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## **KEYNOTE 3 (SA NREN): eInfrastructures as enablers for global science and education**

*Tuesday, 3 December 2019 09:00 (45 minutes)*

Science and education are increasingly becoming global endeavors. Scientists collaborate internationally and questionnaires indicate that scientists today are more likely to collaborate with partners outside their home institutions than with local research fellows. Students no longer need to physically be on campus to take classes, as they follow courses remotely and can even take a degree at foreign university without leaving home. Furthermore, there is a growing number of international research infrastructures, some centralized and some highly distributed, in all areas of science. The construction of those infrastructures is partly driven by financial necessity, but also from a need to bring together the necessary competences. Furthermore, the paradigms of Open Science and Citizen Science foster an environment of sharing and inclusion. Collaboration is no longer just a matter of scientist visiting for weeks and months.

For these reasons, access to facilities, research infrastructures, and data must be global, universal, fine-grained, and instant. As an eInfrastructure provider, R&E Network organizations are one of the fundamental building blocks supporting today's global science, and just as scientific activities are becoming more and more global, we need to think global. With the network, we already see this happening, where leading NRENs, such as the South African NREN, participate in the Global Network Advancement Group, that works on the intercontinental aspects of the (GREN) Global R&E Network. Moreover, network services such as eduroam, eduGAIN, and eduVPN take a truly global approach. The infrastructure needed to support Open Science and Citizen Science drives us to break down silos between storage, compute, and network infrastructures. We need to think about it in its entirety. The same goes for some of the large international research infrastructures, where storage, compute, and the network become an integral part of the science instrument. In this talk, I will present my views on the role of R&E Networks as enablers for science and education, with an outset on what I see happening in the European Nordics, at a European level, and globally.

### **Supported Student**

**Primary author:** Dr KLEIST, Josva (NORDUnet A/S)

**Presenter:** Dr KLEIST, Josva (NORDUnet A/S)

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