Tutorial 3 Business Plan and Marketing Plan (A)

1) Answer the questions based on the case study given.

CASE STUDY: BOB NOYCE, THE POD-FATHER

Robert (Bob) Noyce was one of the pioneers of microelectronics, whose contribution can be traced all the way forward to current entrepreneurs such as Steve Jobs of Apple fame. He has been referred to as the Thomas Edison and the Henry Ford of Silicon Valley: Edison for his invention and technological innovations, including the co-invention of the integrated circuit; and Ford for his process and corporate innovations, degree including the creation of Fairchild Semiconductor and Intel.

A first in Physics and Maths, followed by a PhD in Physics from MIT, upon graduation in 1953 he gained three years' experience as a research engineer, and then at age 29 he joined the then newly established but prestigious Shockley Semiconductor Laboratory in California. William Shockley had won the Nobel Prize for his co-development of the transistor. However, Noyce was very unhappy with the management style at Shockley, and left in 1957 with the so-called "Traitorous Eight" to form Fairchild Semiconductor, a new division of Fairchild Camera and Instruments.

Sherman Fairchild agreed to fund the "Traitorous Eight's' new venture on the basis of Noyce's reputation and vision. Noyce convinced Fairchild that the key was the manufacturing process, and that silicon-based components could become low-cost and widely used in a range of electronic devices. At Fairchild, Noyce created a climate in which talent thrived; it was much less structured, more relaxed, team-based and less hierarchical than at Shockley. Arguably this was the archetype for the future culture of Silicon Valley.

In 1958 the new venture developed the key planar technology that made higher-performance transistors easier and cheaper to manufacture. In July 1959 he filed for the patent for the Integrated Circuit, essentially multiple transistors on a single wafer of silicon, which was the next significant technological breakthrough. Between 1954 and 1967 he accumulated 16 patents. The first sales were to IBM, and sales of Fairchild's semiconductor division doubled each year until the mid-1960s by which time the company had grown from 12 to 12,000 employees, and was earning $130 million a year. By 1966, the sales of Fairchild were second to Texas Instrument's, followed in third place by Motorola. Noyce was rewarded with the position of corporate vice-president, and de facto head of the semiconductor division.

These devices were analogue, but Fairchild was less successful with its digital devices. Some of its early digital circuits were used in the Apollo Space Guidance computer, but generally these were not suited to other military applications and were not a commercial success. Texas Instruments and a number of new start-up companies offered superior designs, and in 1967 Fairchild suffered its first loss, of US$7.6 million. When the CEO resigned, the board did not promote Noyce. As a consequence, in 1968 Noyce left Fairchild to form a new venture with Gordon Moore (also one of the original 'Traitorous Eight' from Shockley, and originator of 'Moore's Law'). Five of the original founders of Fairchild Semiconductor funded the creation of Intel (INTegrated Electronics). Intel's third employee was Andy Grove, a chemical engineer and credited as its key business strategic leader.

For the first few years, Intel's business was based on the low-cost manufacture of Random Access Memory (RAM) devices. Noyce oversaw the development of the next major milestone in the industry, the microprocessor, invented by Ted Hoff in 1971. The processor was developed to replace a number of components for an electronic calculator developed for a Japanese client. However, the microprocessor did not become central to Intel's business until much later. Increasing competition from Japan reduced the profitability of memory devices, and Intel changed strategy to pursue the development microprocessor which would be critical to the growth of the nascent OC industry. In July

1979 Intel launched its 8088 processor, a new variant of its 8086, accompanied by a major marketing and sales campaign 'Operation Crush', to promote widespread adoption and application. An early win was a supplier to IBM. In August 1981 IBM launched its PC based upon the Intel processor. In 1982, Intel introduced the 80286 processor, and subsequently the 80386 in 1985, first used by Compaq in its PC-clones and later by IBM. The 386 was also a milestone as it was the first processor to be single-sourced from Intel. Before this, customer would source critical components from several competing manufacturers to ensure deliveries and reduce risk, but for the 386 Intel refused to license its design and instead manufactured the chips at three separate sites. This strategy established Intel at the heart of the PC industry.

Noyce's charisma and powers of persuasion made him an inspiring leader, but he was a less effective manager. He was criticised by Grove and others for his indecisiveness and dislike of confrontation, a trait that kept him from making difficult decisions and taking tough actions. He resigned as President in 1975, transferring the role to Moore. However, Noyce maintained a mentoring role at Intel and more broadly, and provided advice and seed capital to promising entrepreneurs.

One of these aspiring entrepreneurs was Steve Jobs, who Noyce met during the first year of Apple Computer, in 1977. Jobs deliberately sought out Noyce as a mentor. 'Steve would regularly appear at our house on his motorcycle...he and Bob were disappearing into the basement, talking about projects.' Noyce answered Job's phone calls- which invariably began with, 'I've been thinking about what you said' or 'I have an idea' - even when they came at midnight. This relationship continued for over a decade.

Clearly then, Bob Noyce has contributed to almost all aspects of innvoation in Silicon Valley - technological, process, product, corporate and cultural. As Noyce advised budding entrepreneurs: 'Optimism is an essential ingredient for innovation...go off and do something wonderful'.

a) What were the key characteristics that contributed to the success of Bob Noyce?

b) What other individual contributed, and in what ways?

c) Identify the types of innovation and their impact on the development of the new ventures and industry.

2) List the key components of a process for identifying, developing and assessing new ideas, and suggest a tool or technique to support each stage.

3) Where and how might you organize search for innovation opportunities for the following business?

- A fast food restaurant chain
- An electronic test equipment maker
- A hospital
- An insurance company
- A new entrant biotechnology firm