National Committee for Mathematical Sciences

A committee of the Australian Academy of Science

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Dear Clare

The National Committee for Mathematical Sciences would like to make the following response to the Exposure Draft of the 2011 Roadmap.

In considering future research trends, the strategic importance of those trends to Australia and the infrastructure services required to capitalise on those trends, the Exposure Draft implicitly assumes that Australia's capability in mathematical, statistical and other quantitative fields will be available, without providing a roadmap to maintain this crucial capability.

The Exposure Draft mentions mathematical models and quantitative analysis on p. 28 (under computational science) and data analysis under Characterisation (p. 29 onwards) and Atmospheric Observations (on p. 73). Data or data sets are mentioned in a large number of places: e.g., under Population health (from p. 47), Integrated biological discovery (p. 39 onwards), Culture and community (p. 60 onwards), e-Research infrastructure (p. 24 onwards), Terrestrial systems (p. 66), Cyber security (p. 59), Digitisation infrastructure (p. 36 onwards), Urban settlements (p. 70), Biological collections and bio-banking (p. 43), amongst many other areas. Statisticians are mentioned on p. 36, Biostatistics is mentioned on p. 28, 30, 39, 40, 44, 48, statistics per se in other places, e.g., p. 61. However, no infrastructure is mentioned as necessary to uphold Australia's research capacity and training in mathematical modelling, quantitative analysis, data analysis, biostatistics or statistics to underpin these essential capabilities.

The recently released Discipline Specific Case Studies compiled by DIISR for the Research Workforce Strategy show that the PhD workforce demand in the mathematical sciences is projected to grow by over 50 per cent by 2020. It also reports that the number of domestic PhD commencements in mathematical sciences has levelled out. To attract international researchers to Australia, to increase the PhD workforce and to have access to leading-edge infrastructure in the mathematical sciences, the National Committee for the Mathematical Sciences, the Australian Mathematical Sciences Institute statistical Society of Australia, and the membership of the Australian Mathematical Sciences Institute unanimously agreed to initiate and propose a National Research Centre in the mathematical sciences. Such a proposal has been distributed to DIISR, DEEWR and the ARC.



In summary, the National Committee for Mathematical Sciences recommends that mathematics and statistics should be recognized and mentioned explicitly in the 2011 Roadmap as an enabling science. We also recommend strongly that a mathematical and statistical research centre should be included in the infrastructure needs for maintaining Australia's leading-edge capacity in the mathematical sciences.

Yours sincerely

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