

News in brief

CANADA ANNOUNCES INNOVATION AGENCY — AND IT'S NOT MODELLED ON DARPA

The Canadian government has announced that it will invest Can\$1 billion (US\$780 million) over the next five years to create a funding agency focused on innovation in science and technology. The unit will buck a trend of countries trying to replicate the renowned US Defense Advanced Research Projects Agency (DARPA); instead, it will be modelled on innovation agencies in Israel and Finland. But some critics say that this strategy might not be a good fit for Canada, which is seeking to improve its poor track record of innovation.

The country ranks last in research and development (R&D) spending in the G7 group of nations. Canadian businesses invest 0.8% of gross domestic product in R&D, compared with the G7 average of 1.6%. “This is a well-known Canadian problem — and an insidious one,” said finance minister Chrystia Freeland (pictured, centre) in her 7 April speech setting out the federal budget for the fiscal year 2022.

Canada’s last experiment in boosting innovation created the ‘superclusters’: five regional public–private collaborations that focus on specific areas, such as artificial intelligence.

The details of the new agency are not yet finalized, but it will differ from the superclusters, says Dan Breznitz, co-director of the Innovation Policy Lab at the University of Toronto, who is advising the government on its design. The innovation agency will have a national focus and support many sectors — from high-tech start-ups to resource-based industries such as forestry. Breznitz envisions a nimble, independent organization that is engaged with business. He says it should respond more quickly than government bureaucracy — similar to the Israel Innovation Authority, which responds quickly to funding applications — and it should be at arm’s length from government so that projects are given space to fail.

The Finnish Funding Agency for Technology and Innovation makes another good model for the Canadian agency, Breznitz says, because 30 years ago, the problems facing Finland were “eerily similar to the problem Canada has now”.

The Canadian government plans to announce more details about the agency before the end of the year, after consultations with stakeholders.



MUTTLEY CREW: DOG BREEDS ARE ALL ABOUT BEAUTY, NOT BEHAVIOUR

Dog enthusiasts have long assumed that a dog’s breed shapes its temperament. But a sweeping study comparing the behaviour and ancestry of more than 18,000 dogs finds that although ancestry does affect behaviour, breed has much less to do with a dog’s personality than is generally supposed. “When you adopt a dog based on its breed, you’re getting a dog that looks a certain way,” says study co-author Elinor Karlsson, a computational biologist at the University of Massachusetts in Worcester. “But as far as behaviour goes, it’s kind of luck of the draw.”

For millennia, human efforts to shape dogs’ looks and behaviour focused on the animals’ working ability — how well they herded livestock, for example. Then dog enthusiasts in Victorian England began actively selecting for canine traits that they found aesthetically pleasing, leading to today’s breeds. Contemporary pure-bred dogs are defined by their looks, but breed is also thought to influence temperament.

To see how breed affects behaviour, Karlsson and her colleagues surveyed thousands of dog owners about their pets’

backgrounds and activities. The researchers then sequenced the DNA of a subsection of the survey dogs to see whether ancestry could be linked to behaviour (K. Morrill *et al. Science* 376, eabk0639; 2022).

The team found that some traits were more common in certain breeds. For example, compared with a random dog, German shepherds were more easily directed; beagles, less so. The genetic data revealed that mixed-breed dogs with a certain ancestry were more likely to act in specific ways. Mutts with St Bernard heritage, for example, were more affectionate; mutts descended from Chesapeake Bay retrievers had a penchant for wrecking doors.

But, on average, breed explained only around 9% of behavioural variation, a figure “much smaller than most people, including me, would have expected”, says Karlsson. Particularly low was the link between breed and how likely a dog was to display aggression. That could have implications for how society treats “dangerous” dog breeds, says Evan MacLean, a comparative psychologist at the University of Arizona in Tucson who was not involved in the study.



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