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Student Name: Charles Ngai Ping Yuen

Student ID: 2134212

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Using the 3-H Holistic Management Framework.

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Abstract

Purpose

Apple Inc. is one of the most admired companies in the world, with a market cap of over 3 trillion dollars. Steve Jobs is probably the most respected person in modern-day business. Formed in 1977, Apple quickly rose to fame and success. Apple became the biggest IPO in 1980. However, after listing, Apple's products ran into trouble. Moreover, in 1985, Apple's management forced its most important co-founder, Steve Jobs, to resign from the company. This paper will examine the management of Apple between 1977 and 1984 to analyse the company's ups and downs using the 3-H Framework.

Methodology

Apple's fame and success made it a popular subject for the interested parties. The prime information source for this paper comes from the books on Apple and Steve Jobs. World-renowned authors wrote the selected books. Steve Jobs commissioned one of the books himself. Furthermore, over the years, the co-founders and employees of Apple produced a lot of interviews and documents and put them on the internet and public media like YouTube. Information from books, the internet and media is cross-checked for their validity before using in this paper.

Finding

The analysis of Apple Computer Inc. from 1977 to 1984 showed that the management changes in this period caused the ups and downs of Apple's business performance. The 3H Framework holistic approach identified the management traits and practices that could predict Apple's early success and subsequent product failure, which put Apple in a venerable position.

Value

The 3H holistic management framework approach helps an organisation look at the management with a critical approach. Holistically managing the 3H domains allows an organisation to handle its management challenges, avoid failure, maintain its competitive advantage and sustain long-term success.

Keywords

Apple Computer Company, Apple Computer Inc. Steve Jobs, Apple computer I, II, III, Lisa, and Macintosh. Microsoft, IBM PC & compatibles, 3H holistic management framework approach.

Introduction

In this section, the author tried to establish all the facts related to the topic of this research paper on Apple during the period concerned. The information on the history of Apple and its management came from the two books and the internet sources listed in the reference section. The two books are:

1. Moritz, M. (2009) *Return to the Little Kingdom: Steve Jobs and the Creation of Apple*. New York: The Overlook Press
2. Isaacson, W. (2011) *Steve Jobs*. New York; Little, Brown

Information from these two books and internet sources was cross-checked further with information available to establish its accuracy.

Apple's history could be a textbook example of how a small business becomes successful. Apple's two co-founders, each with his ingenuity – Steve Wozniak's knowledge of computers and Steve Jobs' insight for perfection and business drive, created a company which years later became the most valuable company in the world.

The beginning

Steve Wozniak is the creator of the Apple computer – Apple I. Wozniak was born in August 1950. He grew up in an environment with a solid technical background. First of all, Wozniak's father, Jerry, graduated from Cal Tech. He worked on an autopilot project with Lear and later became a rocket scientist at Lockheed, a defence contractor.

In Sunnyvale, where Wozniak spent his childhood and adolescence, most of the neighbours were engineers. So there was always someone around whom Wozniak could ask questions on electronics. Wozniak built a ham radio and obtained an operator license when he was in the sixth grade. Wozniak always participated in science fairs. He won first prize in the Cupertino School District Science Fair with an arithmetic logic unit.

Wozniak's formal training in electronics came from John McCollum, a teacher at Homestead High School. Electronics 1, 2, and 3 were Wozniak's most important high school classes, where he learned the electronics theory.

Wozniak designed and made many electronics and collected awards during high school. In addition, he was the president of the electronics and math clubs of the school.

Wozniak saw his first mainframe computer at GTS Sylvania, a military supplier in Mountain View. For an entire school year, McCollum arranged Wozniak and Allen Baum to visit GTS every Wednesday. The duo received their education on computers from the engineers and programmers at GTS. After a few months, Wozniak knew more about computers than most university undergraduate students. During this period, Wozniak also had access to the IBM360 mainframe computer at Stanford Linear Accelerator Centre (SLAC). During weekends, they were allowed to use the SLAC library, one of the region's richest sources of information on computers. In addition, they obtained technical information and manuals from almost all the computer companies, including those manufacturers of minicomputers like

Digital Equipment Corporation, Data General, Scientific Data System, Data Mate, Honeywell, and Varian.

In 1973, Hewlett-Packard employed Wozniak as an associate engineer and promoted him to an engineer position after six months. Bill Fernandez, a neighbour, was his assistant. Bill was one of the few friends that Jobs had at Cupertino School. Through Bill, Jobs and Wozniak came to know each other.

Steve Jobs' father, Paul, was a car mechanic. Like Wozniak, Jobs also grew up in a neighbourhood full of engineers. However, unlike Wozniak, Jobs had problems with his learning at school from the beginning. His fourth-grade teacher Imogene Hill found Jobs scored at high school sophomore level and that he was indeed intellectually special. So Jobs skipped one grade and transferred to a different school, Crittenden Middle. However, this school was in a bad neighbourhood, and older kids often bullied him. After one year, Paul moved the family home to a better district – the Cupertino-Sylvania School District. The garage in Jobs' father's house at 2066 Crist Drive was the first production place for the Apple I computer. (Apple Explained, 2021)

Jobs enrolled in Homestead High from grade 9. Here, Jobs formed his lifelong hobby of walking – he walked fifteen blocks to school daily. After that, Jobs began to develop his interest in electronics. With the introduction of Larry Lange, an engineer who lived nearby, he joined the Hewlett-Packard Explorers Club, which had its meetings every Tuesday night at the HP cafeteria. Here, Jobs saw his first desktop computer, 9100 A.

Jobs showed his persuasiveness when he made a cold call to Bill Hewlett, the CEO of HP, asking for some parts for one of his projects. They spoke for 20 minutes. Jobs got not only his parts but also a summer job in his freshman year at the HP Plant. His time at HP allowed him to learn about electronics from HP engineers. (Silicon Valley Historical Association, 2011)

During his sophomore year, he worked part-time and summer at Haltek, a junkyard store for electronics parts. Here again, he demonstrated his talents in product knowledge and business. With his knowledge of electronics parts, he would go to the flea markets to buy electronics parts and sell them to his manager at Haltek at a profit.

Like Wozniak, Jobs joined McCollum's electronics class. However, Jobs never liked McCollum. As a result, Jobs quit the class after one year.

Through Fernandez, Wozniak and Jobs met and became good friends. Their shared interest in electronics and their passion for music bonded their friendship.

The First Project together – the blue box

In 1971, Wozniak studied at Berkeley University. By September, Wozniak came across a device called the blue box. The phone hackers (phreakers) used the blue box to make a long-distance call for free by replicating the tones that route signals on the AT&T phone network. Wozniak called Jobs, and he liked the idea. So the pair started working on the blue box the same day. They found the Bell System Technical Journal, which listed all the tone frequencies at the SLAC library. By October, Wozniak had built the first digital frequency counter and completed the device successfully. They even tried to call the Pope at the Vatican.

Wozniak built the blue box only for his interest, but it had become an important milestone in the Wozniak – Jobs partnership. Jobs suggested selling the blue box for money. In this partnership, Wozniak would build the blue box with Jobs would be in charge of selling it.

This venture together led Jobs to motivate Wozniak to form the Apple computer business later when Jobs saw Wozniak's circuit board computer. The blue box partnership taught them how to contribute and work together to bring business success. In Jobs' words, "If it had not been for the blue boxes, there would not have been an Apple." (Silicon Valley Historical Association, 2014)

After high school graduation, Jobs attended Reed University. Daniel Kottke became Jobs's closest friend at Reed. They both shared their passion for Zen Buddhism and became devoted vegetarians during their freshman year. Jobs would enjoy fasting and start walking around barefoot.

Then Jobs met Robert Friedland, a fellow student at Reed. Jobs admired Robert. Jobs copied some personality traits from Robert. Robert taught Jobs about salesmanship and freed him from his shyness to become open and take charge of the situation.

Jobs did not like school works at Reed and dropped out. However, Reed's dean, Jack Dudman, allowed Steve to stay in friends' dorms and attend classes without paying tuition.

After eighteen months at Reed, Jobs returned to his parents and started working for Atari – a video game manufacturer. Nolan Bushnell, the owner, and Al Alcorn, the chief engineer, were so impressed with Jobs that they tolerated his monk-like wardrobe, going around with bare feet and his body odour from not taking a shower; they hired Jobs as a technician.

Jobs befriended Ron Wayne, a draftsman at Atari who eventually became the number three co-founder of Apple computer.

In 1974, Jobs quit Atari to take a spiritual journey to find his Zen guru, Neem Karoli Baba, in India. Alcorn supported Jobs's trip to India. Jobs spent seven months in India, during which Kottke joined him for a short period.

Jobs' involvement with Zen was a lifelong affair. Tetsuya (2016) described Jobs Zen experience.

Early in 1975, Jobs joined Atari after his return from India. In the summer of 1975, Bushnell asked Jobs to design a new game. Jobs invited Wozniak to help. Wozniak, motivated by Jobs, finished the game design in 4 days and used five chips less than required. Jobs split the basic fee with Wozniak but failed to tell him the bonus for using five chips less than planned.

Apple 1 and Apple Computer Company

Wozniak attended the first gathering of the Homebrew Computer Club on March 5, 1975. Gordon French and Fred Moore organised the club, which aimed to provide help to computer enthusiasts,

In the meeting, Wozniak saw the demo of a new computer called the Alair 8800 by MITS. Its central processing unit was its most remarkable feature: a single semiconductor chip which called the microprocessor. The microprocessor INTEL 8080 in the Alair 8800 approached the

power of some minicomputers. Comparatively, the thirty-ton ENIAC with eighteen thousand vacuum tubes had less power than the INTEL8080.

Wozniak immediately envisioned a stand-alone computer on a desktop and formed the original concept of the Apple I

Every day Wozniak would work on his computer at HP after work. Jobs helped Wozniak to get parts at discount prices or free of charge from suppliers like HP to build the computer. In addition, jobs made an important contribution to the design: he convinced Wozniak to use dynamic RAM instead of static RAM. The dynamic RAM became a vital selling point later when they promoted Apple I.

Wozniak chose the MOS Technology 6502 microprocessor because of the cost. However, he made all other technical decisions based on what satisfied his interests.

Wozniak presented the computer at the Homebrew Club in October 1975. The club members gave the computer a cold reception because it used a MOS 6502 chip.

However, Jobs encouraged Wozniak to continue with the development as he could see good potential in personal computers. Moreover, at the same time, Jobs convinced Wozniak to stop giving his design schematic free to others at the Homebrew Computer Club. Instead, they would build and sell the print circuit boards to them.

Jobs excited Wozniak with the fun of two best friends owning a company. Wozniak loved the idea and agreed to form the company.

Jobs introduced Ron Wayne to Wozniak, who became the third partner in the Apple business. On their difference, Wayne would be the referee and tie-breaker between Jobs and Wozniak. Wayne drafted the partnership agreement professionally, which stated that Wozniak would assume both general and major responsibility for the conduct of electrical engineering. Jobs would be responsible for electrical engineering and marketing, and Wayne would be responsible for mechanic engineering and documentation. The Agreement was signed on April 1, 1976, by the three partners forming Apple Computer Company. A copy of the first page of the Apple Computer Company agreement by drafted by Wayne Sotheby's. (N08811 Lot 241)

Before the deadline for placing the partnership advertisement in the San Jose Mercury, Steve suggested the name Apple Computer. In any case, the name Apple proved to be an excellent choice.

Jobs made the first business plan to produce 50 circuit boards at \$25 a piece and to sell them at \$50.

To raise the \$1300 to produce the computer boards, Jobs sold his VW bus, and Wozniak sold his HP65 calculator.

Wozniak showed the computer board officially for the first time at the Homebrew Computer Club in April 1976. The club participants' reaction was poor except for Paul Terrell.

The day after the meeting, Jobs immediately visited Paul Terrell at his Byte Shop. Terrell placed an order for 50 fully assembled Apple computers instead of just the printed circuit boards that Jobs offered him.

With the order from Byte, Jobs planned to make 100 fully assembled computers, from which 50 units would sell to the Byte Shop, and the other 50 units would sell to other potential buyers.

Jobs' next task was to get money for parts needed for the production. After being rejected almost by everyone, Jobs' persistence paid off; Bob Newton of Kierulff Electronics offered Apple \$20,000 in parts with 30 days of interest-free credit.

Jobs organised the production in the garage at his family home in Los Altos. Jobs, Wozniak, Daniel Kottke, Elizabeth Holmes, and Patty Jobs were involved in the assembly of the computers; Wozniak was in charge of the quality control too!

After delivering the first 100 units to Byte Shop and other customers, Jobs and Wozniak started to organise the business as follows:

1. Named the existing computer Apple I. Apple would produce another 100 units of Apple I using the profit generated from the first 100 units. (Norman, J. 1976)
4. Wayne designed an Apple logo – the first version
5. Wozniak and Jobs made sales visits to other electronics sales outlets to sell Apple I.
6. Set the retail price of the computer at 33% higher than the purchase price of Byte Shop to allow profit for the dealer
6. To enhance the company's image, Jobs introduced himself as Director of Marketing and a former private consultant of Atari.
7. Promotion included
 - a. the publishing of an Apple Computer story in the July 1976 issue of Interface – a hobbyist magazine.
 - b. Showing the Apple I and its prototype of Apple II at the First Annual Personal Computer Festival in September 1976.
8. Holmes was recruited as the company accountant.
9. In the end, only 175 Apple I sold due to its limitation as it was just an enhanced circuit board for hobbyists.

Apple Computer Inc.

Wozniak started to work on Apple II, the next-generation computer. Apple II would be a fully functional computer with a keyboard, power supply, software, etc. In addition, apple II would have a colour graphic.

Apple II aimed at a more extensive customer group; those who wanted a ready-built, user-friendly personal desktop computer. Apple II would be a fully integrated consumer product. The development and eventual production of the Apple II would need substantial investment. Unfortunately, jobs again exhausted the list of potential targets to find the right partners and investors. After evaluating Apple, Don Valentine, CEO of Sequoia, a venture capital firm, advised Jobs that Apple needed professional business management. Valentina recommended Mike Markkula to Apple.

Jobs and Wozniak got Mike Markkula, a Master of Electrical Engineering, onboard. Markkula was a millionaire who had worked at Hughes Aircraft, Fairchild and Intel. Markkula's specialties were pricing, distribution network, marketing and finance. He passed over the top marketing job at HP to choose retirement at thirty-three with his millions. Markkula was a businessman with high business morals.

Markkula improved the situation of Apple by:

1. Provided a \$250,000 credit line to Apple
2. Made Wozniak work full time; stopped relationship with HP.
3. Made a reliable business plan for Apple with Jobs and Wozniak.
4. Forming the new Apple Computer Inc. on January 3, 1977 to replace the existing Apple partnership. The new company will buy out the shares of Wayne. Jobs, Wozniak, and Markkula, would each own 26% of the new company. The rest of the shares would reserve for future investors.
5. Laid down three marketing principal. a. Empathy, b. focus, and c. impute.
Impute meant to adopt a holistic approach to present the company, its products and the philosophy behind it.
6. Appointed Arthur Young, one of the largest accounting firms in the USA, as its auditor.

Regis Mckenna, the top PR firm in the region, was recruited to improve Apple's corporate image, presentation materials and printed documents. Its art director Rob Janoff designed the new Apple logo, which Apple continues to use today.

Mike Scott was recruited as the president to run the company. Scott was the director of a 30 million dollar electronics chip manufacturing division with 800 people at National Semiconductor.

Wozniak and Markkula did not like daily operational management. Scott's other important job was managing Jobs, as Jobs was tough on everyone. He had a hot temper and was often unreasonable and harsh to the workers. Jobs also had a poor hygiene problem.

Apple II

The launch of the Apple II was made at the first West Coast Computer Faire held on April 15 1977. Apple received orders for 300 units during the fair. Apple signed up its first dealer Mizushima Satoshi in Japan. (Dormehl, 2022)

The event successfully put Apple on the map as a serious computer company for several reasons:

1. Jobs booked early to reserve four booths located at the main entrance location where 13000 visitors came through. Considering there were 175 companies in the Faire.
2. The Apple booth was presented in professional décor. The booth was staffed by a dozen of personnel, including the two Steve who came in 3-piece suits.
The presentation projected a professional image on Apple Computer Inc. This distinguished Apple from the hobbyist companies.
3. Apple II looked solid and user-friendly in its a beige case.
4. It had technically advanced features which were not offered by the competition: colour graphic and power supply without cooling fans, etc.
5. Apple II opened a brand new market – the market of the personal computer

The Organization

After the West Coast Computer Faire, Apple moved from Jobs' garage into a new office building in Cupertino at Building B, Suite C, 20863 Stevens Creek Boulevard, In this location, Apple organised its general office, the production, test/engineering and parts

storage. Jim Edwards (2017) provided some photos on the new office including the floor plan.

Markkula brought in an expert John Hall, the group controller of Syntex, to work out the first business plan for Apple after its incorporation.

During this time, Markkula and Scott arranged to set up professional management in the organisation. They managed and controlled operation functions like purchase, design, program development, production, quality control and finance. Scott was a hands-on person who helped fix the daily operation problems.

Apple outsourced part of the production to more efficient companies to cut costs and overcome its inexperience in production.

Apple faced its first major crisis when the tool for the plastic case broke in September 1977. Despite the personal differences, the members of the Apple management were able to work together to resolve problems. As a result, the new tooling was made ready in two months by the end of 1977.

Another big push for Apple in sales and technology was using floppy disks instead of cassette tapes. Wozniak worked day and night from before Christmas 1977 for 2 two weeks and finished the disk drive control in time for the Consumer Electronics Show in the first week of 1978, beating its main competitor, Commodore. The 51/4 disk drive by Wozniak was a game changer for the personal computer. After introducing the disk drive, the sales of the Apple II just shot for the star. History Computer Staff (2021).

In those early days, Scott managed the Apple team like a family. For example, when Randy Wigginton, who helped Wozniak write programs, graduated from high school in July 1977, almost the entire company took the afternoon off to attend the graduation and present him with a \$50 gift voucher.

With Apple's fast-growing sales, financial requirements were again on the agenda. Markkula, through his connection and with the backing of Apple's good sales figures, assembled the all-star investors at that time: Venrock, Don Valentine, Arthur Rock, and Henry Singleton. In January 1978, when the first batch of investments came in, Apple was valued at \$3 million. By the summer of 1978, the share price was about three times higher than six months ago. The star investors converted themselves into the brand ambassadors of Apple.

Markkula managed the publicity solemnly. He gave some analysts excellent services. They could call Jobs or Markkula day and night, even at home, to get help. One of these analysts was Ben Rosen. Journalists who followed the microcomputer industry trusted Rosen as he was considered impartial. When the journalists knew Rosen was using an Apple II, Rosen became Apple's most influential brand ambassador.

For promotion, Markkula insisted on building a bigger-than-life image for Apple. To boost its corporate image, Apple placed ads in upmarket magazines like Scientific American and Playboy, which smaller microcomputer companies could not afford.

Apple was the first microcomputer company to run co-op advertising with its dealers to give its advertising budget bigger mileage.

Markkula treated the distributors as Apple's close allies. Co-op ads were one of the ways to support dealer sales. Apple recognised that the image of the dealers and the presentations at

the point of retail were important. As a result, Markkula made a policy to support shop opening, providing demo units, etc.

Apple recognised that software (program) for tasks helped to expand sales. So apple gave incentives to programmers who promised to write programs. Besides the easy-to-use Apple Writer (a word processor program), Visicalc (the first spreadsheet program) was the most famous program. This program helped Apple to break into the small and large business markets. For example, in the first year of the launch of Visicalc, 25000 units of Apple II were sold only because of Visicalc.

Competition

There were many personal computer brands at the time. Some examples are Commodore-PET, Radio-Shack TRS-80, Ohio Scientific, Atari, Mattel, Cromemco, Northstar computer (originally named Kentucky Fried Computer), and Texas Instruments. However, none of them was a serious competition.

Apple's competitive advantages were its upmarket brand image and technology superiority (colour graphics, floppy disk drive, and available operation programs).

Apple did not encounter any serious competition until the arrival of the IBM PC and IBM-compatible computers in 1982.

IPO

As the most important company in the personal computer and with the growing popularity of using a personal computer, Apple was ready to take on an IPO.

SELECTED CONSOLIDATED FINANCIAL INFORMATION				
	January 3, 1977 (inception) to September 30, 1977	September 30, 1978	September 30, 1979	September 26, 1980
Income Statement Data:				
Revenues	\$773,977	\$7,883,486	\$47,938,981	\$117,901,543
Net income	\$ 41,575	\$ 793,497	\$ 5,072,812	\$ 11,697,983
Earnings per common and com- mon equivalent share(2)	Less than \$.01	\$.03	\$.12	\$.24
Shares used to calculate per share data(2)	16,640,000	31,544,000	43,620,000	48,412,000

Apple Sales figures in a Table, Harry Mccracken (2016)

Since its incorporation, Apple had been raising money from finance institutes and private investors. The number of shareholders would soon be more than 500. In that case, Apple was required by the 1934 Securities and Exchange Act to file public reports. The sales of Apple from 1977 to 1980 were phenomenal. So when Arthur Rock, an Apple director, suggested going public in a board meeting in August 1980, the directors immediately passed a resolution for its public offering.

Jobs hired two investment banks, Morgan Stanley together with Hambrecht & Quist, to handle its IPO. As a result, it was the most over-subscribed IPO since Ford Motors in 1956. Apple's market capitalisation on December 12, 1980, its first day of trading, was \$1.788 billion.

The IPO produced 300 millionaires, including about 40 people related to Apple. Overnight, Jobs worth over \$200 million. Suzanne Deffree (2019), Luke Dormehl (2021).

Wozniak and Jobs had an opposite attitude toward those long-time employees who were not included in the share option award scheme. Jobs turned a blind eye to them while Wozniak gave away 40000 of his options to 40 mid-level employees. In addition, he gave shares outright to those who were with Apple from the beginning, including Kottke, Wigginton, Espinosa, and Fernandez. Kottke had known Jobs since Reed University. They became a good friend and went soul searching in India with Jobs for seven months. He supported Jobs in his crisis and joined Apple since the company started in Jobs' garage.

To avoid high-profile lawsuits, one month before IPO, Jobs settled with the county of San Matco to pay \$365 a month in child support for his daughter with his ex-girlfriend. Jobs' daughter lived in poverty on public assistance before this settlement. Tamar Lapin (2016)

The new computers line up

After the launch of Apple II, Jobs became the vice president of research and development, the top executive in Apple in new product development.

In 1978, Apple started to work on three new computers, the Apple III, Lisa and Mac.

Apple III was supposed to be an interim product between Apple II and Lisa. Lisa was targeting the professional market, which would go for upward of \$5000. Mac would be the computer for mass to sell for around \$1000.

Wozniak would continue to work on improving the Apple II and would not be involved in developing the new computers.

Apple III

The Apple III was planned to be ready in ten months. As the successor of Apple II, Apple III should be more powerful than Apple II: larger memory, built-in disk drive, an 80-column display, a keyboard, improve colour and a faster microprocessor. In addition, it should run all the Apple II programs.

Even before the development of Apple III, Jobs had specified that the size and shape of the case his decision would not be changed. Everything had to be squeezed into the limited space. Apple would get programs in-house and keep its development secret. Outside programmers did not have enough time to finish software for Apple III. VisiCorp was given two weeks before the launch to modify the Visicale,

Delayed for a year, the launch was in the summer of 1980 with considerable fanfare; Apple rented Disneyland and invited twenty thousand guests.

The first Apple III was shipped without only Visicale. The cramped circuit board tended to fail. The manual was incomplete.

In the end, Apple stopped all promotions and re-launch Apple III one year after with a redesigned circuit board and more new programs which were incompatible Apple II.

Customers could exchange their machines for new ones. Nevertheless, the damage was done. Apple III sold no than sixty-five thousand units; over 6 million Apple II were sold.

Lisa

Jobs moved to Lisa from Apple III after specifying its shape and dimension. Lisa's development started in October 1978. Again, Jobs decided on Lisa's shape before the development. He decided Lisa be ready by January 1980. The retail price was adjusted to \$2000 instead of the original \$5000. Jobs could not decide on the target market even after 18 months of development.

Jobs appointed John Couch to head the Lisa division. In parallel, he hired Ken Rothmueller to do another Lisa prototype.

Later on, Jobs engaged yet another programmer, Bill Atkinson.

Then, in the summer of 1979, Jobs made a deal with Xerox to visit the Xerox PARC. The secretive R&D department of Xerox worked on a lot of advanced electronics technology. The visit gave the Apple team many ideas like computer networking, overlapping windows, icons, folders and the mouse. However, the most significant discovery was bit-mapping (Graphic user interface - GUI) which had the largest impact on the whole microcomputer industry. These discoveries at Xerox PARC caused Apple to change the technologies used in Lisa and, eventually, the Mac. Jobs talked about his encounter with Xerox PARC (Pebam, 2014).

Lisa's development went in three different directions. This arrangement caused many conflicts between the three parties. Finally, it became not manageable, and in September 1980, Markkula and Smith removed Jobs as vice president of R&D and appointed him the non-executive chairman of the board. Couch alone would be in charge of Lisa.

Lisa was launched in January 1983. Jobs came to the show in New York as the chairman of Apple to help with the publicity. The list price for Lisa was around \$5000.

Before the show, neither the public nor the press had heard of Mac or Macintosh. Despite warning from Markula, Jobs dropped the bombshell that the Mac would arrive by the end of the year. That, it would be less powerful as it was not for the professional, but it would be less expensive than Lisa. He claimed that the Mac would be the best computer in the world and mentioned that the software between Mac and Lisa would not be compatible. Lisa flopped.

The Mac - Macintosh

Jef Raskin conceived the Mac with the approval of Markkula in 1979. The planned retail price of a Mac was \$1000. Raskin's aspiration was that everyone should have his computer, as it was called a personal computer. So he called the machine the Macintosh.

The Mac was a toy project of the Apple management and therefore received minimal resources.

After Jobs lost control of Lisa in September 1980, he discovered the Mac as a possible way to fulfil his ambition to build the computer of all time.

Jobs' vision for Mac did not fit the plan Raskin originally proposed. Instead, jobs wanted to build Mac to be cheaper but better than Lisa, not the basic computer envisioned by Raskin.

Jobs won as he replaced Raskin at the head of Mac because he was the boss of Raskin, and Markkula did not want to upset Jobs two times in a row. *

Four years later, Mac was launched on the 30th January 1984 with enormous excitement and fanfare. "1984", the launch ad of Macintosh, was so controversial and successful that TV Guide and Advertising Age rated it the Greatest commercial of all time. The Macintosh launch and the ad "1984" Computer History Museum (2016)

After the initial excitement, the market noticed Mac's shortcomings. As a result, the sales of Mac started to slow down. The problems of Mac were:

1. Not enough RAM made Mac very slow as it used GUI.
2. No hard disk drive, and only one floppy disk drive made the operation very troublesome.
3. Mac overheated easily without a cooling fan.
4. Apple was no longer the only personal computer in the market. IBM PC and IBM-compatible were dominating the market. In 1983, the combined sales of IBM PC and compatible was 1.3 million units versus Apple II's 420,000 units. The advantage of IBM was that Microsoft's operating system it used was open to any personal computer manufacturers.

With no sales from Lisa and the monthly sales of Macintosh below ten thousand units, Apple's outlook was in trouble.
(Apple Explained, 2021)

Apple historical information is taken from (Moritz, 2009, all chapters), (Isaacson, 2011, Chapter 1 to 16), (Apple Explained, 2011), (Apple Explained, 2021)

Note: a. ebook pages are not fixed, they can change with font size, screen size etc.
b. Moritz's book does not have a chapter number.

Professor Eddie Yu's 3H holistic Management Framework

This section was written with reference to Professor Eddie's lecture note Yu (2022) and his paper 'Introducing Eddie Yu's 3H Holistic Management Framework. Yu, E (2021)

What are the 3 Hs? The H in 3 H stands for Heart domain, Head domain, and Hand domain.

Heart Domain covers leadership, communication, motivation, engaging individuals, building team works, values, culture, morals and ethics.

Head Domain covers organisation design, management strategies, planning and control,

Hand Domain covers task competency, functional skills, execution skills and human resource management,

For organisations to be successful in the long term, the conditions are:

1. each of the H domains must perform well
2. All the H domains must function together holistically.

A good analogy is dragon boat racing. A dragon boat has three crew members; the cox, the drummer, and the rowers.

The key success factors to winning a dragon boat racing are

1. The cox must be steering the boat in the right direction that will allow the boat to arrive destination in the shortest distance.
2. The drummer must play the drum steadily and evenly and, at the same time, must allow each of the rowers to hear each drum bit .
3. Each rower must not have a hearing problem. Each rower must row the paddle once each time they hear a drum bit. Each rower must paddle using more or less equal strength simultaneously.

The essential condition to win a boat race is that all the three KSF listed above must work holistically. Yu (2022 pp 13)

Even when all three KSF work holistically, the crew must still need to perform better than the opponents to win a race. In an organisation, this would mean best practices in each H domain. For example, the best leadership style would be transformational leadership.

Using the 3H Framework, organisation performance as a dependent variable is a function of Heart Domain (H1), Head Domain (H2) and Hand Domain (H3) as expressed in the following formula:

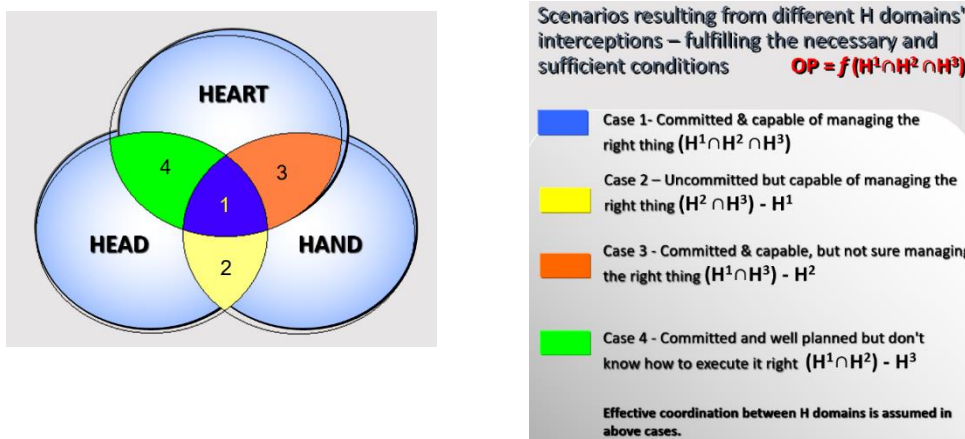
$$OP = f(H1 \cap H2 \cap H3)$$

OP = Organization Performance

$\cap$ = Intersection of each Domain with the other Domains.

There are totally 12 variations in the interaction of the 3H of the organisation performance formula. Yu, E. (2021)

The following diagrams illustrate the different interception scenarios of the 3 H domains.



Case 1 is the ideal situation for an organisation. But, of course, the greater the congruence area, the better. Yu, E. (2021)

3H Framework uses the Daoism approach to examine elements in the 3H domains. Each organisation has unique elements in the 3 H domains, which change over time as internal and external forces influence. 3H framework approach looks to create harmony and mutually beneficial relationships for people, organisations, countries or cosmo in a long-term

perspective.

3H holistic management framework approach must adapt to the situation and be ready to change. Management should modify and transform itself to sustain and achieve success. As stated in Sun Tze's Art of War, water has no constant shape as there is no stable condition. The 3H holistic approach can explain why some organisations still fail even when the 3H are working holistically. The handling of the COVID situation is an excellent example of why some countries are doing better than others when the critical requirements to handle such a big-scale pandemic situation are speed and execution power; few countries can meet these two requirements. It also explained why at a corporate level, companies with thriving businesses like Kodak in film, Nokia in the phone, Thomas cook in travelling, and Esprit in retailing failed when they failed to adjust to the changes in the elements in the 3H domains over time.

3H Framework can be used to examine, analyse or plan specific elements in an organisation. Some elements unique to the 3H Framework are leadership and culture in the Heart domain, organisation and control thinking in the Head domain, and innovation, agility and speed in the Hand domain.

Furthermore, the 3H holistic management Framework encourages heart-to-heart relationships to create trust, which promotes commitment in the workforce to meet the organisation's goal. Heart-to-heart relationship advocates harmony to create bigger success rather than seeing the relationship as a zero-sum game.

3H Framework's strong theoretical bases are built on works from gurus in their disciplines, like Laozi, Sunzi, James Burns and Bernard Bass, Edgar Schein, and Michael Porter.

The 3H holistic management framework approach shows how an organisation could achieve and sustain success while considering changes as part of the elements in the formula.

A bird eye's view of the 3H holistic management framework theory is Sunzi's five attributes of a victory.

Yu, E. (2021), Yu (2022)

Analysis of Apple Computer Inc management using the 3H holistic management framework approach

The aim is to analyse the operational performance of Apple using the 3H holistic management framework approach. The underlining principle in this analysis is:

3H holistic management framework posits organisational performance is a function of the leader's driving force to integrate all Heart (H1), Head (H2) and Hand (H3) domains of the organisation. Yu, E. (20121)

The period from the start to January 3, 1977 (The incorporation of Apple Computer Inc.).

Heart domain

Wozniak

He was a generous person. He never considered money for himself. He was prepared to give away the Apple I design to hobbyists for free.

His relationship with Jobs was based on pure friendship.

He insisted on giving Jobs an equal share in the Apple Computer Company: he defended Jobs' position when his own family rejected the idea.

He felt ethical to offer Apple I to HP as the design was done when he worked for HP.

Steve Jobs

He motivated Wozniak to commercialise his Apple I computer

He invited Ron Wayne to join Apple Computer Company as the third co-founder;

He motivated Wozniak to join Apple Computer Company.

He motivated Wozniak to join Apple Computer Inc full time and resign from HP

He convinced Markkula to provide a \$250,000 credit line to Apple and formed Apple Computer Inc.

Ron Wayne

He helped Jobs to motivate Wozniak to join Apple Computer Company.

He was the referee and tie-breaker between Jobs and Wozniak on their difference.

Mike Markkula

He envisioned Apple to be Fortune 500 in 2 years and passed on the vision to Jobs and Wozniak.

He raised \$250,000 to allow the formation of Apple Computer Inc.

Head Domain

Jobs

He engaged all his family members and friends to work at Apple's garage operation. As a result, the garage operation and production gave Apple the critical foundation to go to the next step to form Apple Computer Inc.

He sold 50 units of the Apple I to Byte Shop, a critical step for Apple.

Jobs convinced Cramer Electronics to give Apple parts on 30 days credit to allow the production of Apple I

Mike Markkula

He made the first business plan for Apple before the incorporation of Apple Computer Inc.

Hand Domain

Ron Wayne

He Composed the three pages agreement signed between Jobs, Wozniak and Wayne to form the Apple Computer Company.

He designed the first Apple logo.

Steve Wozniak

An electronics genius, he designed and built Apple I by himself. This was the foundation for the formation of Apple Computer Company and Apple Computer Inc.

Summary of Analysis

In the early day of Apple, Jobs and Wozniak motivated and organised everybody around them to work in the same direction. Their goal was simple: to make an excellent personal computer for everyone. The heart-to-heart relationship created a trust for everyone associated with Apple.

The small garage makeshift operation was the appropriate organisation for Apple then. Any other arrangement, even slightly elaborated, would drain Apple's resources and kill the business in its infancy.

The Markkula leadership brought Apple to another level. The formation of Apple Computer Inc. gave Apple a solid organisation to allow exponential growth.

Of course, the Apple II, which was in the process of development by Wozniak was the right product for the market.

All the elements in the 3 H domains were working holistically. Therefore, the 3H holistic management framework approach would predict a successful Apple. Indeed, Apple was successful in this period.

The organisational performance (OP) of this period is expressed in the OP formula as follows:

OP = $f(H^1 \cap H^2 \cap H^3)$ – The ideal case of the 3H holistic management fulfilled both necessary and sufficient conditions.

Yu, E.(2021)

The period from the formation of Apple Computer Inc. to its IPO in December 1980

The Heart Domain

Mike Markkula

He organised Apple Computer Inc. into a genuinely functional divisional company.

He recruited Mike Scott as president to run the company

He laid the foundation for Apple's IPO.

He was Jobs' mentor and groomed him to become a corporate leader.

Jobs

Continue his role as the driving force to lead Apple ahead.

Revolutionised the technology of personal computer after his visit to the Xerox PARC

Mike Scott

President of Apple Computer Inc.,

He created a family feeling among employees.

Head Domain

Mike Scott

A hands-on manager turned Apple from a garage operation to a multinational publicly listed company in 4 years with annual sales of over \$300 million.

Mike Markkula

Laid down the foundation for Apple's IPO

1. appointed Arthur Young as the company auditor upon incorporation.

2. Assemble an all-star investor lineup; ready for IPO

Retail outlet management: First computer company to

1. implemented corporate image counter at point of sales
2. Provided demo unit.
3. Support dealer events.
4. co-op advertising - sharing costs

Hand Domain

Steve Jobs

He organised the Apple II launch in 1977 at the West Coast Computer Faire. This launch event laid the foundation for the solid sales of Apple II to grow from \$770,000 in 1977 to \$117 million in 1980.

Steve Wozniak

He designed and built Apple II all by himself. Apple II was the world's first personal computer for mass. Its huge turnover made the Apple IPO in 1980 possible.

Summary of Analysis

The management focus on the promotion and sales of Apple II and achieved remarkable results. Apple II launched just 4 months after incorporation. The management resolved a disruptive disaster within 2 months. Apple's market capitalisation reached 1.7 billion by the end of 1980 from less than \$6000 at incorporation. Scott built the management and operation system, logistics, and value chain to allow rapid growth. Markkula and Jobs successfully attracted influential star investors; ready for IPO.

Using the 3H framework holistic management as a reference, Apple's leaders and workers were effectively and efficiently managing the 3H domains in a concerted effort to generate the best results for Apple. The Heart, Head, and Hand are working holistically. The 3H framework holistic management predicted success. Indeed, Apple continued to be successful in this period.

The organisational performance (OP) of this period is expressed in the OP formula as follows:

$$OP = f(H^1 \cap H^2 \cap H^3)$$

– It is the ideal case of the 3H holistic management fulfilling all necessary and sufficient conditions.

Yu, E. (2021)

The Apple III, Lisa and Macintosh - development and launch

The period from 1979 to 1984

Heart Domain

Jobs

Vice president of Research & Development

It was Jobs' management decision which caused the failure of Apple III. Before work on Apple III started, Jobs specified the exterior case, including the dimension. In addition, he

restricted information to outside programmers until Apple III was ready for shipment. As a result, Apple III was a flop.

Lisa enlisted three managers to run the same project in parallel. As a result, the Lisa division became not manageable, Markkula and Scott removed Jobs as vice president of R & D. Lisa was delayed for three years. During the launch, Jobs released the disastrous news for Lisa to the press that a less expensive but more powerful computer, Macintosh, would be ready in one year. Moreover, the software for the two machines would not be compatible. Lisa was a flop

Jobs bullied Raskin and took his job as the head of the Macintosh Division. Jobs had the design focus on the "look" rather than the practical functions of the computer. Jobs constantly changing his mind on requirements to drive for absolute excellence caused further development delays for another 16 months. Macintosh launched in 1984, Customers found Macintosh too slow with no hard disk, only one disk drive and overheated easily without a fan. Macintosh was a flop.

Jobs underrated the threat from IBM PC but saw Lisa as a competitor and concentrated his resources on competing with Lisa.

The cooperation with Microsoft was a big stumble. Jobs failed to grab the chance to bundle the strength of Microsoft and Apple. The consequence was severe because Microsoft started to sell its software and products to other platforms. Jobs' shortsighted decision single-handedly created Apple's most prominent opponent.

Under Jobs' leadership, good engineers turned into great engineers. Of course, he terrorised his people, but good engineers followed him because of his charisma; they believed he could do great things.

He turned ideas into practical products at marketable costs. For example, the mouse in the Xerox PARC cost \$300, and the better Apple mouse cost \$15.

Markkula

Markkula became president after Scott left in early 1981. However, Markkula failed to manage Jobs' problems, and stop product delays.

He also failed to foresee and handle the challenge of IBM PC and the implication of licensing the IBM operation system.

Head Domain

The management of the product division was disorganised. Interdivisional communication was almost nonexistent, and they were working against each other.

The result was a big delay in all product launches; Apple III for three years, Lisa for three years. Macintosh for four years.

Hand Domain

Wozniak

He excluded himself from all of the development of the three computers.

The engineers

The engineers in the product development division like Bill Atkinson, Larry Tesler, and Bob

Belleville were capable. The development of GUI, mouse, and windows was all brilliant. However, the development of computers was way behind schedule and over budget because of Jobs' constant interference.

Jobs

Jobs' ability to handle events was remarkably brilliant. Macintosh's 1984 ad made history was only one of the many examples.

Summary of Analysis

In this period, Apple had the wrong managers in the wrong place. Wozniak was not involved in the product development. Markkula, who could be bothered with daily management, became the president. Jobs, who was in charge of development, wanted a new personal computer that could make Apple II obsolete and at the same time destroy Apple III and Lisa. Both Jobs and Markkula failed to recognise the significance of the competition from IBM.

Apple was surviving only because of the strong sales of the Apple II.

From the 3H holistic management framework perspective, the Heart domains failed to provide the leadership for the Head and Hand domains. At the same time, Apple's leaders failed to notice significant changes in the market – the coming of the IBM PC. Head domain was in poor condition because Jobs wanted to sabotage all the product divisions except Macintosh. The Hand domains' works were behind schedule because of Job's constant interference.

The 3H holistic management framework would predict failure. Indeed, all three new computers flopped, and Apple was on the decline until Jobs rejoined the management of Apple in 1997.

The organisational performance (OP) of this period is expressed in the OP formula as follows:

$$OP = f(H^1 \ominus H^2 \ominus H^3)$$

– Deficiencies of Heart and Head domain factors and weak coordination among all domains.

Yu, E. (2021)

Limitation

The author lived in Shanghai at the time of writing this research paper. The China firewall limits Internet access. The author has no library access in the area. Travelling is restricted by the regulations on COVID control in China. The author's sources of information were limited to e-books and whatever information the China firewall allows on the internet.

The 3H holistic management framework is an important theory in management. The 3H domains covered all topics in management. This analysis could be more comprehensive if detail on the organisation chart and value chain information were obtained.

Conclusion

The 3H holistic management framework correctly predicted the performance outcomes in each of the three periods in Apple's corporate history studied in this paper.

The analysis results in this study demonstrated the usefulness of the 3H holistic management

framework in a corporate situation as well as in a departmental situation. Yu, E. (2021) Today, the world situation is more challenging. The operation environment is forever changing. The 3H holistic management framework can help management to scan and analyse the situation before formulating holistic strategies and implementing them. Use of the 3H management framework to void failure and sustain success by having a harmonious, loyal and motivated workforce, adaption to change and transition, and early discovery of internal and external threats and neutralising them. Yu, E. (2021)

Apple is one of the most excellent companies today. All being said, there is no "if" in history, but think what Apple could be like today if Steve Jobs had adopted the 3H holistic management framework in 1977 and applied Daoism management (instead of Zen).

Theoretically, the 3H holistic management framework would predict

1. Apple would have a range of harmonic and successful successors to Apple II instead of wasting valuable resources and time on three much delayed and flogged products. The Macintosh was a mistake (ibookguy, 2015). (Apple Explained, 2021)
2. Microsoft would merge with Apple instead of being Apple's computer's most prominent opponent.
Jobs & Gates in interview (BrioWeb TV, 2013) (Isaacson, 2011, Chapter 16)
3. Apple's management would be in harmony, and Jobs, the transformational leader, would manage a profitable and successful Apple Inc until the end of his life without interruption between 1985 to 1997.

Reference

1. Moritz, M. (2009) *Return to the Little Kingdom: Steve Jobs and the Creation of Apple*. New York: The Overlook Press
2. Isaacson, W. (2011) *Steve Jobs*. London; Little, Brown
3. CNN Business (2011) *Isaacson: What made Steve Jobs cry* [video]. Available at: <https://youtu.be/WpdPzO5y2lk> (Accessed: 28 July 2022).
4. Haden, J (2019) 'Why Steve Jobs Believed If He and Woz Had Not Done This 1 Thing, There Would Have Been No Apple'. *Inc* [blog]. 1st Aug. Available at: <https://www.inc.com/jeff-haden/why-steve-jobs-believed-if-he-woz-had-not-done-1-thing-there-would-have-been-no-apple.html> (Assessed 30 July 2022).
5. Tetsuya, K. & Tsuyoshi, I. (2016) 'Steve Jobs and the Rediscovery of Zen', *nippon.com* [blog]. 22nd Nov. Available at: <https://www.nippon.com/en/views/b06101/> (Assessed 7 August 2022).
6. Sotheby's (N08811 Lot 241) 'Apple computer contract and dissolution of contract signed by Jobs, Wozniak and Wayne (3 documents)' Sotheby's [blog]. N08811 Lot 241. Available at: <https://www.sothebys.com/en/auctions/ecatalogue/2011/fine-books-manuscripts-08811/lot.241.html> (Assessed 5 August 2022).
7. Norman, J. (1976) 'Steve Wozniak & Steve Jobs Release the Apple I', *History of Information* [blog]. July . Available at: <https://www.historyofinformation.com/detail.php?id=3019> (Assessed 10 August 2022).
8. Dormehl, L. (2022) 'Today in Apple history: Apple II brings color computing to the masses' *Cult of Mac* [blog]. 17 April. Available at:

- <https://www.cultofmac.com/476751/today-apple-history-apple-ii-debut/> (Assessed 6 August 2022).
9. Dormehl, L. (2021) 'Today in Apple history: Apple IPO mints Instant billionaires', *Cult of Mac* [blog]. 12 December. Available at: <https://www.cultofmac.com/457878/tiah-apple-goes-public/> . (Assessed 6 August 2022).
 10. Edwards, J. (2017) 'Early photos of life at Apple with Steve Jobs, from the company's first few employees' [blog]. 14 January. Available at: <https://www.businessinsider.com/early-photos-of-apple-first-employees-offices-2017-1> (Assessed 9 August 2022).
 11. Ibookguy (2015) *Apple and Steve Jobs biggest mistake Ep1 – The Macintosh* [video]. <https://www.youtube.com/watch?v=7h4tepFbMso> (Assessed 11 August 2022).
 12. History Computer Staff (2021) *Apple II explained, everything you needed to know*. Available at: <https://history-computer.com/apple-ii-guide/> (Assessed 8 August 2022).
 13. Computer History Museum (2016) *Steve Jobs introduces the Macintosh* [video]. Available at: <https://www.youtube.com/watch?v=1tQ5XwvjPmA> (Assessed 11 August 2022).
 14. Lapin, T. (2018) 'Steve Jobs told his daughter she 'smelled like a toilet' on his deathbed', *New York Post*, [blog] 2 August. Available at: <https://nypost.com/2018/08/02/steve-jobs-told-his-daughter-she-smelled-like-a-toilet-on-his-deathbed/> (Assessed 5 August 2022).
 15. Deffree, S. (2019) 'Apple IPO makes instant millionaires, December 12, 1980', *EDN*, [blog]. 12 December. Available at: <https://www.edn.com/apple-ipo-makes-instant-millionaires-december-12-1980/> (Assessed 9 August 2022).
 16. Mccracken, H. (2016) 'Apple's sales grow 150 X between 1977 – 1980', *fastcompany.com*, [blog]. 4 January. Available at: <https://www.fastcompany.com/4001956/apples-sales-grew-150x-between-1977-1980-2> (Assessed 13 August 2022).
 17. Yu, E. (2021) 'An analysis of China's strategy in combating the coronavirus pandemic with the 3H framework', *Public Administration and Policy: An Asia-Pacific Journal*, 24(1), pp. 76-91.
 18. Yu, E. (2022), "Seminar Day 1: Visions for the Future: Theoretical Perspectives on Management", *Lecture notes*, BM7006, University of Wales – Trinity Saint David.
 19. Pebam, R. (2014) 'How Steve Jobs got the ideas of GUI from XEROX' [video]. Available at: <https://www.youtube.com/watch?v=J33pVRdxWbw> (Assessed 11 August 2022).
 20. President Summit (2016) 'Steve Wozniak on 'The story behind Apple and Steve Jobs' [video]. Available at: <https://www.youtube.com/watch?v=B7sktJOoyvs> (Assessed 12 August 2022).
 21. Neis, J. (2015) 'Steve Jobs Business School' [video]. Available at: https://www.youtube.com/watch?v=_oAD0CmNSNc (Assessed 6 August 2022).
 22. Valuetainment (2019) 'The Madness of Steve Jobs Told by Steve' [video]. Available at: <https://www.youtube.com/watch?v=R3OcY37GOAA> (Assessed 7 August 2022).
 23. Jd R. (2011) 'Steve Jobs – one last thing' [video]. Available at: <https://www.youtube.com/watch?v=s5KmCGmkI1k> (Assessed 5 August 2022).

24. BrioWeb TV (2013) '*Steve Jobs and Bill Gates Together at D5 conference 2007*' [video]. Available at: <https://www.youtube.com/watch?v=wvhW8cp15tk> (Assessed 6 August 2022).
25. Delosa J. (2016) '*You'll be surprised to hear what Apple co-founder, Woz, said about Steve Jobs*' [video]. Available at: <https://www.youtube.com/watch?v=dBaFuePI8H4> (Assessed 5 August 2022).
26. Silicon Valley Historical Association (2011) '*Steve Jobs on failure*' [video]. Available at: <https://www.youtube.com/watch?v=zkTf0LmDqKI> (Assessed 11 August 2022).
27. Silicon Valley Historical Association (2014) '*Steve Jobs on Creating Blue Boxes and Founding Apple Computer*' [video]. Available at; https://www.youtube.com/watch?v=EVw-_s7-JU0 (Assessed 12 August 2022).
28. Apple Explained (2021) '*History of Steve Jobs (Full Documentary)*' [video]. Available at: <https://www.youtube.com/watch?v=s4pVFLUlx8g> (Assessed 5 August 2022).
29. Apple Explained (2021) '*Why Steve Wozniak Left Apple*' [video]. Available at; <https://www.youtube.com/watch?v=iW1BulWR9dI> (Assessed 13 August 2022).