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## **The Foundation of Silicon Valley**

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Silicon Valley – what is that? Silicon Valley is the heartland of the microelectronics industry that is based on semiconductors. Geographically, it is the northern part of the Santa Clara County, an area stretching from the south end of the San Francisco Bay Area to San Jose, limited by the Santa Cruz Mountains in the west and the northern part of the Diablo Range in the east.

The name Silicon Valley was coined in 1971 by Don C. Hoefler. *Silicon* was chosen because it is the material from which semiconductor chips are made, which is «the fundamental product of the local high-technology industries».

Silicon Valley saw the «development of the integrated circuit, the microprocessor, the personal computer and the video game» and has spawned a lot of high-tech products such as pocket calculators, cordless telephones, lasers or digital watches. The image of Silicon Valley is the nucleus of modern computing, presenting the most important events, which comprise the developments of the three major companies Hewlett-Packard, Intel and Apple [1].

The story of the Silicon Valley starts with Stanford University in Palo Alto. In 1887, Leland Stanford, a wealthy railroad magnate who owned a large part of the Pacific Railroad, decided to dedicate a university to his son's memory who had died due to a severe disease shortly before he intended to go to a university.

Frederick Terman, who was the progenitor of the initial Silicon Valley boom, today is also known as the «godfather of Silicon Valley». Terman became head of the department of engineering by 1937 and established a stronger cooperation between Stanford and the surrounding electronics industry to stop the brain drain caused by many students who went to the East after graduation, as they did not find a job in California then.

HP Company. Hewlett-Packard was one of the first companies to be founded in the Silicon Valley and has today become the largest one to be seated there. Its story is typical for this Valley and has had a great impact on many firms founded later on. Bill Hewlett and David Packard met at Stanford University in 1934. Bill Hewlett was the «son of the dean of the Stanford Medical School, while Dave Packard had come to Stanford from Pueblo, Colorado», and was an enthusiastic radio ham.

The new firm Hewlett-Packard (HP) was founded in 1939 and its first big sale were eight audio oscillators to Walt Disney Studios, which used them for the soundtrack of *Fantasia*. Bill Hewlett and Dave Packard have spent millions of their profits for social welfare and have established the Hewlett-Foundation. Hewlett and Packard have set a pattern of an outstanding company against which every new high-technology firm «must be measured».

Intel Corporation. After the transistor and the integrated circuit, the invention of the microprocessor in the early 1970s represents the next step towards the modern way of computing, providing the basis for the subsequent personal computer revolution. It was at Intel where the first microprocessor was designed – representing the key to modern personal computers. With its logic and memory chips, the company provides the basic components for microcomputers. Intel is regarded as

Silicon Valley's flagship and its most successful semiconductor company.

Intel was founded in Mountain View, California in 1968 by Gordon E. Moore (of *Moore's law* fame), a chemist, and Robert Noyce, a physicist and co-inventor of the integrated circuit. Intel's third employee was Andy Grove, a chemical engineer, who later ran the company through much of the 1980s and the high-growth 1990s. Intel (short for Integrated Electronics), a typical Fairchild spin-off, was financially backed by venture capital from Arthur Rock, who had been in contact with Noyce since 1957.

Intel's first really successful product was the 1103 dynamic random access memory (DRAM). 1971 was a crucial year at Intel. The company's revenues surpassed operating expenses for the first time, and the company went public, raising \$6.8 million. The invention of the microprocessor marked a turning point in Intel's history. This development «changed not only the future of the company, but much of the industrial world» [2].

Apple Computer. Apple's history starts with the story of two young and exceptional people who began building a computer in their garage and launched the microcomputer revolution, changing our daily life in many respects.

The Apple story is the story of the two *Steves*. Stephen G. Wozniak was a typical Silicon Valley child. Born in 1950, he had grown up with the electronics industry in Silicon Valley, and had been intrigued by electronics from the start, since his father was an electronics engineer.

In 1971, Wozniak built his first computer with his high-school friend Bill Fernande (they called it Cream Soda Computer). Bill introduced Woz to a friend of his named Steven P. Jobs. Jobs was born in 1955, and his foster parents were – unlike most other people in Silicon Valley – blue-collar workers. However, growing up in an environment full of

electronics, Steve came in contact with this fascinating technology and was caught by it.

Apple was founded by Steve Jobs, Steve Wozniak, and Ronald Wayne in April 1976 to develop and sell Wozniak's Apple I personal computer. It was incorporated as Apple Computer, Inc. in January 1977, and sales of its computers, including the Apple II, saw significant momentum and revenue growth for the company. Jobs himself was the driving force that brought the key components together to build up a successful company.

Silicon Valley is full of amazing and exciting stories. The Valley is a place of active entrepreneurship, and is home to thousands of smaller companies manufacturing a variety of electronics products. Whatever innovated developments the future may bring along, the nucleus for modern computing remains that «kingdom built on sand, the main material of which is silicon – primarily found in sand» [3].

#### References:

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