

Notes May 17, 2022

- Core competencies
  1. Potential access to a wide variety of markets
  2. A significant contribution to the perceived customer benefits of the end product
    - Do customers really see the benefit? Value is created when customer is willing to pay the price.
    - Big problem for Samsung engineers during 1990s because customers do not always appreciate new technology.
    - Primarily determined by how you design SOC (system on a chip)
    - Competitors cannot stay in segment because they give up
    - You need to pay every year for R&D because you need to differentiate from competitors and consumers (SONY, Samsung Electronics, etc. gave up on making own SOC)
  3. Difficult for competitors to imitate
    - Anything that can be quickly matched, cannot be considered core competence by definition
- Japanese people do not like Samsung Electronics because they believe Samsung destroyed their market share
- Stock price is going down, investors are worried about recession = inflation + federal reserve bank (behind the curve) —> many investors worry about the scenario around the 1970s
- Roots of Corning's Long-Lasting Competitive Advantage
  - Why did they survive more than 160 years? <— EXAM Question (SUSTAINABILITY)
    - Corning was able to introduce new key core components continuously
      - Light bulb —> TV tube —> optical fibers —> LCD glass
    - Corning's sustainability does not mean that it never confronted crisis
      - Collapse of the dot-com bubble and the Telecom Meltdown in 2001 triggered a crisis
      - The company sowed the seeds of its own trouble by selling off its housewares business and spun off Corning Lab Services, which were less vulnerable to such shocks
      - As a consequence, Corning became over-reliant on the fiber optics business
        - It was overexposed to the risk of boom-and-bust cycles associated with demand of optical fibers
      - Corning derived about 70% ... (NOTES)
    - Jamie Houghton- Former CEO (last of Corning family who worked as management) wanted to save Sullivan Park at all costs, this is because Corning's future growth comes from the technologies in their lab.
    - Investing in R&D was a religion, even if you could not see the immediate fruits of it.
- Operating and Financial Leverage <— Use 2 terms to say something about sustainability in EXAM
  - Operating leverage is a measure of a firm's fixed costs as a percentage of its total costs. High risk during high operating leverage because of small fluctuations in sales magnify fluctuations in profit
  - Financial leverage - company is exposed to risk of bankruptcy during economic downturns when sales go down, cash reserves to cover interest payments are inadequate, and external financing is not possible (many companies go under with this situation)
    - U.S. airlines threatened government by saying they will fire all their employees and go bankrupt (BAD STRATEGY)
    - If you do not have financial leverage, if you don't have interest payment, it's okay because shareholders
    - If you have debt and do not have enough interest payment, that will be a problem.
    - Reduce financial leverage and increase stock cash, that is how to maintain business — Essence of longterm competitive advantage
    - If you want to be world class company, do not reduce operating leverage but have latitude for financial leverage
- Operating and Financial Leverage
- Why has Intel been behind the curve, especially with process technology <— EXAM QUESTION
  - Intel abandoned their religion of research in semiconductor, which led their product to seem unappealing
  - Intel was behind the curve and board of directors replaced incompetent CEO (who became CEO last year), tried turning around Intel. Question is can he save the company? Can he turn around the curve?

His terms to accept the job was that no one can say no to his decisions (refused job at first). Term ends 2025.

- Increase R&D by 20B per year (process technology and semiconductor research)
- Hired 1700 scientists and engineer to keep up with process technology —> tried to catch up with AMD and Media with CPU
- Intel research <— do some on your own for EXAM + show logics to why you disagree/agree that new CEO can turn around the company.
- 14 nanometer process technology for a long time, when AMD produced their chip 7 nanometer process technology from TSMC back in 2019
- Intel's CPU is unmatched with 14 nanometer
- Intel's engineers have been lazy
- Intel's yield rate is low, can't produce a lot chips and production cost is so high
- AMD, they don't have to worry about yield or production cost. Lisa Sue can pick between companies in any state
- AMD increased horsepower because they deal with massive data to upload in the cloud, they increase "core counts" past had 48, this year 96, in 2 years will come out with CPU with 128 core. Intel cannot match this.
- Intel new CEO is changing the strategy to integrated device manufacturer (IDM) [before manufacture every chip in-house] 2.0 strategy where they outsource [now they outsource].
- Breakthrough innovation takes patient capital and it could take about one decade to establish a world class core technical capability and IP and then decades deepening the capability
- Steve Jobs gave 6 months to recover capability, it took 6 months to create hard glass for first iPhone

Summary: two ways of thinking of corporate level strategy

- Portfolio of discrete business units: units could be bought and sold
  - Traditional strategic management (e.g., MCG Matrix)
    - What is missing is competence building and synergy in business
- Portfolio of competencies
  - New strategic management is to build a strategic architecture that guides competence building

Notes May 19, 2022 [L'Oréal Discussion]

- Never seen Japanese acquire other companies
- Korean companies have merged with other companies, but don't often do this
- L'Oréal Acquired brands
  - US: Maybelline, Kelis, Ralph Lauren Frances, Redken, Carson, Sothsheen
  - UK: The body shop
  - Germany: Jade
  - Chile: Urisa
  - Japan: Shu Venuns
  - China: Lue-sai, Magic, Mikasa
- Modernized brand in 1990s
  - Aimed target is working women in New York
  - Speedy by creating formulation that dries fast
  - Miami Chill - marketed towards this group to stand out
- Why change the strategy?
  - Emerging markets
  - To double the size of customer base to 2 billion
  - M & AS —> Past Merger Interpretation

Notes May 26, 2022 [NVIDIA Discussion]

- Key Success Factors
  - GPU
  - New Microarchitecture: CUDA (programming model)
    - Simplify cores, core counts rise, parallel computations
    - CUDA ecosystem —> platform company
      - Hardware solutions
      - software
        - “complementors”
          - Developer community —> “Libraries”
      - “The critical sub-25% error threshold”
  - AI —> 2012 AlexNet...Image Recognition Competition
  - Super Computer Solutions —> DGX series
  - Donated to universities so they would get used to the system and use it when they enter the workforce
  - Gaming, Data center, Professional Visualization
  - Samsung was not able to create platform like Mac & iPhone (Apple’s ecosystem) because they try to rely on themselves

Final Exam

- Intel turnaround method
- Corning case (why companies can survive)
- Short answer (bullet points, key word), long answer (bullet points, key words), identification questions, T/F questions (textbook: take a look at syllabus, reading assignments),
- Analysis of Competitive Situations
  - U.S. stock prices plummeted, NVIDIA stock prices went down —> is it worth to buy stock prices?
  - Competition: Intel, AMD, Microsoft, Amazon, Google
  - Corresponding Industries:
    - HPC/AI — Data Centers, Cloud companies (replacement cycle, replacing old computers)
    - Traditional PC — gamers, enterprise PCs, developers
    - Notebook/Tablets — we are the customers
    - Automotive
    - Gaming consoles
    - Digital Art
    - Smartphones/wearables
  - *Amazon & Google* developed their own low-end server chips <—> ASIC-centric computing
    - Google developed VCI (might scout talented architect from AMD & NVIDIA and develop own AI chip)
    - Amazon developed Graviton
- Intel uses mathematical processor, they use standardized CPUs —> “general purpose computing” —> for individual customers
- Amazon and Google do not use Intel since they only need a small block of “general purpose computing”, thus Google developed VCU (one encoder and one decoder) and Amazon developed Graviton —> much cheaper for Google and Amazon —> far simpler and less electricity
- A lot operating costs come from electronic bill because they run servers 24/7, it consumes a lot of electricity, the CPUs become hot (need cooling system) —> 25% costs for data center comes from electronic bill
- NVIDIA’s competitors are Intel and AMD because they are making GPUs
  - Intel is introducing real GPU not imbedded GPU (like NVIDIA who only targets gamers and tablets)
  - Intel was leader but NVIDIA introduced CUDA
  - Can Intel win against NVIDIA?
  - Intel hired 1000s of engineers from AMD and NVIDIA
  - Intel needs their own version of CUDA for Pontevecio

- “Network Effects” —> people will not want to switch from CUDA to Intel’s version of CUDA
- Intel is introducing GPUs for gaming and super computing, introducing Pontevecio (to compete with NVIDIA DGX A100)
- AMD is introducing “APU”s, smaller than Microsoft and SONY liked it so company adopted APU,
- Gamers use AMD GPU over NVIDIA’s because of price (NVIDIA’s price sky-rocketed, focus on lucrative market, high performance/AI, they don’t produce a lot of chips)
- Intel: “IDM 2.0” —> Outsourcing, boundary push, opening the X86 architecture, closely guarded assets will be open to companies and they can choose from the X86 architecture design library and can customize their own version (instead of creating standardized version)
- Intel CEO: The chip market is now very different