What are NAMs and why is there a drive in the regulatory context? - NAMS Roadmap (2023)

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Advances in biology, computer science and other related fields are paving the way for major improvements in how we evaluate environmental and public health risks posed by potentially toxic chemicals. The combined advances in discovery and clinical sciences, data science and technology have resulted in toxicity testing which has reached a pivotal transformation point known as the 4th industrial revolution (4IR). One of the major recent scientific advancements is the development of NAMs including but not limited to high throughput screening, organ on chips, omics and in silico computer modelling strategies (e.g. Artificial Intelligence (AI) and machine learning) for the evaluation of hazard and exposure. This also advocates the Replacement, Reduction and Refinement (3Rs) of animals, approach (Hartung, 2010) proposed 50 years ago by Russell and Burch (1959). Our collective definition of the usage of NAMs is an assessment which combines and integrates data from traditional methodologies with data from these new emerging technologies.

What is being done?

To keep pace with the digital evolution, we aim to use the latest technology and best available scientific methodologies to incorporate additional tools into our regulatory risk assessment process to evaluate safety in food, consumer products and the environment more efficiently and without compromising quality.

Why?

This will enable us to provide improved risk assessments of chemicals for which there are currently no, or very few data, and therefore **increase consumer safety**.

NAMs will help us to predict risk more rapidly, accurately, and efficiently.