Flash Presentations - Implementation Networks

International GO FAIR Implementation Networks meeting, 23/24 January 2020
Topic: Go-FAIR Implementation network

IN contact person/presenter: Prof. Mirjam van Reisen, Dr Otieno Ong'ayo (Antony)

Areas of progress and achievements in 2019

- Two meetings in The Netherlands to establish the implementation of Network IN Africa
- Manifesto signed 15 March 2019 and launch done in Leiden
- Data centres approved by senates and implemented in
  - KIU (Uganda), GZU (Zimbabwe) and Mekelle University (Ethiopia)
  - Other universities on board include JOOUST and Tangaza (Kenya) University of Rwanda (DCs pending approval and implementation)
- Example: KIU - searching for data stewards to appoint and train
Go-FAIR implementation Network IN Africa II

• Research initiated in the network are in the fields of
  ■ FAIR and digital health - KIU (Uganda)
  ■ FAIR and digital health - Phillips Foundation (Kenya) overseen by an advisory board that includes FAIR Data specialists. Special track to be opened on FAIR supported digital health
  ■ Agric and ICT - JOOUST (Kenya)

• Several research initiatives at GAIC
  ■ 2 PhDs and several master students

• Openned second implementation network on FAIR Ambassadors
  ■ linking new initiatives and introductions (M. Bassaja - Uganda) and Aliyan - Kazakhstan)
  ■ students from different geographical regions (incl. Netherlands) introducing FAIR
  ■ focussed on communication and strengthening FAIR implementation in underrepresented areas
Go-FAIR implementation Network IN Africa III

- **Round I meetings**
  - 2 meetings in the Netherlands to establish the Implementation Network IN Africa
  - Kampala International University - Uganda - introducing FAIR
  - Great Zimbabwe University - Masvingo - Introducing FAIR

- **Round II Follow up meetings in**
  - Axum -Ethiopia with Universities (Makelle, Axum, Pan African)
  - Information exchange with JOOUST (Kenya)
  - Kampala International University

- **Publications:** A special issue of the Data Intelligence journal featuring articles on
  - "FAIR Practices in Africa" and "Towards the Tipping Point for FAIR Implementation".
Areas of existing cross-IN/cross-domain collaboration and convergence

- Cross work across IN Africa and Ambassadors, focuses on explaining how FDPs can be set up, exchanging experiences with introductions of governments, testing in relevant areas such as digital health.

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- More cross work is needed with librarians for setting up data centres/ with data stewardship training manuals, outreach and technical support for establishing FDPs with governance related aspects of data management.
Example: FAIR meets the Dutch-government

In contact person/presenter: Mustafa Kedilioglu

Areas of progress and achievements in 2019

- International master course data science Leiden University - assessment FAIR maturity of data (link)

- Dialogue with government organizations about data developments within the government and the importance of FAIR (link)
Areas of existing cross-IN/cross-domain collaboration and convergence

- Explorative engagement between GAIC/ Tilburg University, ISS of Erasmus University, Leiden University and NUFFIC

- Partners in the network IN Africa taking on governance questions around FAIR within the respective political and institutional environments

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- FAIR can potentially contribute to (data-driven) collaboration within the Government
- FAIR can potentially contribute for better data-driven policy-making
NMDC-IN (FAIR Microbiome IN)

• Topic: Fairifying Microbiome Data

• IN contact person/presenter:
  ■ Dr. Stanton Martin - NMDC FAIR coordinator

• Areas of progress and achievements in 2019
  ■ Initial contact with the GO-FAIR organization
  ■ Creation of NMDC GO FAIR Manifesto
  ■ Begin search for International Partners in the Microbiome space
NMDC-IN (FAIR Microbiome IN)

- Areas of existing cross-IN/cross-domain collaboration and convergence
  - Standardized ontologies from various consortia
    - MixS - Minimum information about any (X) sequence
    - Genomic Standards Consortium
    - The Open Biological and Biomedical Ontology
    - Environment Ontology (ENVO)

- Ideas for potential future cross-IN/cross-domain collaboration and convergence
**Topic:**
Special requirements for data protection of the **Economic and Social Sciences** by promoting FAIR access to sensitive data and establishing user-friendly solutions for accessing and linking sensitive data.

**IN contact person/presenter:**
Dr. Nora Dörrenbächer (Business Office RatSWD)
Dr. Pascal Siegers (GESIS)

**Areas of progress and achievements in 2019**
- Drafting of a White Paper on FAIR design of data access to sensitive research data as a guide to the Economic and Social as well as neighbouring Sciences
- Promoting the FAIR criteria among the Research Data Centers (RDCs) accredited by the German Data Forum (RatSWD) and beyond
- Increase in Membership beyond German Data Forum’s (RatSWD) network of RDCs
Areas of existing cross-IN/cross-domain collaboration and convergence
- Exploration of common challenges regarding sensitive data with researchers from Medicine and Health Sciences

Ideas for potential future cross-IN/cross-domain collaboration and convergence
- Participants of NFDI4Health and NFDI4Medicine aim to join the EcoSoC-IN to join forces
- A cross-domain session on the FAIR criteria at the 8|KSWD (Conference for Social and Economic Data, March 2-3 2020 in Berlin) with representatives from Social Science, Medicine, Business Administration
- Invite European actors to join EcoSoc-IN to define together the rights and obligations of data providers and data users (data access protocols), align metadata and make them machine readable, promote interoperability
**Topic:** An infrastructure for long tail research data
generic, multidisciplinary, FAIR solution

**GeRDI knowledge and technology contributions:**
- Requirements engineering across communities and domains
- Harvesting of multidisciplinary RD metadata, centrally indexed
- Self-Contained Systems as architectural design of choice
- Metadata schema

**IN contact person/presenter:** Atif Latif, Researcher
Anja Busch, Project Manager

**Areas of progress and achievements in 2019:**
- Finalized a metadata schema to support cross-disciplinary services
- Development work on services
Areas of existing cross-IN/cross-domain collaboration and convergence

• Adoption of common vocabularies in cooperation with other projects/initiatives
• Cross-domain-driven, reflected in the metadata schema, architecture, and services
• EUDAT - B2Share & DKRZ

Ideas for potential future cross-IN/cross-domain collaboration and convergence

• INs with focus on specific disciplines: new communities and use cases + adoption and extension of GeRDI software
• INs with focus on cross-disciplinary developments and federation
GO Inter

**Topic:**
Go Inter aims at applying, developing and evaluating methods, tools and guidelines for implementing and assessing semantic interoperability of heterogeneous research data across discipline borders to foster data sharing and discovery across discipline boundaries.

**IN contact person/presenter:**
Peter Mutschke (GESIS - Leibniz Institute for the Social Sciences)

**Areas of progress and achievements in 2019**
Kick-Off workshop at GESIS, Cologne, October 2019: Formation of two permanent working groups:

- Interoperability in Theory (addressing interoperability of ontologies and knowledge organization systems in data repositories). Ongoing actions: lookup list of currently produced ontology resources; contributions to a document on FAIRsemantics in the context of FAIRsFAIR; introduction for non-experts “Ontology engineering demystified”

- Interoperability in Practice (addressing the question of how the process of creating interoperable research data can be made as simple as possible for the researcher). Ongoing actions: Define an exemplary end-to-end FAIRification process (i.e. an executable data management plan) based on linking data from social and spatial sciences (SoRa project) as a real-world use case; identifying cost and benefits of being FAIR for each step in the process
Areas of existing cross-IN/cross-domain collaboration and convergence

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- Food Systems: sharing results as regards semantic interoperability, cooperation with Rob Hooft to integrate the ontology lookup service in the Data Steward Wizard
- C2CAMP: implementation of the Digital Object Interface Protocol in SoRa (linking data from social and spatial sciences)
- GeRDI: testbed for GO Inter results, integrating ontology look-up in GeRDI
- OPEDAS: sharing mechanisms for FAIRification processes, FAIR Metrics
Personal Health Train IN

**Topic:**
PHT is a distributed infrastructure that enables the use and reuse of health data for the benefit of individuals and society. The PHT aims to advance health, healthcare and biomedical science through a shared infrastructure to support data management, data analysis, and medical decision making. The main goal of the PHT IN is a set of standards, guidelines, specifications and reference implementations of the core components of the PHT that will allow independently developed implementations to be interoperable.

**IN contact person/presenter:**
- Andre Dekker
- Oya Beyan
- Oliver Kohlbacher

**Areas of progress and achievements in 2019**
- German Medical Informatics Initiative (MII) - Collaboration on Rare Diseases (CORD)
- German MII - POLypharmacy - Drug interActions - Risks (POLAR)
Areas of existing cross-IN/cross-domain collaboration and convergence
Rare Diseases (RDs) Global Open FAIR Implementation Network

Ideas for potential future cross-IN/cross-domain collaboration and convergence
• Food Systems Implementation Network- Agro Train
• Generic Research Data Infrastructure (GeRDI)
• C2CAMP IN - Digital Object model
Topic:
- Establishing FAIR Data Services within the Dutch Healthcare system.
- Working in the availability of FAIR data and the use of FAIR data architectures.

IN contact person/presenter:
- Bodil Schlotzhauer, aschlotzhauer@zinl.nl
- Wouter Franke, wfranke@zinl.nl

Areas of progress and achievements in 2019
- Realisation of PoC of a secure FAIR Data Services environment within larger networks
- Created a FAIR Data Architecture for several programs within the Dutch healthcare.
- Working on an integrated environment for conceptual modelling, process models and the management of FAIR (meta)-data
- Research on privacy (GDPR) and Fair Data Services.
Areas of existing cross-IN/cross-domain collaboration and convergence

• We’re working close with the Personal Health Train IN
• Working together with quality registrations like DICA and NICE

Ideas for potential future cross-IN/cross-domain collaboration and convergence

• Collaboration with AGRO-train
• Collaboration with European counterparts on FAIR related activities
• Participating in FAIR Digital Object design and development
• Potentially initiating a FAIR Conceptual Modeling IN if the need arises
Food Systems IN

**Topic**
- To implement FAIR data and services in Food Systems research and to work towards a global data ecosystem for agriculture and food

**IN contact person/presenter**
- Ben Schaap
- Sophie Aubin
- Clement Jonquet

**Areas of progress and achievements in 2019**
- Agrisemantics Map of Data Standards (https://vest.agrisemantics.org/) → “FAIRsharing-like” collection in agriculture
- Re-evaluation of the Global Agricultural Concept Scheme (GACS) → mappings reference thesaurus in agriculture
- Linked Open Data course for Data Stewards (Elixir)
- French ANR 2-year funding for **FoodIN**
- Farm Data Train in development at Wageningen University and Research
Areas of existing cross-IN/cross-domain collaboration and convergence
- Adopting FAIRsharing (StRePo)
- Learning from Zorg Instituut Nederland on architecture development of the Personal Health Train. Aim is to adopt similar approaches for FAIR Data Trains in Food Systems

Ideas for potential future cross-IN/cross-domain collaboration and convergence
- BiodiFAIRse on common standards, repositories to share semantic resources
- GO-INTER on FAIRness assessment for semantic resources
- Reuse the plant community approaches with semantics within the animal breeding community: Livestock data for decisions LD4D (ILRI-CGIAR), H2020 SmartCow/PigWeb
- Reuse of AGU standards and approaches in the geospatial areas of Food Systems (i.e. soil data, weather data)
- Continue in areas of convergence with EOSC
- FAIR for AI (e.g., with Netherlands AI coalition or AI initiatives in France)
Discovery

**Topic:**
Open User Interfaces for Increased Visibility of Research Results

**IN contact person/presenter:**
Peter Kraker (Open Knowledge Maps)

**Areas of progress and achievements in 2019**
- Completed stocktaking of 46 use cases and 43 open infrastructure components for data discovery with relevant stakeholders (to be published soon)
- Workshop on “Data Discovery Across Disciplines” at the Open Science Fair 2019 with around 80 participants
- IN grew to 29 members (3 personal & 26 organisations)
- Next steps: Decide on appropriate metadata standards, move on to ecosystem structuring phase
Areas of existing cross-IN/cross-domain collaboration and convergence

- The main purpose of the Discovery IN is to provide interfaces and other user-facing services for data discovery across disciplines. It is therefore in and itself a cross-domain collaboration of researchers, librarians and infrastructures
- One concrete collaboration is with the CO-OPERAS IN (also as part of the EU project TRIPLE); discovery break-out at Open Science Fair CO-OPERAS workshop

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- Input from other INs/further stakeholders in the stocktaking and structuring processes and comments on their results
- Next steps:
  - Distill top use cases and use them as input for the standards part
  - Create a matrix of use cases and relevant metadata standards. Determine, which standard supports which use cases. Take previous work into account, including the EOSCpilot report on EDMI.
  - Decide on appropriate metadata standards
**DSCC**

**Topic:**
Build a network/cooperation structure of Data Stewardship Competence Centers (DSCC), active in universities and research performing organizations to support better data stewardship that enables FAIR data in collaboration with researchers.

**IN contact:**
Valentina Pasquale, Istituto Italiano di Tecnologia, valentina.pasquale@iit.it
Angus Whyte, Digital Curation Centre, A.Whyte@ed.ac.uk
Diba Terese Markus, Aalborg University, dtm@aub.aau.dk

**Areas of progress and achievements in 2019**
Kick-off meeting in Leiden, December 2019:
- Roadmap for 2020 currently under preparation
- Currently contacting other DSCCs as potential new members to form/expand national DSCC chapters
- Currently involved countries and national coordinators: Belgium, Brazil (Patricia Henning), Denmark (Anders Conrad), Germany (Monika Linne), Ireland, Italy (Elena Giglia), Netherlands (Laurents Sesink), Poland (Anna Wałek), Switzerland (Sofia Georgakopoulou), United Kingdom, USA
Areas of existing cross-IN/cross-domain collaboration and convergence
- Members of current INs working in DSCC also joined the DSCC-IN, thus facilitating possible synergies and convergence

Ideas for potential future cross-IN/cross-domain collaboration and convergence
- Fostering international convergence on the use of interoperable protocols, standards, formats, and terminology systems to increase reuse of research data → any current IN that is potentially interested may collaborate
- Defining minimal DS requirements in research grant proposals at the national and/or European level → the forthcoming FAIR Funders IN will be an important partner
- Defining key skills of professional data stewards → collaboration with FAIRsFAIR, terms4FAIRskills, EOSC Working Groups, RDA Working Groups will be crucial
BiodiFAIRse

Topic:
BiodiFAIRse IN plan to build a Biodiversity FAIR virtual research environment template and develop tools, collectively bringing partners expertise to FAIR compliance by adapting data exchange standards, promoting the use and mapping of controlled vocabularies and collaborating in the development of registries gathering FAIR research objects and processes, analysis tools, and scalable workflows.

IN contact person/presenter:
Dr Anne-Sophie Archambeau and Dr Yvan Le Bras

Areas of progress and achievements in 2019
Biodiversity communities state-of-the-art -> gather informations about
- data/metadata standards and mapping on Ecology field: Darwin core, EML, ISO19115, O&M
- Data & metadata portals: GBIF and Living atlases, Metacat, DEIMS, GeoNetwork
- Existing workflow-oriented initiatives: Taverna, Galaxy, WPS GIS webservices, Kepler

Collaborative and workflows-oriented online platform for data access and analysis - European Galaxy for ecology [https://ecology.usegalaxy.eu/](https://ecology.usegalaxy.eu/)
existing and potential trainings (links with GBIF and RDA-Sharc)
**BiodiFAIRse**

**Areas of existing cross-IN/cross-domain collaboration and convergence**
- GAIA data IN
  - Collaboration can be made in relation to metadata standard and Galaxy-E to facilitate access and coupling of both biodiversity and remote-sensing data

**Ideas for potential future cross-IN/cross-domain collaboration and convergence**
- Metabolomics IN
  - Collaboration can be made between Metabolomics and BiodiFAIRse IN related to Galaxy-E and ISAtools
- Food-Systems IN
  - Food-Systems can maybe help BiodiFAIRse to propose first semantic use cases
- Discovery IN
  - Testing VIPER tools to visualize and create interactively requests
- GeRDI IN
  - Creating data storage space dedicated to Biodiversity communities, based on CVMFS and linked to Galaxy for Ecology
Topic:

- Develop FAIR data integrated approaches for environment and earth system communities (ocean, atmosphere, Land surfaces, solid earth)
- Build coordination work, services, tools, and recommendations, to improve transdisciplinary and cross-domain data interoperability and access to both space and in-situ data
- Setting up services for earth observation data at cross domain level: discovery, semantic interoperability, cross domain data access services, data structure for data intercalibration and data parallel processing (data cubes...), on demand data processing

IN contact person/presenter:

Frédéric Huynh (IR Data Terra), Richard Moreno (CNES), Jean-Pierre Vilotte (CNRS/IPGP)

Areas of progress and achievements in 2019

- Working group participations (RDA, ...)
- Recommendation (Catalogue, DOI, license, architecture, AAI,...)
- Projects participation: EOSC (ENVRI-FAIR, ESOC Pillar, PHIDIAS, ...), international (GEO, ONU, ...)
- Workplan (in progress)
Areas of existing cross-IN/cross-domain collaboration and convergence

- Synergie and connections with other GO FAIR IN projects: BiodiFAIRse, Food Systems, seadata cloud, ENVRI-FAIR, ...

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- Sharing methods, tools and best practices for FAIRisation
- Working on use-cases cross-domain
- Encourage re-use and the sharing of best practices (DOI, Long Term Preservation, Catalogues, Format, SSO, Data curation and processing, etc.)

CO-OPERAS

• FAIRIﬁcation of data in the Humanities and Social Sciences [linked to OPERAS]

Elena Giglia/Arnaud Gingold

• What we have done:
  a. LISTEN TO THE COMMUNITY
     (3 national workshops + 1 Jan 22 + workshop Open Science Fair in Porto)
     ▪ define “data” in the SSH
     ▪ how FAIR are the data you produce/use?
  b. SOME RESULTS?
     ▪ lack of (metadata) standards
     ▪ interoperability almost non-existent
     ▪ non digital material
  c. CREATE SYNERGIES WITH ALLEA and SSHOC

Photos CC BY Elena Giglia
CO-OPERAS

- FAIR publishing for SSH first outputs:
  - TEI/JATS alignment started
  - FAIR assessment of OpenEdition’s 4 platforms
- IN’s support:
  - French ANR flash call funding:
    - Detailed roadmap + Community manager position
  - OPERAS-P [H2020 871069] WP6 Innovation T6.3 FAIR data
- Areas of existing cross-IN/cross-domain collaboration and convergence
  - DSCC-IN (on training and data stewardship)
  - Discovery IN (on discovery tools with Discovery IN - we are partner in the TRIPLE H2020 project)
- Ideas for potential future cross-IN/cross-domain collaboration and convergence
  - FAIR StRePo IN (on standards)
The ENVRI community is a community of Environmental Research Infrastructures (4 subdomains: Atmosphere, Marine, Solid Earth, and Biodiversity/Terrestrial Ecosystems), projects, networks and other diverse stakeholders interested in environmental Research Infrastructure matters. The community also includes e-infrastructures supporting the Research Infrastructures in data solutions.

The overarching goal of ENVRI-FAIR is to implement the FAIR principles in the ENVRI community and connect it to the European Open Science Cloud (EOSC). Common policies, open standards, interoperability solutions, operational services, and stewardship of data on the basis of FAIR (Findable, Accessible, Interoperable, Re-usable) principles require a common approach. The final aim is to provide an open access platform for interdisciplinary environmental research data in the European Research Area utilising the EOSC.

**Contact person/presenter:**

- Barbara Magagna

**Areas of progress and achievements in 2019**

- A key task for ENVRI-FAIR in general is to assess and to monitor over the project’s lifetime the FAIR maturity of participant RIs. First assessment over 14 infrastructures done, deliverable about outcome to be finished by end of January 2020.
Areas of existing cross-IN/cross-domain collaboration and convergence
- collaboration with GO FAIR, co-developing the Convergence Matrix and FAIR Implementation Profile (FIP)

Ideas for potential future cross-IN/cross-domain collaboration and convergence
- collaboration with GO Inter including activities promoted by RDA WG I-ADOPT focuses which aims at developing an interoperability framework for observable properties for terminologies used in environmental research
- potential collaboration with BiodiFAIRse - mapping on Ecology field
StRePo: making Standards, Repositories and Policies FAIR

Topics:
Leveraging the FAIRsharing resource to:
■ Map the landscape of standards, repositories and data policies across (and related to) the GO FAIR INs
■ Curate metadata associated with these resources (including the relationships between them) to power GO-FAIR
■ Collaborate to standardize the selection of resources across the GO-FAIR INs

Areas of progress and achievements in 2019
■ GO-FAIR Matrix work - connecting FAIRsharing metadata to the DSW
■ terms4FAIRskills - a terminology for FAIR competency training (in collaboration with many in DSCC)
■ FAIR-StRePo position paper - 10.1162/dint_a_00037
■ FAIRsharing is now a RDA flagship, endorsed output - 10.15497/RDA00030
■ New cross-publisher common criteria for repository selection
  ▪ Pre-print - 10.17605/OSF.IO/N9Q7; Feedback form - https://tinyurl.com/RepoCriteriaFeedback

Partners
Peter McQuilton, representative of FAIRsharing
Susanna-Assunta Sansone, representative of FAIRsharing
Philippe Rozza-Serra, representative of the GOFAIR Metabolomics IN
Simon Coles, representative of the GOFAIR Chemistry IN
Ben Schaap, representative of the GOFAIR Food System IN
Mateusz Kuzak, representative of the GOFAIR FAIR Curriculum IN
Mark Wilkinson, representative of the FAIR Metrics.org and GOFAIR OPEDAS IN
Simon Hodson, CODATA and representative of the GOFAIR GO-Train
Hugh Shanahan, representative of the GOFAIR GO-Train
Robert Pergl, representative of the Data Stewardship Wizard
Oya Beyan, representative of the Personal Health Train IN

- IN contact person/presenter:
  ■ Ben Schaap (presenter)
  ■ Peter McQuilton (peter.mcquilton@oerc.ox.ac.uk)
StRePo: making Standards, Repositories and Policies FAIR

Areas of existing cross-IN/cross-domain collaboration and convergence

- OPEDAS - 10.1038/s41597-019-0184-5
- GO-TRAIN - terms4FAIRskills - join our efforts at https://terms4fairskills.github.io/
- Chemistry - https://fairsharing.org/collection/Chemistry
- GO-FAIR matrix work - 10.1162/dint_a_00038

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- Food Systems - work to describe and map the agriculture and food ecosystem
- Personal Health Train - work to describe and map
- Metabolomics - ensure all standards and repositories used in this community are mapped
- DSCC - Continue work on terms4FAIRskills; Help foster international convergence on the use of interoperable protocols, standards, formats and data repositories
- ENVRI-FAIR - Describe and map the Environmental Research Infrastructure
- NMDC - Ensure all the appropriate standards are curated in FAIRsharing
Topic: Chemistry and related disciplines

Contact person/presenter: Prof Simon Coles; Prof Jeremy Frey; Prof Stuart Chalk; Dr Egon Willighagen; Dr Nicola Knight

Areas of progress and achievements in 2019

Widening understanding and membership:
IUPAC support for ChIN manifesto; ACS workshop (FAIR Publishing Guidelines for Spectral Data and Chemical Structures); IUPAC General Assembly symposium (Advancing Frontiers in Digital Chemistry); C&E News article (https://cen.acs.org/policy/publishing/Chemistry-data-should-FAIR-proponents/97/i35)
Taking FAIR on the ChIN (https://doi.org/10.1162/dint_a_00035)

Projects:
FAIR Spectral (NMR) data (arising from ACS workshop); FAIR Molecules initiative (arising from GO FAIR interactions at Metadata for Machines workshop)
Areas of existing cross-IN/cross-domain collaboration and convergence

- FAIR StRePo (supporting member)
- Metabolomics (through Egon Willighagen)
  - InChI adoption already a big thing
- GO NANO (through Egon Willighagen)
  - February 2020: InChI for nanomaterials meeting, Reykjavík/Iceland

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- FAIR Molecules (linking a range of INs through OPEDAS and/or GO Inter?)
- INOSIE (eg Pharmaceutical industry doing this through Pistoia Alliance etc)
- NOMAD (overlap between Chemistry and Materials)
Snow White

- **Topic:** Snow White provides a comprehensive ecosystem for high-performance and high-throughput computing, its associated simulation services, and the dissemination of the resulting curated and raw data. Full reproducibility and data provenance is ensured not only for single calculations but for complex workflows involving arbitrary numbers of nodes and sequences.

- **IN contact person/presenter:**
  Nicola Marzari (nicola.marzari@epfl.ch)
  Giovanni Pizzi (giovanni.pizzi@epfl.ch)
  Sebastiaan Huber (sebastiaan.huber@epfl.ch)

- **Areas of progress and achievements in 2019**
  - Software stack: AiiDA ([http://aiida.net](http://aiida.net)) as the operating system, AiiDA Lab ([https://www.materialscloud.org/work/aiidalab](https://www.materialscloud.org/work/aiidalab)) for the cloud deployment of simulation services, and Materials Cloud ([http://materialscloud.org](http://materialscloud.org)) as the FAIR dissemination platform
  - AiiDA plugin registry: 45 plugin packages with support for over 80 codes
  - Quantum Mobile for local re-deployment; kubernetes at scale.
Areas of existing cross-IN/cross-domain collaboration and convergence

- Optimade (http://optimade.org): a worldwide consortium that maintains a common REST API to make materials databases interoperable
- EMMC (http://emmc.eu): metadata and ontologies for simulation data
- NFFA (http://nffa.eu): metadata and ontologies for experimental data

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- Extending AiiDA's data provenance graph to experimental domains (synergy with Battery 2030+/BIG-MAP and NFFA)
- Potential interesting overlap with the Chemistry IN
Rare Disease GO FAIR implementation network (RDs GO FAIR)

RDs GO FAIR: a GO CHANGE implementation network to strategically oversee and foster activities in the rare disease community towards a critical mass of FAIR data for rare diseases, active since Dec. 2018

**Topic:**
Rare diseases going FAIR, from (no) decisions to decision support

**IN contact person/presenter:**
Marco Roos & Ronald Cornet

**Main areas of progress and achievements in 2019**
- Support *European Reference Networks of rare disease expert centres*
- Foster patient organisations & expert centres in making FAIRification plans
- Follow EJPRD (European Joint Programme Rare Diseases): ‘GO BUILD’
  - 2019-2023, >100 partners, 100M € (55M funding, 17M infrastructure)
  - FAIR task forces: federated+centralised architecture, FAIRification, metadata
  - Now: charting+measuring solutions for FAIR choices → decision tree
- Challenges:
  - Adoption of FAIRer resources (Survey: use of FAIRer resources <10% of potential)
  - Decision making: RD experts cannot and FAIR experts will not make decisions
  - Patient FAIRpowerment
Areas of existing cross-IN/cross-domain collaboration and convergence

- Personal Health Train, Other People’s Data and Services, GO FAIR Foundation: GO BUILD/TRAIN relevant for GO CHANGE, organise contribution of RD development
- Funders GO FAIR: some funders in EJPRD

Ideas for potential future cross-IN/cross-domain collaboration and convergence

- Mergers of decision support trees
- GO Train network for RDs FAIR training needs
- C&C between Health related networks and FAIR health projects
- Patient FAIRpowerment, patient organisation FAIRpowerment
- Ethical, Legal, and Societal Impact (RDs have expertise to share)
- Funders GO FAIR: apply and advocate results to RDs GO FAIR stakeholders
- GO BUILD synergy, convergence, scaling up: GO CHANGE needs it

Here today:

Annika Jacobsen
Ronald Cornet
Marco Roos