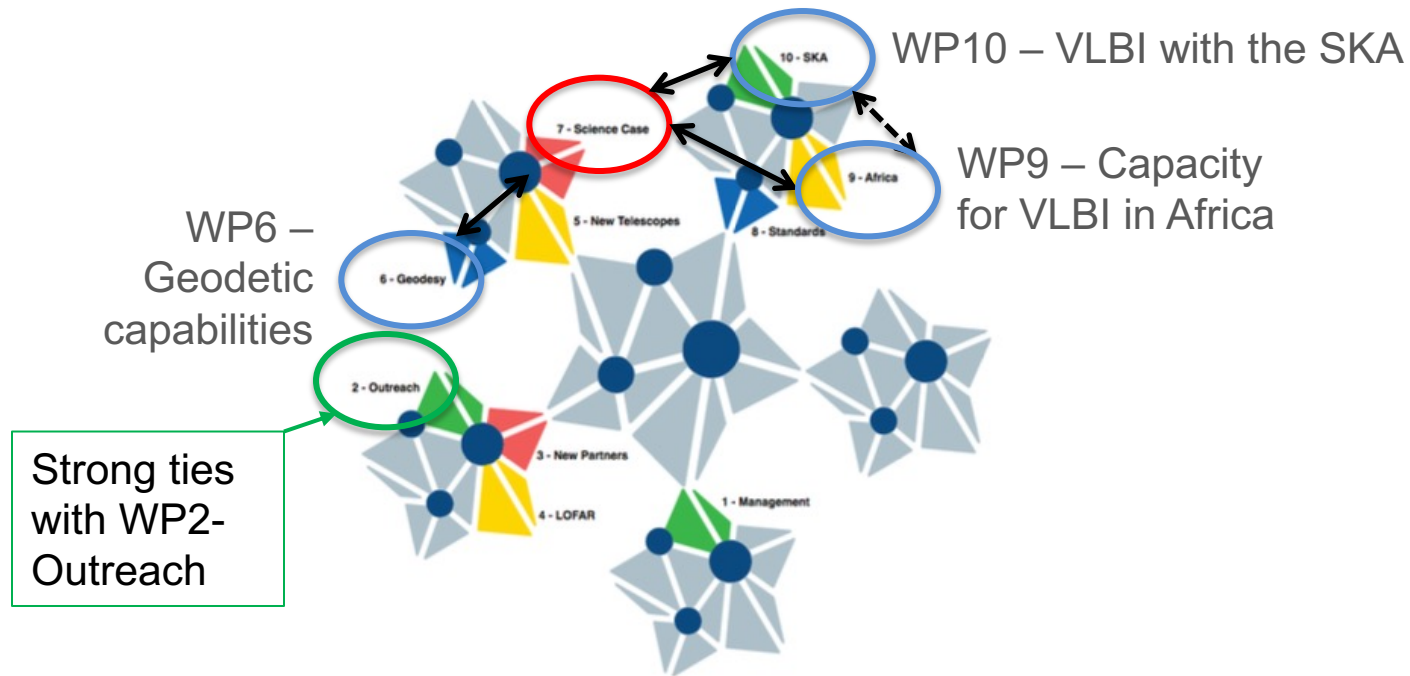
Capacity of doing science





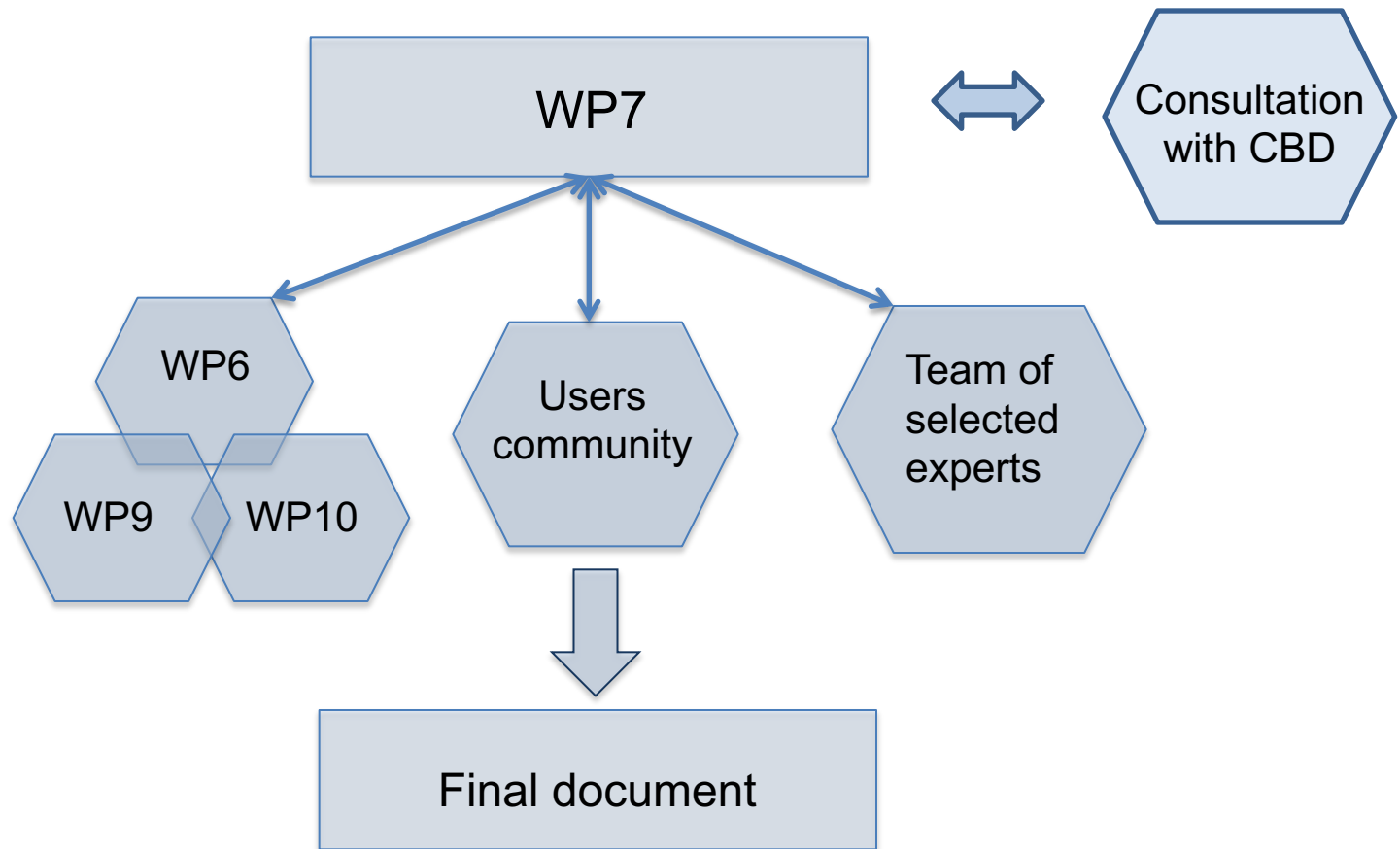
Relations to other WPs in the project

Capacity of doing science



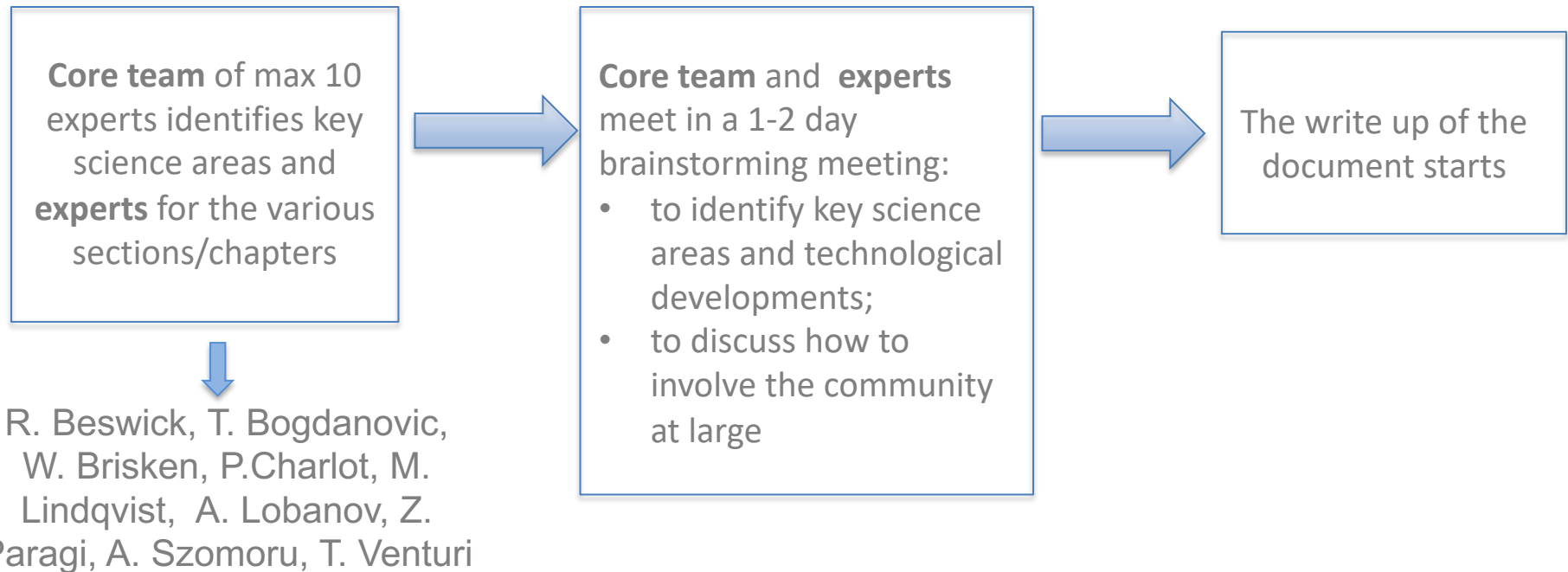


Workplan





Implementation plan





Meetings in preparation of the document

- ✓ VLBI session at the meeting: **eMERLIN and EVN in the SKA era** (Jodrell Bank, 11-12 September 2017)
- ✓ 1.5 days brainstorming **F2F meeting** (Zaandam, 28 February – 1 March 2018)
- ✓ Special Session SS11 @ EWASS 2018: **Exploring the Universe: a European vision for the future of VLBI** (Liverpool, 4 April 2018)
- ✓ **Open discussion** on the EVN Vision Document at the **14th EVN Symposium** in Granada (8-11 October 2018)
- ✓ **Meeting of the WP leaders** to assemble the first version of the document (Bologna, 21-23 January 2019)
- ✓ **EVN Closed Session** at the **SKA-VLBI Key Science Projects and Operations Workshop** (SKAO, 14-17 October 2019)
- ✓ **F2F Meeting of the WP leaders** to review the document and prepare an advanced version (Bologna, 28-30 January 2020)

Document completed in June 2020 and published on arXiv in July 2020

<https://arxiv.org/abs/2007.02347>

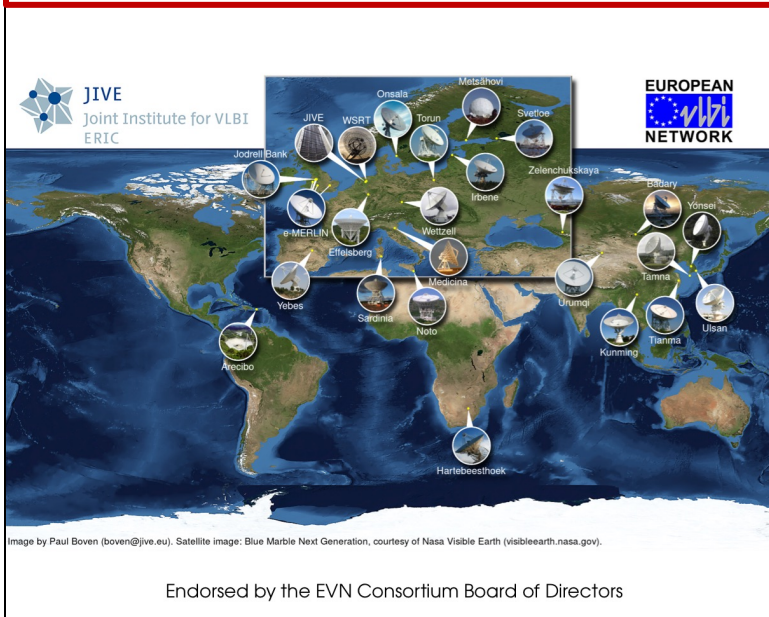


The deliverable

VLBI20-30: a scientific roadmap for the next decade

The future of the European VLBI Network

Editors: Tiziana Venturi, Zsolt Paragi & Michael Lindqvist



Great community effort

<https://arxiv.org/abs/2007.02347>

• Main topics:

1. Cosmology
2. Galaxy formation and evolution
3. Innermost regions of AGN
4. Explosive phenomena, transients
5. Stars and stellar masers in the Milky Way
6. Earth and Space

Moreover:

- overview of the current facilities;
- synergy with other ground and space observatories;
- suggestions for a technological roadmap

An amazing broadening of the science where VLBI plays a unique role compared to 15 years ago

Endorsed by the EVN CBD



General considerations on the achievements

- ❖ The workplan turned out to be very successful. It has been carefully followed throughout the project, which allowed a timely submission of all the deliverables, including the main one
- ❖ The document has been finalized with a mixed approach: top-down at the beginning (WP leaders and core team), but with a lot of consultation of the community
- ❖ Very good response and interest in joining the effort – about 80 people were involved (mainly from partner countries, but also from the US, East Asia South Africa and Australia), with ~20% women



General considerations on the achievements

- ❖ Strong synergy with the other WPs in the project, both in terms of contribution of other WP leaders and of coordination of actions
- ❖ Very good communication and information flow among the WPs, with positive impact on the activity
- ❖ Shared effort among the WP leaders (great team) and the chapter coordinators and contributors. All partners have taken part in the activity



General considerations on the achievements

- ❖ The document has been recognised as one of the current scientific roadmaps, and it is a reference for several independent communities
- ❖ The recommendations for the technological development have been acknowledged by the EVN Board of Directors and are a reference for upgrades and technological and operational developments in the EVN
- ❖ The document has been presented at several international meetings and workshops, with the goal to increase the awareness of the scientific unique potentials of VLBI, as well as of the various stakeholders and officers
- ❖ It is the basis for the inclusion of VLBI operations at other arrays, such as uGMRT and MeerKAT



In Summary

- ❖ Very successful activity which has strengthened the ties of the VLBI community
- ❖ The brainstorming during the various meetings has been extremely fruitful at several levels, not just scientific
- ❖ Young bright researchers have taken part in the process, providing an invaluable injection of ideas and enthusiasm
- ❖ Unfortunately the pandemic situation has affected the presentation of the document at meetings in person, but the community has been successfully reached anyways.
- ❖ **It has been a great and rewarding experience**



THANK YOU FOR YOUR
ATTENTION