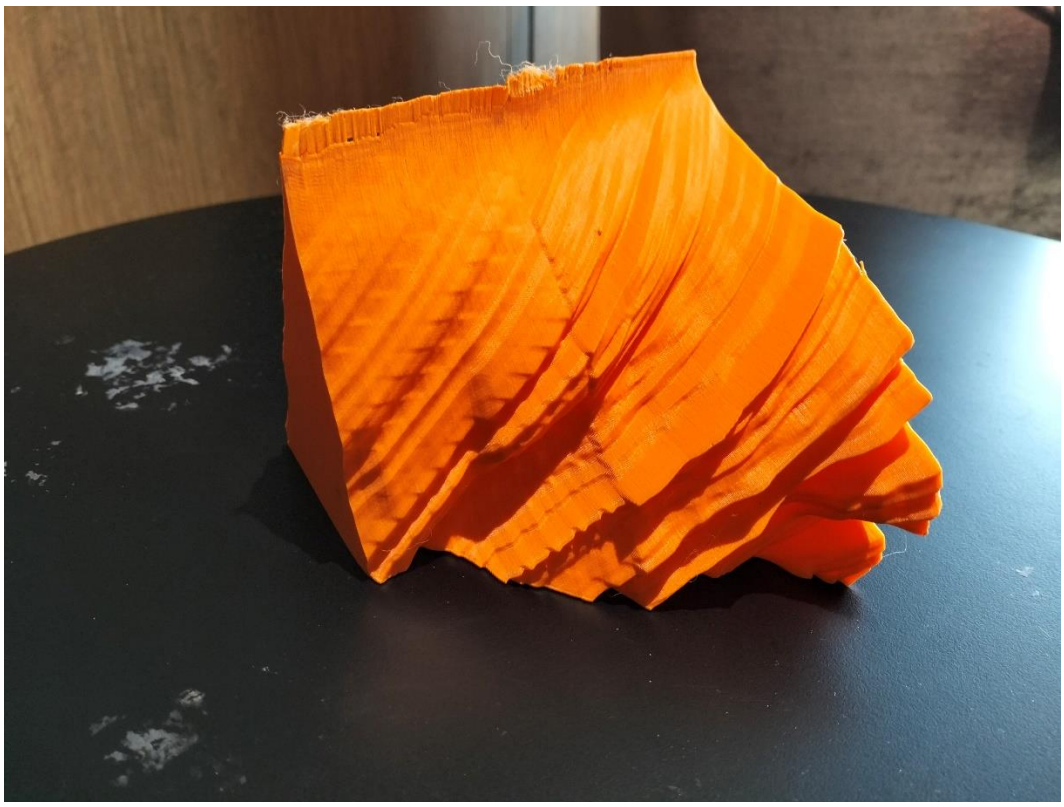
Interactive Museum of Demography – Executive Summary

The School of Demography at the Australian National University are in talks with the National Science and Technology Centre (Questacon) to develop a hands on exhibit illustrating the principles of demography and the key demographic issues facing Australia and the world.

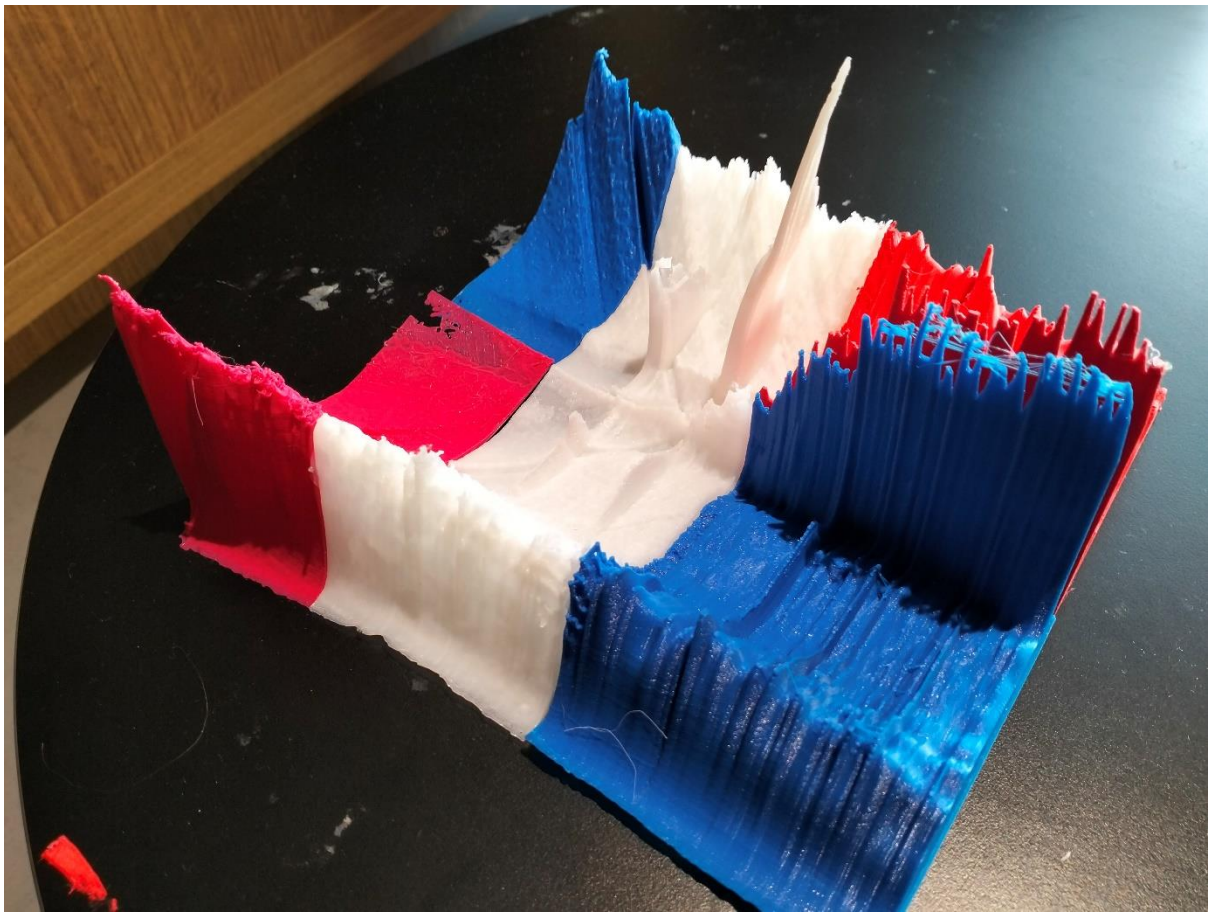
Modern technology offers the capacity for very low cost fabrication, particularly with 3D printing and laser cutting technology. This project harnesses this situation by building prototypes that can both be produced in a low cost, and used at small scale as teaching aids or in libraries, as well as producing higher quality more durable models that can be used in museums with high volume of use.

Figure 1 shows Australia's population pyramid from 1921 to 2021. It illustrates a number of critical aspects of population dynamics both in theory and in practice. Over the century, Australia's population has visibly grown considerably and aged considerably. The model also illustrates the effect of cohort ageing on population age structure over time. The Great depression baby bust, and the post war baby boom moving through the age structure is very evident. There is also a visible recent phenomenon (at least in Australia) of a 'standing wave' of temporary migrants who do not age in place as people arrive in their early 20s for study or work, leave by their late 20s and are replaced by a new group of younger temporary migrants.



A second model of French deaths since 1816 uses Human Mortality Database data to show the dramatic shifts in mortality over two centuries. Most notable features include:

- the dramatic fall in infant mortality
- the effect of WW1, WW2 and the Franco-Prussian war on male mortality
- the effect of epidemics, including the 1849 and 1853 peaks in the cholera pandemic, the 1871 small-pox pandemic, the 1918 influenza pandemic. The more limited effect of the COVID on older age groups is not visible in the two year old version in figure 2, but can be seen in the more recent files. can also be seen.
- The increasing age at death
- The cohort effect can also be seen, with the WWI / influenza cohort being smaller than surrounding cohorts leading to fewer deaths among this group.
-



In addition to a series of 3D models of fertility, deaths and population, I will also display:

- 3 dimensional maps showing the differences in population density between European and Australian cities
- A ball bearing race showing the dynamic processes of demography, with differential death rates as ball bearings face an increasing risk of ‘death’ at different stages of the race, and new ball bearings are added to the race reflecting both fertility and migration.

- Computer simulations and gamification of demographic processes as attendees can compete to, among other quests, stabilise the population of a country while avoiding population decline and minimising the excesses of an ageing population.