Questionnaire summary: Current JIVE structure

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What is JIVE (in brief)

- Joint Institute for VLBI ERIC, is the central organization in the European VLBI Network (EVN).
- JIVE implements the core data processing and user services.
  Core business → correlation of EVN data (including R&D for maintaining a state-of-the-art facility), support of EVN stations, and support of EVN users.
- JIVE is an ERIC (European Research Infrastructure Consortium).
- 6 member countries in the ERIC: **France, Latvia, the Netherlands, Spain, Sweden and the United Kingdom** (+ China, Germany, Italy, South Africa).
- As European Research Infrastructure, JIVE leaves the advocacy of the facility on national levels, including the Netherlands, to the national organisations.
- JIVE in an international organization, hosted by ASTRON. All staff at JIVE is formally employed by NWO-I.

JIVE
Joint Institute for VLBI ERIC

JIVE Governance

- JIVE is governed by a Council
  Two persons (one vote) for each member countries.
  Chair → Prof. Simon Garrington (Jodrell Bank Centre for Astrophysics) Manchester, UK)
  ViceChair → Prof. John Conway (Onsala Space Observatory, Sweden).

- The JIVE Council meets 2 times per year, face to face.
  The JIVE Director is a member of the EVN Board (meetings: 2 times per year, face to face)

- The JIVE Management Team (MT) consists of the Director and the Heads of the Departments:
  - Dr. Francisco Colomer (Director of JIVE)
  - Dr. R.M. Campbell (Head of Science Operations)
  - Prof. L. Gurvits (Head of Space Science and Innovative Applications group)
  - Dr. A. Szomoru (Head of Technical Operations and R&D)
  - Dr. Z. Paragi (Head of User Support)

Finances

- JIVE is supported by contributions of the member countries
  budget for "core business" → to run the EVN correlator and support its users
- Additional budget is obtained from participation in competitive projects,
  from the different EC programs (now H2020) and other (e.g. Dutch national calls).
- EVN TNA (trans-national access)
  The return of the TNA programme is to benefit the user services, centrally implemented at JIVE.
  TNA budget is a fraction of the overall EVN operations costs, therefore it is a source of funding.
- The countries pay for the core business (~40% of total budget). The total budget for 2018 is foreseen to be ~3.8M€
  The budget covers the operational costs, maintenance, staff salaries, correlator (including depreciation), computing resources, and archive facilities.
- The contribution of each member country is settled every 5 years
  In principle partners that want to join JIVE are supposed to contribute a fraction of their local operation costs to the central JIVE operations.

  ASTRON's contribution is valued explicitly and consists of office use and the services of the local building support, personnel, finance and ICT departments.

Evaluation

- JIVE's financial evaluation is performed annually by an external auditor. Also some of the larger, externally funded projects are subject to auditing.

- The partner contributions are subject for renewal.

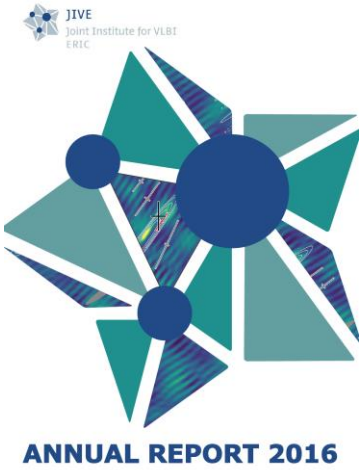
  Review of JIVE every 5 years

  An independent committee of experts reviews the science perspective and effectiveness of the organisation.

- Other monitored numbers:

  correlator throughput (number of hours of observing data), the distribution of researchers that use the facility, the proposal pressure, the publication output of the staff and that of the EVN users.

- Annual report is a requirement of ERIC



JIVE Staff

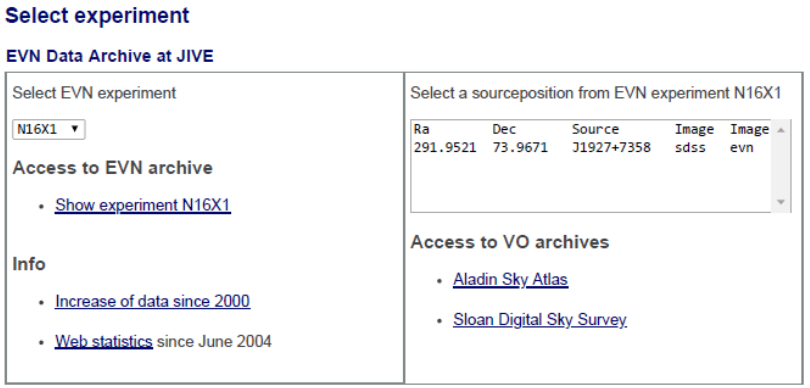
- Formally, JIVE does not have employees, all the staff that are employed by NWO
  - JIVE director signs the contracts.
  - JIVE is charged with all employment costs (and it has enough reserves to cover these liabilities)
  - Every second year the height of the reserves are evaluated to cover a realistic scenario, including the termination of JIVE.
- All JIVE staff is paid from the JIVE budget. Hour registration ensure that external money is used for the appropriate activities. In some cases students are employed through contracts at Universities. In some cases ASTRON and JIVE have shared personnel costs for some staff.
- Support scientists have typically 50% of their time dedicated to service. Senior scientific staff may have 40% science time in their function description.

JIVE Facilities

- JIVE is the central organization for the EVN.
  - It comprises the EVN correlator and the R&D facilities.
  - The EVN radio telescopes, essential in the Research Infrastructure, are often National Facilities owned and operated by the member countries.

- JIVE oversees the correlation of EVN data, station support (calibration, R&D), pipelines, data archive, user support (preparation of proposals, preparation of schedule files, data analysis).
  - Also policy at national and European levels, project coordination, organization of events, etc.
  - JIVE also contributes to new research capabilities through hardware and software development.

- JIVE runs the EVN data archive.
  - The archive is currently organized by experiment.
  - It includes several utilities, such as a search engine and VO tools.
  - Upgrades are being studied (such as incorporate FITS images).
  - The archive is accessible without specific registration.



JIVE Activities

- Outreach

  Website, facebook, twitter, press releases, flyers, all coordinated by the JIVE Outreach Officer (Gina Maffey)
  "outreach contact network" identifies a contact person in each EVN telescope or JIVE partner institute.
- Meetings

  Internal:

  JIVE General Meeting (usually 2 per year), JIVE Coffee meeting (every week), JIVE MT (usually every month), RnDm: Technical Operations group (every 1.5 months), Science (every 1.5-2 months)

  External:

  EVN Symposium and Users Meeting (every 2 years, next in 2018), ERIS school in 2017, CASA workshop in 2017, YERAC in 2018, ADASS in 2019,…
- External projects
  - AENEAS (Data center for the SKA in Europe)
  - ASTERICS (Coordination of large infrastructures in ESFRI)
  - BlackHoleCam ERC (Black Holes)
  - JUMPING JIVE (Ensuring JIVE sustainability)
  - RadioNet (Coordination of radio astronomy in Europe)
  - SKA-NL (Consortium in the Netherlands for participation in SKA)
  - SKA Brochure: https://www.astron.nl/nieuwe-brochure-nederlandse-bijdrage-aan-ska
  - SKA-DOME (SKA and Big Data)
  - "White Rabbit" for SKA/ASTERICS (CERN networking system): https://www.ohwr.org/projects/white-rabbit/wiki/WRUsers
  - UNIBOARD: http://www.jive.nl/jivewiki/doku.php?id=uniboard:uniboard

JIVE Activities (II)

- Science Operations

  3 persons → Head + 2 operators of the correlator (one shared with the Technical Operations group), but has also access to the Support Scientists of the User Support group.

  It follows the process of operating the EVN, which can be divided into pre-correlation, correlation, and post-correlation stages.

- User Support

  3 people → Head + 2 support scientists

  They support all aspects of research with the EVN

- R&D and Maintentance

  JIVE Technical Operations consists of 8 people: mostly engineers, with main focus on maintenance and upgrade of the correlator hardware and software (new modes, data transport, scheduling software, CASA user software, SFXC correlator control code), and large efforts in R&D.

- Space Science and Innovative Applications

  2 persons → Head and one astronomer (at 25% dedication).

  It was born as space science interface to VSOP (1997-2003) and RadioAstron (1999-2011 and beyond).

  Development of Near Field VLBI + building tools to track ESA probes.

JIVE and the EVN

- The European VLBI Network (EVN) is a large scale astronomical facility which offers observing time to astronomers from all over Europe and the rest of the world ("Open Skies" policy)
  - Data are made public once the 12-month proprietary period has expired (6 months for Target-of-Opportunity observations)
- The EVN is governed by a Board of Directors. Members are (usually) the directors of the institutes which operate a radio telescope for the EVN
  - In many countries the landmark telescopes and their inclusion in the VLBI network are recognised national priorities, sometimes the synergy with SKA developments has been noted.
- The EVN Program Committee (EVN PC) is a group of expert astronomers, nominated by the EVN Board
  - Proposals evaluated purely on scientific merit
  - JIVE has a member in this committee, who checks the technical feasibility of the proposals.
  - The EVN PC also decides how much observing time a project should be awarded
  - For multi-epoch proposals, intermediate progress reports may be required before granting subsequent epochs.
- The EVN Technical Operations Group (TOG), attended by JIVE representatives (Support Scientists and Operators)
- The observing proposals are submitted to the EVN in deadlines on 1st of February, June and October). The actual observation runs are organized in three "sessions" of approximately 3 weeks duration, with additional 10x24h **eVLBI** days, plus OoS (Out of Session) and ToO (Target of Opportunity) projects.
- EVN radio telescopes are all different, however compatibility of receivers and data backends is ensured.

EVN Operations (and JIVE)

- Pre-correlation:
  - Distribution of recording media, based on EVN block schedule
    An EVN "pool" has been created, all stations participate by purchasing 7.5 kEuro/year
    Typical costs are 40 Euro/Tb, in (8 x 8 Tb)/module.
    A total of 100 Tb are needed per session; the goal is to move operations to full 2 Gbps.
    The disks packs at JIVE are organized by "PaterNoster".
  - Assistance of Pis for preparing their schedule
  - Network Monitoring Experiments (NMEs)

- Correlation:
  - Track status of incoming data
  - Correlation parameters from Pis
  - Correlation

- Post-correlation:
  - Creation of Measurement Sets
  - Check on data quality
  - Conversion of MS to FITS
  - Distribution and archiving