

## Preface

### ‘Small world, big data’

Good decision-making in disease control requires good evidence. There are few better examples than the current avian influenza epidemic or the severe acute respiratory syndrome coronavirus 2, more commonly known as SARS-CoV-2, pandemic to highlight the necessity for good data, sound analysis, insightful interpretation and careful forecasting in driving every aspect of response: field surveillance, whole genome sequencing, and spatial and temporal modelling have provided the basis for everything from movement restrictions and firebreak interventions through vaccine design and deployment to post-intervention monitoring. There is no doubt that the success of the response is intimately connected to the quality of the data on which both strategic and operational decisions are based.

In managing animal disease, whether in the context of One Health or otherwise, our modern world offers few impediments to the spread of pathogens. Political, geographical and even species barriers are unrecognised, and trade and travel ensure the planet becomes smaller year on year. Conversely, both our ability to generate and store data and our technological aptitude in exploiting these resources to provide useful information and knowledge are proliferating faster than ever before. The mission of the World Organisation for Animal Health (WOAH), together with our cognate partners, must be to exploit this ‘small world, big data’ opportunity and ensure we maximise the benefits of the synergies of our biological and digital ecosystems.

Acknowledging that the answers to our challenges lie in us taking a holistic view of the social context in which we operate – one in which we need technical, social, economic and regulatory solutions to effect change – this issue of WOAH’s *Scientific and Technical Review* presents a collection of papers illustrating the heterogeneity of approaches and applications in a data-rich environment.

With data derived from wide-ranging sources, from the resolution of the genome to the spatial distribution of populations, there is at least one question that remains unasked: can we ever have too much data – when is enough? The answer likely does not lie in the cost of storage or in epidemiological considerations regarding precision and error, but rather in the expense of primary data generation, the field work, the animal sampling, the sample inspections and, fundamentally, the boots on the ground.

Value for money and the economics of animal production and management and disease control are critical considerations, and the advent of advanced technologies in data sciences offers opportunities as well as challenges. In WOA's mission of improving animal health and welfare worldwide we will need to ensure that the benefits of the big data approach are accessible and affordable to all. In our small world, it is more important than ever that we remove the barriers that prevent us from delivering our mission across the globe.

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