

CASE STUDY

High-technology industries in the USA

Although there is a fairly widespread distribution of high-tech companies in the USA, there are several areas where they are particularly numerous. Silicon Valley in California is the largest, followed by the Washington-Baltimore area and places along Route 128 in Massachusetts (see Fig. 10.15).

Silicon Valley stretches along the south shore of San Francisco Bay, from Redwood City in the west to San Jose in the east (see Fig. 10.16). One of the main reasons why a large cluster of high-tech companies developed in this area is because employees with new ideas left the original companies they were working for and set up their own businesses nearby.

The cluster in the Washington DC-Baltimore area has a lot to do with the US government departments being based in Washington DC. For example, biotechnology companies tend to locate themselves near the National Institute for Health. This is so that they can increase their chances of winning government contracts. They are also able to benefit from the work of the government's research institutes. There are more than 70 high-tech companies in Washington DC.

The cluster of high-tech companies in Massachusetts is close to Boston and its world-famous universities, in particular the Massachusetts Institute of Technology (MIT).

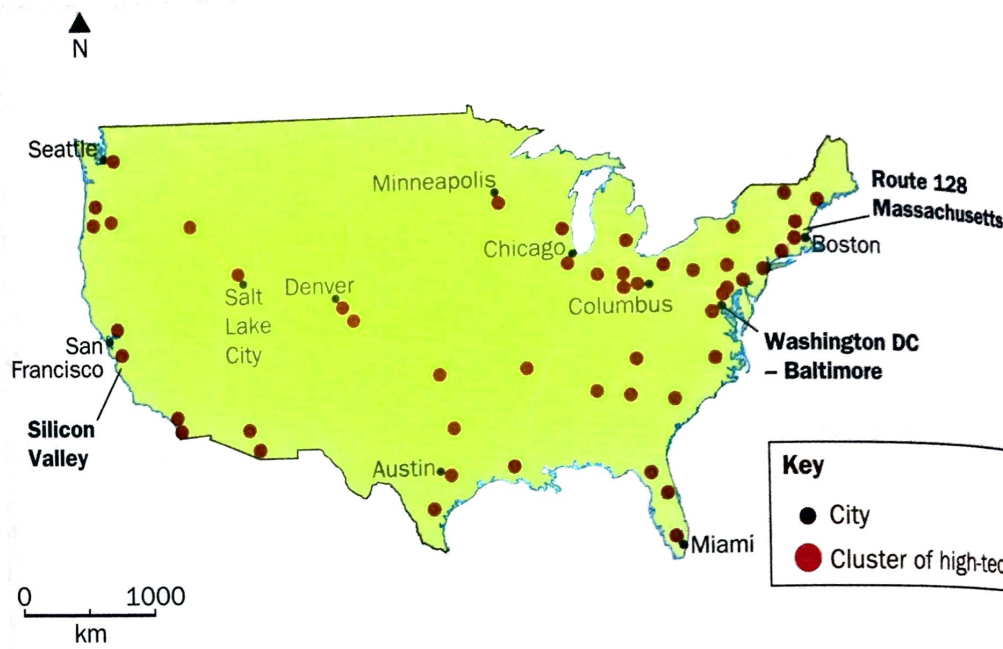


Fig. 10.15 The locations of the main areas of high-tech industry in the USA

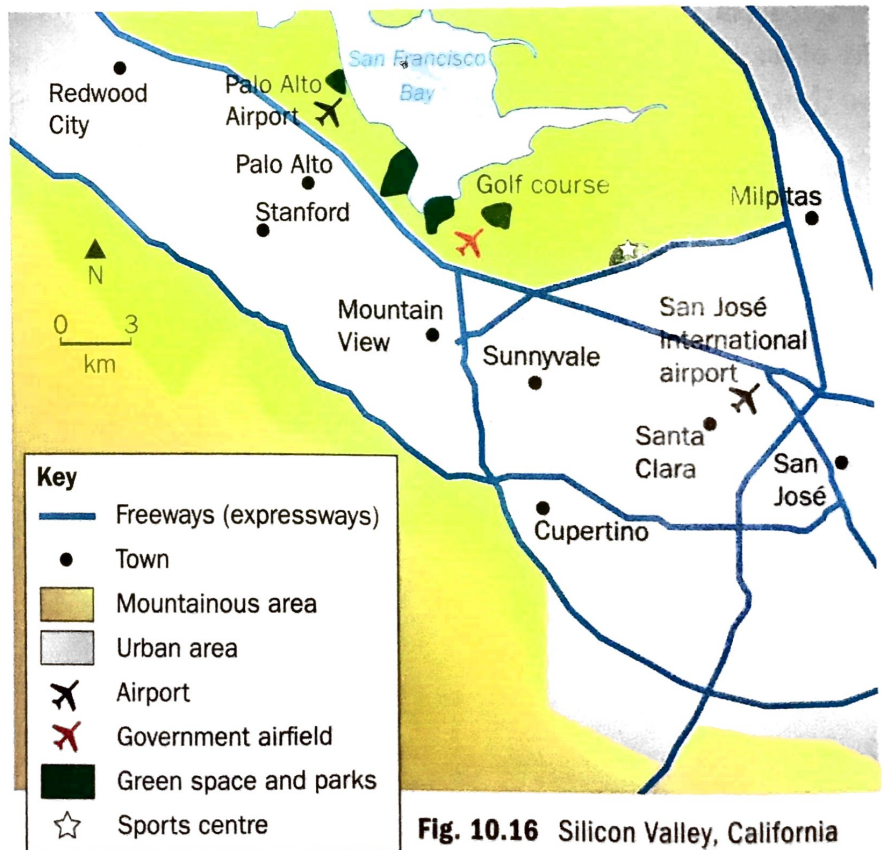


Fig. 10.16 Silicon Valley, California

Silicon Valley

Table 10.8 shows that clusters of companies making software, hardware and consumer electronics can be found in the towns of Silicon Valley. (Consumer electronics are electronic products that the general public buy, such as PCs, mobile phones and televisions.)

Supply links exist between the different companies. For example, computer manufacturers like Hewlett-Packard and Apple Inc. need microprocessors and silicon chips. AMD and Intel Corporation make microprocessors. Cypress Semiconductor and National Semiconductor make silicon chips. Symantec, McAfee and Mozilla all develop security software for computers. Google and Yahoo are both search engines. Other high-tech companies in the area make computer games, storage devices and other computer necessities.

These companies all have access to highly qualified workers, because there are many universities and technical institutes in the area. Stanford University at Palo Alto is one of the world's leading research institutions. There are also university buildings at Cupertino and Santa Clara.

Town in Silicon Valley	High-tech company making software, hardware and consumer electronics
Cupertino	Actel, Apple Inc.
Milpitas	Adaptec, JDSU, LSI Corporation, Maxtor, SanDisk
Mountain View	Antibody Solutions, Google, Intuit, Mozilla Foundation, Symantec
Palo Alto	Aricent, Facebook, Hewlett-Packard
Redwood City	Electronic Arts, Oracle Corporation,
San José	Adobe, Business Objects, Cisco Systems, Cypress Semiconductor, eBay, Hitachi Global Storage Technologies, Xilinx
Santa Clara	Aeria Games and Entertainment, Agilent Technologies, Applied Materials, Foundry Networks, Intel Corporation, McAfee, National Semiconductor, Nvidia, Sun Microsystems
Sunnyvale	AMD, Amdahl Corporation, Atari Inc., Juniper Networks, Maxim Integrated Products, NetApp, Yahoo

- 8**
- Use all of the information provided so far to list the reasons why Silicon Valley is the home of so many high-tech companies. Start with the natural environment and then include the other factors.
 - Use Figs. 10.16 and 10.17 to describe the advantages of the location of the Pacific Shores Business Park at Redwood City for the workers there.
 - Look at Figs. 10.18 and 10.19. Describe the features of the headquarters buildings of these two high-tech companies and their surroundings. Suggest why they have the appearance and surroundings you have described.

Table 10.8 The locations of firms making software, hardware and consumer electronics in Silicon Valley



Fig. 10.18 The headquarters of Hewlett-Packard at Palo Alto



Fig. 10.17 The Pacific Shores Business Park at Redwood City



Fig. 10.19 The headquarters of Apple Inc. at Cupertino



The Lockheed Martin Research Centre at Sunnyvale

The buildings for this aerospace company's research centre at Sunnyvale are located just to the east of the government's Moffett Airfield (Fig. 10.16), and are visible in the centre of Fig. 10.20 (just beyond the airfield). Lockheed Martin has facilities at nine locations in the USA. This one focuses on research into information systems, global security and space operations.

The 230 employees at Sunnyvale have an on-site fitness centre, a cafeteria and a post office, as well as easy access to freeways and public transport. There is a choice of schools at Sunnyvale and Santa Clara, and University buildings at Santa Clara and Cupertino. Sunnyvale has two main attractions – a Museum of Art and Paramount's Great America Amusement Park. The company's rates of pay are competitive and they reward high performance. Perks include health care insurance.



Fig. 10.20 The view from Mountain View over Sunnyvale and the government airfield

Lockheed Martin's outputs include aircraft, air traffic control systems, satellite imagery, IT support and precision weapons. It has partners in more than 50 countries and meets the needs of governments by producing modern defence systems, air, sea and rail management systems, and military and civilian control systems. It also builds satellites. Its market is both domestic and global.

The company's website explains its success:

Our advantage? Lockheed Martin's 80 000 experienced scientists, engineers, and IT professionals have a passion for invention. We are a company that values integrity and teamwork and pursues superior performance in every activity. We are an organisation that demands the highest standards from every one of our employees.

Fig. 10.22 An extract from Lockheed Martin's website

9 What advantages does Lockheed Martin's Sunnyvale location have for (a) the workforce and (b) an aerospace company?



Fig. 10.21 The complex instruments in the cockpit of a Lockheed Martin F35 Lightning Stealth bomber

Discussion point

Lockheed Martin has branches in the UK and eight other European countries, as well as Canada, New Zealand, Japan, Singapore, South Korea, Taiwan, Turkey, Argentina, Brazil and Chile. Think about reasons why there might be branches in these countries and not in others. You might be able to suggest political as well as economic and social reasons.