Another potential industry is aviation.

The already busy skies above China will only get busier. There are currently nearly 3,000 aircraft flying more than 1.33 million passengers every day. The majority of these aircraft are manufactured in Europe or America, but that is set for a gradual change.

The expansion of China’s internal aviation market over the next 20 years will see the number of civil aircraft needed rise to over 6,000. This huge market has prompted Chinese engineers to design and build the C919. It takes more than 1 million components to build a C919 and each must be made to the highest standard demanded by the world aviation industry.

In modern aircraft, mechanical control systems are replaced by electronic ones. This creates an intensive network of sensors and controls that works like a body’s neural system.

C919 has over 10,000 wires with cumulative length of nearly 80 kilometers. Each wire needs to be carefully installed one at a time by experienced engineers. It’s a bit like heart surgery and like operations on a human body. No mistakes can be allowed. Computers and meticulous management allow the engineers to complete this complicated operation efficiently and reliably.

At the aircraft test engineering institute 30 kilometers away, another and altogether more dramatic test on the C919 is being prepared.

This test is conducted in a Chinese-built flight simulator called the iron bird. All the control systems are identical to that of the real aircraft. The test will be of a simulated catastrophic failure in the C919’s flight control system.

The simulated scenario is a high-altitude failure of an aileron on one wing due to sudden icing.

It will cause a dangerous destabilization of the aircraft’s flight attitude. If the flight control system fails to correct it in time, a catastrophic accident could follow.

No one would risk conducting a test like this in the air. Yet with the iron bird the engineers can test the plane to the limits about its parameters.

After extensive testing in the iron bird, the C919’s flight control system achieves a faultless level performance on its first real test flight.

In the future, C919 will be a key part of Chinese air transport system. The midsize passenger jet will not only benefit travelers across the nation and other countries and regions to which it is exported, but its manufacture will support more than 200 enterprises and 200,000 skilled workers in the research and development.