Gaining knowledge on rare diseases is limited by the scarcity and dispersity of patient data. Sequencing technologies have greatly contributed to elucidating the genetic components of these conditions, but a more comprehensive molecular picture remains to be uncovered. In this talk, we will discuss how digitalization can foster data collaboration and integrative analysis of multi-omics data across various diseases. We will show how to characterize rare disorders and build disease predictive models guiding the diagnosis and treatment of yet unknown conditions.