

# Technical information - NAMS Roadmap (2023)

## In this guide

### [In this guide](#)

1. [Cover - NAMS Roadmap \(2023\)](#)
2. [Executive summary - NAMS Roadmap \(2023\)](#)
3. [Introduction & Background NAMs Roadmap Draft Version 3 \(2023\)](#)
4. [What are NAMs and why is there a drive in the regulatory context? - NAMS Roadmap \(2023\)](#)
5. [Who are the UK FSA and the COT? - NAMS Roadmap \(2023\)](#)
6. [Worldwide perspectives on emerging technologies - NAMS Roadmap \(2023\)](#)
7. [UK Government cross cutting themes on NAMS, data and emerging technologies - NAMS Roadmap \(2023\)](#)
8. [Future Government cross themes - NAMS Roadmap \(2023\)](#)
9. [What have the FSA/COT done so far? - NAMS Roadmap \(2023\)](#)
10. [Exploring Dose Response \(EDR\) Workshop Summary - NAMS Roadmap \(2023\)](#)
11. [PBPK for Regulators Workshop Summary - NAMS Roadmap \(2023\)](#)
12. [The proposal: How does the FSA plan to integrate NAMs in the regulatory space? - NAMS Roadmap \(2023\)](#)
13. [The 7 Steps to Integration & Acceptance - NAMS Roadmap \(2023\)](#)
14. [Future Visions: The new normal chemical landscape - NAMS Roadmap \(2023\)](#)
15. [References - NAMS Roadmap \(2023\)](#)
16. [Abbreviations - NAMS Roadmap \(2023\)](#)
17. [Technical information - NAMS Roadmap \(2023\)](#)
18. [Acknowledgments - NAMS Roadmap \(2023\)](#)
19. [More information - NAMS Roadmap \(2023\)](#)

**21st century toxicology** (Tox 21) refers to ‘the transformation underway in the tools and approaches used to evaluate chemical substances for possible effects on human health’. National Research Council, 2007. Toxicity testing in the 21st

century: a vision and a strategy.

National Academies Press. Toxicity testing in the 21st century: a vision and a strategy. National Academies Press: [Toxicity Testing in the 21st Century: A Vision and a Strategy |The National Academies Press.](#)

**disability-adjusted life year** (DALY) is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. It was developed in the 1990s as a way of comparing the overall health and life expectancy of different countries.

**High throughput screening** (HTS): is a method for scientific experimentation especially used in drug discovery and relevant to the fields of biology and chemistry. Using robotics, data processing/control software, liquid handling devices, and sensitive detectors, high-throughput screening allows a researcher to quickly conduct millions of chemical, genetic, or pharmacological tests. Through this process one can rapidly identify active compounds, antibodies, or genes that modulate a particular biomolecular pathway. The results of these experiments provide starting points for drug design and for understanding the noninteraction or role of a particular location.

**Integrated approaches to testing and assessment** (IATAs): provide a means by which all relevant and reliable information about a chemical is used to answer a defined hazard characterization question. Information considered can include toxicity data, computational model predictions, exposure routes, use cases, and production volumes. This information is used to characterize outcomes that can inform regulatory decision-making. ([Integrated Approaches to Testing and Assessment](#))

**In silico**: one performed on computer or via computer simulation.

**MANET** : is for exploring data, whether raw data, transformed data or model residuals. MANET provides a range of graphical tools specially designed for studying multivariate features. MANET useful for gaining insights into the structure and relationships of their data sets.

**Mondrian**: is a general-purpose statistical data-visualization system.

**Omics**: are various disciplines in biology whose names end in the suffix -omics, such as genomics, proteomics, metabolomics, metagenomics and transcriptomics.

**Political, Economic, Sociological, Technological, Legal and Environmental (PESTLE) analysis** studies the key external factors that influence an organisation. It can be used in a range of different scenarios, and can guide people professionals and senior managers in strategic decision-making.

**quality-adjusted life year (QALY)** is a generic measure of disease burden, including both the quality and the quantity of life live.

**Rebuilding a Resilient Britain programme:** builds on work to develop government science capability and the external evidence base to support policy development.

This report sets out more analysis relating to data and evaluation. It examines existing questions to identify cross-cutting themes, and to provide a platform for engagement between government departments and academics to consider medium and long-term questions.

**Spherical cow:** is a humorous metaphor for highly simplified scientific models of complex real-life phenomena.

**The Fourth Industrial Revolution (4IR):** is the fourth major industrial era since the initial Industrial Revolution of the 18th century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital and biological spheres, collectively referred to as cyber-physical systems.

**Value of Life Year (VOLY)** values the impact of risks to the length of life.

**Zettabytes:** are 1,000,000,000,000,000,000 bytes. Zettabyte is approximately equal to a thousand Exabytes, a billion Terabytes, or a trillion Gigabytes.