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NAOJ ALMA Project (and some personal notes) - A perspective of Internationalization

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第39回天文学に関する技術シンポジウム, 16th Jan 2020



ALMA Observatory

- ALMA is an international project among 3 regions (EA/EU/NA), with a telescope built and operated in a 4th region (CL)



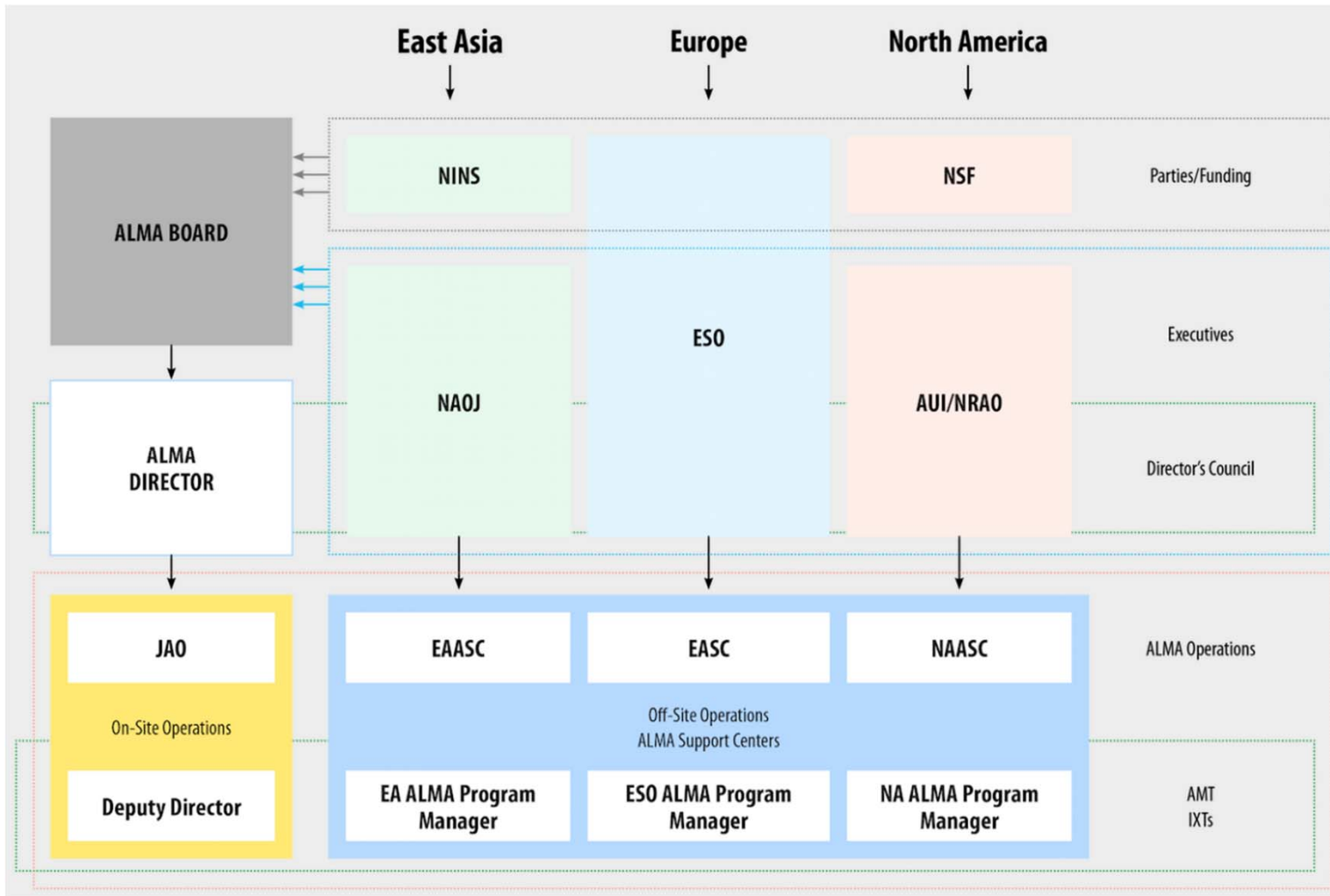


Organization

- ALMA was founded by 3 parties (NINS, NSF, ESO) who delegated actual management to 3 Executives (NAOJ, AUI/NRAO/ESO). The Joint ALMA Observatory was established to manage onsite operations in Chile
- The top decision making body is the ALMA Board
- Due to the nature of the project, teams at different levels are in many cases distributed geographically, internationally
- In East Asia, we further collaborate with ASIAA in Taiwan and KASI in Korea under the East Asia ALMA Agreements
- ALMA is a fully international project which requires collaboration with partners all over the world



Organization



IXTs: Integ. teams
 IET: Engineering
 ICT: Computing
 ISOpT: Science Ops
 IST: Science



NAOJ ALMA Project

- The NAOJ ALMA Project is in charge of offsite operations in East Asia and interfacing with the rest of ALMA.
- International work under the ALMA structure involves working meetings by telecons, frequent travel abroad, participation in international reviews.
- From a point of view of science, ALMA is at the Frontier of Knowledge, and it is therefore, international science, with collaborators in many countries and regions
- From a point of view of engineering, international collaboration is necessary to exploit the expertise of the different international partners



Internationalization

- International collaboration contributes to fast and efficient development **combining strengths** from different partners and countries (e.g. state of the art suppliers, know-how)
- International teams **do not limit talent** to available local supply and offer a wider view point: fresh ideas, different perspective
- **English as communication language** is key for global competitiveness:
 - Attract global talent
 - Train Japanese staff to work globally efficiently
- If possible, **stays abroad for Japanese staff** are very enriching and valuable experiences (work, personal): opportunity to work in Chile or in partner institutes



The key is Diversity!

- Internationalization offers the possibility to radically increase diversity
 - Diversity is well-known to increase productivity of institutes and companies, in public or private sectors
 - Many points of view
 - Many different backgrounds
 - Many tools from different disciplines
- Diversity as a catalyst for innovation!





My personal summary

- My experience in the development of space telecom payloads or instrumentation for remote sensing of the Earth proved very useful for ALMA development
- Working in different cultures (Europe, USA, Japan) has also proven a very enriching experience to consider other ways of thinking and for successful international work and collaboration
- People with different backgrounds, outside astronomy, and coming from different cultures can bring new thinking ways and view points to NAOJ Projects
- Change usually confronts opposition, but is beneficial and necessary in the long term



NAOJ, technology, astronomy...

- **Trends in Astronomy:** large international projects which cannot be done alone by one country, and with telescope sites in far away countries
 - ALMA, TMT, ngVLA, SKA...
- **Technology and communication:** global markets (internet), effective communication in English journals and conferences (e.g. IEEE), companies/institutes with international branches
 - English is the de-facto common language for science and technology
- Large movement of **global talent** around the world. Usual to study and work abroad, with frequent country changes



NAOJ, technology, astronomy...

- In this context, **NAOJ (and Japan) should not be afraid** to:
 1. Hire or invite more international staff
 2. Embrace English as working language
 3. Strengthen and develop collaboration with international partners
- This will make NAOJ more attractive to foreign researchers and open up new collaboration possibilities
- Main **difficulties** to collaborate with Japan are based on **perceived non-transparency**, mostly due to extended use of Japanese language, opposition to change and regulation
- **Do not see change as a risk, it is a great opportunity!!!**

