**Marketing Plan**

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## Executive Summary

Intel, a prominent player in the semiconductor industry, was founded in 1968 and has established itself as a technology leader, offering a diverse range of semiconductor solutions across various business units. Currently, however, the company faces significant hurdles, including the erosion of consumer trust due to technological stagnation and missed opportunities in AI market, compounded by intensified competition from rivals like NVIDIA and AMD. Amid these challenges, Intel's ambitious growth plans require strategic marketing interventions to navigate recent fiscal strains and capitalize on emerging opportunities in this quickly evolving and highly competitive industry. Operating in a macro-environment characterized by rapid technological change, shifting consumer behavior, and geopolitical intricacies, Intel must adapt its marketing strategy to leverage growth opportunities while mitigating risks. In this fiercely competitive landscape, Intel competes with industry giants in multiple steps of the semiconductor supply chain, each leveraging distinct strengths in chip design, consumer reach, and manufacturing capabilities. To address these challenges, Intel's current marketing strategy emphasizes customer-centricity, innovation, and brand positioning through detailed segmentation, targeting, and positioning, as well as a thoroughly developed marketing mix. Nevertheless, to regain a strong market leadership and drive sustainable growth, Intel must evolve its marketing approach through a carefully architected strategy supported by efficient resource allocation. The proposed marketing strategy for the company thus entails sustaining some efforts while implementing complementary initiatives. The company is advised to maintain focus on AI inference circuits and edge computing and leverage foundry capabilities possessed by Intel. Additionally, Intel should pursue vigorous development of a software alternative to the current market standard, as well as launch an attentively budgeted retail marketing campaign, "Intel Inside, AI Everywhere," to rebuild consumer trust and position Intel as an AI leader within the industry. By aligning marketing efforts with strategic priorities and leveraging technological capabilities, Intel can overcome and mitigate current challenges, regain market leadership, and drive sustainable growth in the dynamic semiconductor industry.

# Background

## I. Company Background

### *a. Company Summary*

Intel Corporation is an American technology company founded in 1968 by Gordon Moore and Robert Noyce. The company's name, initially NM Electronics, was swiftly changed to Intel, which stands for Integrated Electronics, reflecting its focus on integrated circuit technology.


*Figure 1: Intel's first logo, 1969 (Source: Intel, 2024b)*

Intel is renowned as one of the world's largest semiconductor chip designers and manufacturers. It has played a pivotal role in shaping the technology landscape, particularly through the creation of the world's first programmable microprocessor in the 1970s, its development of the x86 series, the dominant architecture in the personal computer industry (Intel, 2024b), and the formulation of Moore's Law, a theory proposed by Intel's co-founder that states that the number of transistors on a microchip doubles approximately two years. The company has developed a long list of contributions to the industry throughout the years, creating a long-lasting and profound impact. In the early years, it was instrumental in the rise of Silicon Valley as a high-tech center and was an early developer of SRAM and DRAM memory chips, which constituted most of its business until the 1980s. However, it was not until the success of the PC in the early 1990s that microprocessors became Intel's primary focus, fueling the rapid growth of the computer industry. It emerged as the dominant supplier of microprocessors, known for its aggressive strategies to defend its market position against competitors like AMD, and navigating industry dynamics alongside key players like Microsoft, Lenovo, and HP Inc.

While the company has faced its fair share of challenges in recent years, it remains a leading semiconductor company and one of the only corporations that designs and manufactures chips alike. Amidst supply chain disruptions, increased competition, leadership changes and diversification efforts, the company is focused on addressing current challenges and revitalizing its position in this highly competitive market.

### *b. Corporate Structure*

The corporate hierarchy of Intel is structured to ensure efficient coordination across its various businesses. The firm utilizes "matrix management and cross-functional teams" to ensure smooth execution between its multiple departments (Intel, 2022c). The company's current Chief Executive Officer (CEO) is Patrick P. Gelsinger, who has over 30 years of engineering and executive experience at Intel and took the current position in February of 2021 (Intel, 2021b). Supporting Gelsinger is a team of direct reports which includes C-level executives, executive VPs, and senior VPs, who all lead specific departments and functional areas within the corporation. These functional areas align with Intel's diverse operating segments, each focusing on distinct customer segments and market, as well as different product lines. Upon rising to the CEO position, Gelsinger operated some major changes on Intel's organizational structure, reorganizing the company under five different business units (Intel, 2024a):

- ***Client Computing Group (CCG):*** responsible for designing and manufacturing processors, chipsets, and related components for personal computers (PCs), laptops, tablets, and other consumer computing devices. CCG develops a wide range of products under the Intel Core, Pentium, and Celeron brands, catering to both individual consumers and businesses. The group focuses on delivering high-performance, power-efficient solutions to meet the needs of the PC market.
- ***Datacenter and AI Group (DCAI):*** specializes in providing solutions for data centers, cloud computing, and artificial intelligence (AI) applications. DCAI develops and manufactures a comprehensive portfolio of products including Xeon processors, field programmable gate array (FPGA) products, memory and storage solutions, and AI accelerators under the Intel Gaudi brand. The group serves enterprise customers, cloud service providers, and organizations with high-performance computing requirements, enabling them to efficiently manage and process vast amounts of data for various workloads.
- ***Network and Edge Group (NEX):*** focuses on developing hardware and software solutions for network infrastructure and edge computing applications. NEX offers a range of products including network processors, Ethernet controllers, and connectivity solutions tailored for telecommunications, enterprise networking, and edge computing deployments. The group's technologies enable high-speed data transmission, low-latency communication, and edge computing capabilities to support emerging use cases such as 5G networks, IoT, and smart cities.
- ***Intel Foundry Services (IFS):*** represents Intel's entry into the foundry business, offering semiconductor manufacturing services to third-party FABless customers, cloud service providers and governmental entities. IFS leverages Intel's advanced manufacturing technology and expertise to produce custom-designed chips for a diverse range of applications. By providing access to leading-edge process technologies, IFS enables customers to bring their innovative chip designs to market efficiently and cost-effectively.

- ***Mobileye:*** autonomous driving technology company acquired by Intel in 2017. Operating as a separate business unit within Intel, Mobileye specializes in advanced driver-assistance systems (ADAS) and autonomous driving solutions for the automotive industry. Mobileye's portfolio includes vision-based sensors, mapping technology, and driver assistance software, aimed at enhancing vehicle safety and enabling autonomous driving capabilities for future mobility solutions.

# II. Market Background

### *a. The Industry*

The semiconductor industry serves as a linchpin in the global technology sector, driving innovation and powering electronic devices worldwide. It is infamously cyclical in short-term outlooks, but presents a strong future outlook (Ravi, 2023a). Despite facing an economic downturn in 2023, with expected sales down 9.4% and high inventory levels, the industry is expected to recover in 2024 for a new record industry high of US$588 billion – a 13% improvement from 2023 and 2.5% increase from the previous 2022 industry all-time-high (McKinsey, 2021). Its growth trajectory is propelled by escalating consumer electronics, industrial electronics, and automotive electronics on a global scale, further fueled by transformative technologies like Artificial Intelligence (AI), the Internet of Things (IoT), and machine learning. These technologies heavily rely on semiconductors and adjacent products, to swiftly process vast amounts of data, enabling their widespread adoption and functionality.

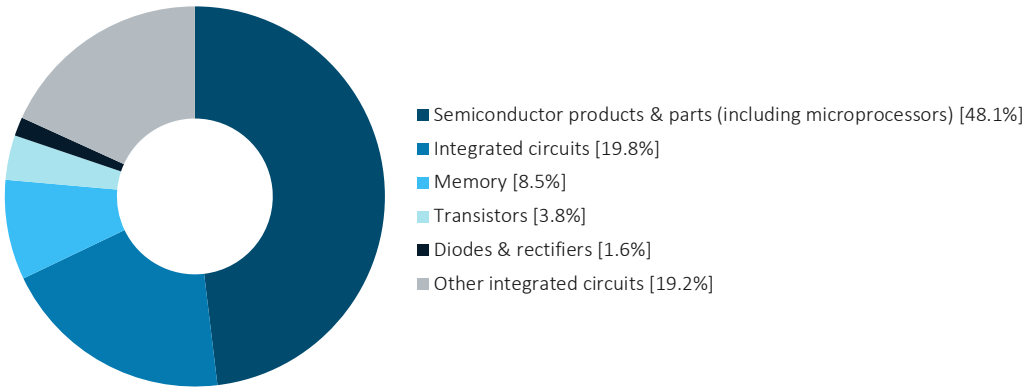


*Figure 2: Product segmentation in the semiconductor industry (Source: IBISWorld, 2023)*

According to Burkacky et al., 2022, considering multiple macroeconomic scenarios, the semiconductor market value could experience a CAGR ranging from 6 to 8% until 2030, suggesting that by the end of the decade, the industry could reach a total value of US$1 trillion. Notably, around 70% of the anticipated growth is expected to be fueled mainly by the automotive industry, computation and data storage, as well as wireless technologies.

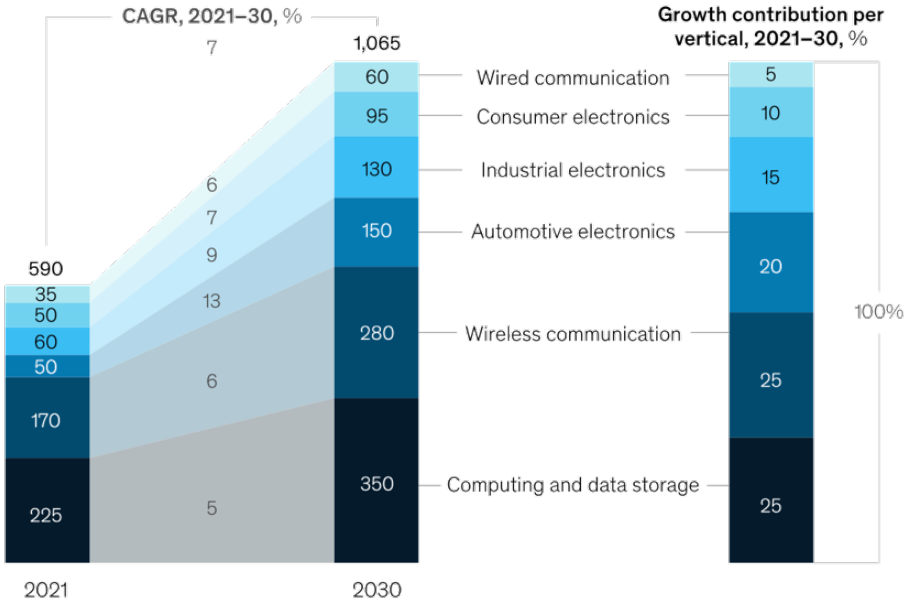


*Figure 3: Global semiconductor market value in US$ billion (Source: McKinsey, 2021)*

The expected industry recovery in the upcoming quarters is evidenced by the increases observed in the market capitalization of the 10 major semiconductor companies, with Deloitte (2024) pointing out that "as of mid-December 2023, the combined market capitalization of the top 10 global chip companies was […] up 74% from November 2022", signaling a promising recovery period ahead. With market capitalization as a barometer for investor confidence and industry outlook, understanding the major players driving this anticipated growth is imperative as well as exploring key drivers and challenges faced by them. This is particularly relevant for Intel as they operate not only as a semiconductor designer, but as a foundry for other companies in the market as well.

Within rapidly evolving industry dynamics in tech, industry giants must remain aware of key drivers and challenges faced by themselves as well as competitors. The demand surge for generative AI accelerator chips underscores a necessity for enhanced chip design, improved and sustainable manufacturing processes, and optimized performance. These are further driven by smart production advancements led by better robotics technology, machine learning, and IoT devices, enabling optimized resource utilization (Deloitte, 2024). However, the transition towards smart manufacturing also highlights the requirement for increased production capacity worldwide as to avoid and mitigate supply chain bottlenecks that may arise.

In relation to the market's supply chain concerns, the industry faces significant challenges related to geopolitics that come at play as well. Export controls, manufacturing restrictions, heightened geopolitical tensions between major industry hubs, and cyberattack-vulnerable IP threats shape the semiconductor landscape and stakeholders' relationships globally. Moreover, the rapid increase in recent demand poses a challenge for sourcing quality talent amidst heightened competition. Effectively addressing these challenges while capitalizing

on growth opportunities will be critical for the industry's long-term success and major players' resilience.

### *b. The Consumer*

The semiconductor industry has both business-to-business (B2B) and business-to-consumer (B2C) clients. These consumers mainly include Original Equipment Manufacturers (OEMs), such as Apple, Samsung, Lenovo, Dell, etc., whose demand is driven by end-users of their products; retail consumers, who may purchase stand-alone components for custom builds; system integrators, such as Siemens and IBM, who bring together manufactured semiconductor components for the creation of larger systems or solutions; and governments, who procure semiconductor products for data centers and defense systems.

The top 10 global OEMs play a significant role in semiconductor consumption, accounting for a considerable portion of the market share. While these companies may be in various industries, such as PC, automotive, or industrial (Semiconductor Industry Association, 2023), the biggest market share is taken up by PC and computer manufacturers. In the beginning of 2023, Gartner's report revealed that almost 40% of the semiconductor customers are made up by 10 main clients: Apple, Samsung Electronics, Lenovo, Dell Technologies, BBK Electronics, Xiaomi, Huawei, HP Inc., Sony, and Hon Hai Precision (Gartner, 2023).

## III. Situational Review

The semiconductor industry operates within a multifaceted macro environment characterized by technological dynamism, global manufacturing trends, environmental imperatives, and geopolitical intricacies. To develop an efficient marketing and business strategy, it is essential to understand the macro-environment that Intel finds themselves in and how they are positioned within these dynamics.

### *a. SWOT*

*Internal Environment*

*Strengths*: Intel allocates a significant portion of its revenue to research and development, maintaining the highest R&D spending amongst its competitors, both in absolute terms and as a percentage of revenue (Intel, 2024), which might arguably be one of the company's biggest strengths, as the industry faces extremely swift and intense innovative trends. Moreover, Intel benefits from a well-established network and supply chain developed through multiple decades, facilitating efficient distribution of its semiconductor products. Intel's in-house production capabilities and effective vertical integration also enable the potential for economies of scale. Intel is one of the few major chip designers in the industry that is not FABless, that is, the company has its own manufacturing facilities and may operate as a foundry for others, enhancing cost efficiency and competitiveness in the market. This competitiveness is further enhanced by a diverse product portfolio and broad customer base, providing Intel with strong market presence and brand recognition. This aids in possibly mitigating risks associated with market fluctuations

as a name brand in the industry. As a consequence, Intel has formed strategic partnerships over the years with market giants such as Microsoft, Dell, Lenovo, HP, leveraging its long-standing success to collaborate with industry leaders and expand its reach and influence (Intel, 2024a).

*Weaknesses*: Despite its strengths, Intel has recently experienced significant financial weakness, as evidence by 2023's decrease in revenue, gross margin, operating margin and income (Business Wire, 2024). Furthermore, while the key partnerships enjoyed by Intel may provide market strength, the reliance on a concentrated customer base may also pose a vulnerability. Fluctuations or disruptions in key customer relationships may impact revenue and profitability, exemplified by the discontinuance of Apple's partnership with Intel to pursue their proprietary chips under ARM architecture (Leswing, 2020). As evidenced by one of the key factors for end of the companies' collaboration, another weakness experienced by Intel is their technological lag in recent years as well as late entry into the AI market when compared to other major competitors. This delay has now caused Intel to catch up with the market rather than forge ahead as the innovator it has been known to be throughout the years, tarnishing its current brand image in the industry.

*External Environment*

*Opportunities*: Even though Intel has lagged in the competitive landscape of current technological advancements and the growing demand for high-performance computing, there is still a plethora of opportunities to persist on innovating and developing new products to meet evolving market needs. Additionally, the AI revolution currently represents one of the best opportunities the company has had in decades to capture high value in compute, memory, and networking through workload-specific hardware development. Moreover, Intel has not yet tapped into some areas of the industry such as chips for smartphones or tablets, which presents a great opportunity for further portfolio growth despite the already massive size of the company. On other notes, as the world becomes increasingly aware of environmental challenges in global manufacturing and supply chains, Intel has the opportunity to develop its corporate sustainability efforts by sustaining and succeeding in their ambitious goal to achieve 100% renewable energy for the company's global operations by 2030 (Intel, 2024a). Furthermore, geographic diversification of FABs provide Intel with an exclusive edge in mitigating risks associated with political tensions and potential disruptions in Asian-Western relationships as the company is the only semiconductor retail designer that has manufacturing capacities as well. This opportunity is enhanced by governmental support provided by the United States. The American government has showed strong support and subsidization of semiconductor R&D and manufacturing activities through legislature and reforms such as the CHIPS Act, further discussed in the macro-environmental analysis below.

*Threats*: the biggest threat for Intel currently lies in the competitive landscape and emerging disruptive technologies. The company faces intense competition not only from well-reputed companies developing similar alternatives but also from the current trend in the development of proprietary chips and ARM-based processors, posing a potential threat to Intel's large market share and dominance. Concurrently, the growing relevance of graphics processing

units (GPUs) in machine learning and AI poses a potential threat to the company, as it has historically focused less on GPU development when compared to other competitors such as NVIDIA and even AMD. Other threats lie in foreign exchange fluctuations and economic downturns potentially affecting Intel's financial performance further, as well as privacy risks and supply chain disruptions. These disruptions may occur due to political issues, shortages, rising production costs, wars among technologically relevant countries, and many more potential triggers to supply chain interferences. Virtual attacks are also significant threats, as they have recently experienced a surge in occurrence to companies like Intel, dealing with highly secretive proprietary information and essential code scripts (Intel, 2024a).

### *b. Macro-environmental Analysis*

The semiconductor industry is influenced by various uncontrollable variables that shape its landscape and determine its trajectory. By conducting a macro-environmental analysis, thorough insights can be identified within political, economic, sociocultural, technological, environmental, and legal factors that impact the industry.

*Political factors:* the semiconductor industry is significantly impacted by policies related to global trade, tariffs, intellectual property rights, and government regulations. The US and China trade tensions have introduced challenges like tariffs and restricted market access, affecting semiconductor companies' operations and revenue streams, further enhanced by governmental compliance requirements. Companies must adhere to various regulations, including export restrictions imposed to different nations, which can be particularly challenging in countries with strained diplomatic relations or under US sanctions. For example, the Wassenaar Arrangement prohibits ASML, the sole producer of lithography machines which are essential for semiconductor manufacturing, from selling the most advanced equipment to Chinese companies (IBISWorld, 2023). Moreover, technologies in the industry are used in critical military infrastructure, raising concerns about national security and justifying the governmental legislatures. This can result in regulatory scrutiny for exports but also domestic governmental support in the form of subsidies, grants, and tax breaks, particularly in the US. Changes in these incentives due to political shifts can impact Intel's growth strategies and competitiveness. Regulatory frameworks like the CHIPS Act in the United States, which allocates over $50 billion for semiconductor research and manufacturing (Ravi, 2023b) and initiatives like the EU Chips Act in the European Union, aim at supporting chip production among allied nations. The interplay between geopolitical tensions, such as those between the US and China, and the COVID-19 pandemic's political impact on the chip supply chain due to lockdowns and transportation issues add layers of complexity to the semiconductor industry's landscape.

*Economic factors:* in the semiconductor industry, economic downturns can lead to decreased consumer discretionary expenditures and business spending on technology products, adversely impacting sales. Conversely, periods of economic growth typically see increased technology spending and better performance from companies in the market, especially as PCs mark one of the biggest sources of revenue for the industry. Interest rates also play a crucial role,

influencing borrowing costs and consumer spending: low-interest rates can facilitate borrowing for R&D and expansion, while high rates may deter technological investments. Currency fluctuations pose another economic challenge through the global characteristics of supply chains and worldwide presence of key players such as Intel, potentially affecting costs and thus profit margins. For example, sales outside the United States accounted for 74% of the company's revenue in 2023, highlighting the global reliance within the market (Intel, 2024a). Economic factors also encompass market dynamics, including competition and market saturation. Increased competition from companies like AMD, NVIDIA, and ARM-based chip manufacturers can pressure prices and profit margins for Intel. Additionally, disruptions like the COVID-19 pandemic and resulting economic impacts have also affected the semiconductor industry, leading to fluctuations in consumer behavior and thus demand, further highlighting the importance of economic factors within the industry's macro-environment.

*Sociocultural factors:* sociocultural factors in the semiconductor industry are deeply tied with demographic shifts and technological innovation. Consumer behavior in this industry is largely influenced by demographic changes, such as the rise of digital natives (individuals who grew up in the digital era) and the aging population as well. Moreover, consumer preferences and needs, which dictate their behavior, have recently undergone significant transformations from external pressures. For example, the increasing reliance on remote work, online education, and digital entertainment reflect changing societal norms. Additionally, the proliferation of IoT devices and smart home solutions further create new supply challenges and growth opportunities in the semiconductor market (Scandiffio, 2022). Global divergences in digital development are also naturally critical in the development of the industry's international expansion.

*Technological factors:* technological factors are the shaping basis of the semiconductor industry. The market faces fundamental challenges in transistor miniaturization while maintaining reasonable costs, with chips already at 5 and 3 nanometers, and in upkeeping with Moore's Law due to physical limits being approached (Burkacky et al., 2022). Manufacturers of semiconductors are thus exploring alternative approaches to boost chip performance, such as 3D chip stacking and gate-all-around (Hofman, 2022). Additionally, advancements in Extreme Ultraviolet Lithography (EUV) technology hold promise in enabling chipmakers to produce more efficient chips (Intel, 2024). Furthermore, emerging technologies previously mentioned, such as artificial intelligence, machine learning, edge computing, and quantum computing reveal new opportunities for personalized chip developments tailored to these applications.

*Environmental factors:* both operations and corporate responsibility are affected by environmental factors in the industry. Manufacturing operations are very water-intensive and require significant energy usage, contributing to environmental footprint concerns. There is thus increasing public and regulatory pressures for efficient resource usage, sustainable technological advancements, and renewable energy sources to be implemented in semiconductor production. Additionally, electronic waste management emerges as a growing concern as well, with proponents calling for recycling practices in the industry through efficient waste management and circular economy strategies (Intel, 2024a).

*Legal factors:* legal factors in the industry are deeply tied with the political environment. They encompass legal and regulatory frameworks which companies must navigate relating to patents, licensing agreements, antitrust laws, and data privacy regulations. Legal compliance in the semiconductor market also extends to the digital environment due to the nature of the business through cybersecurity laws and more recently through legal standards and regulation surrounding AI technology, which are still being developed within this nascent advancement (Li, 2023).

The factors discussed above delineate the complex landscape of competitive forces pushing and pulling players in the semiconductor industry. Porter's five forces framework evaluates aspects of competition, attractiveness, and power of stakeholders within the market as well, through the analysis of five factors: bargaining power of suppliers, bargaining power of buyers, threat of new entrants, threat of substitutes, and a resulting review of the industry's rivalry.

Suppliers of raw materials, equipment, and manufacturing technologies exert moderate to high bargaining power, given their provision of critical components integral to the manufacturing process which are not easily switchable or replaceable. Long-term partnerships and vertical integration strategies help mitigate dependence on suppliers. Semiconductor buyers, such as computer manufacturers and electronics companies, wield high bargaining power, facilitated by the availability of multiple suppliers and the commoditization of some semiconductor components. High barriers to entry, including substantial capital investment, technological expertise, and regulatory compliance, strongly limit the threat of new entrants, thereby benefiting existing semiconductor companies with established market presence and economies of scale. While the threat of substitutes remains relatively low due to the essential nature of semiconductors in electronic devices, advancements in alternative technologies like quantum computing pose potential future threats. Lastly, in this highly competitive environment, major players engage in intense rivalry, striving for market share through technological innovation, product differentiation, and pricing strategies. This dynamic landscape drives continuous investment in research and development and strategic alliances to maintain competitiveness amidst evolving market dynamics.

### *c. Competitive Analysis*

As discussed, the semiconductor industry is characterized by intense rivalry as well as concentration of market share among major players. Most important industry players include Intel, NVIDIA, AMD, and TSMC. Each competitor strives to maintain or improve its market position by offering cutting-edge products, investing in research and development, and forming strategic partnerships. Intel, a longstanding leader in the industry that possesses a strong traditional CPU market but is currently expanding into GPUs and emerging tech, faces increasing competition from rivals like AMD and NVIDIA. AMD has gained ground with its Ryzen processors, challenging Intel's dominance in the CPU market, while also cultivating its growth within the GPU sector. Meanwhile, NVIDIA leads in high-performance GPUs for gaming, data centers, and AI applications. TSCM, on the other hand, possesses the largest share

of the semiconductor manufacturing sector as a foundry and key supplier to major designers at a dominant 57.9%, presenting intense competition to Intel Foundry Services, which currently possesses very little market share within foundries, at less than 1%, but still in the top 10 providers (Shilov, 2023).

Despite Intel's recent operational and financial downturns, it remains the largest semiconductor company in market revenue share worldwide. In 2023, it reclaimed the top spot in the industry from Samsung, after two years in second position.

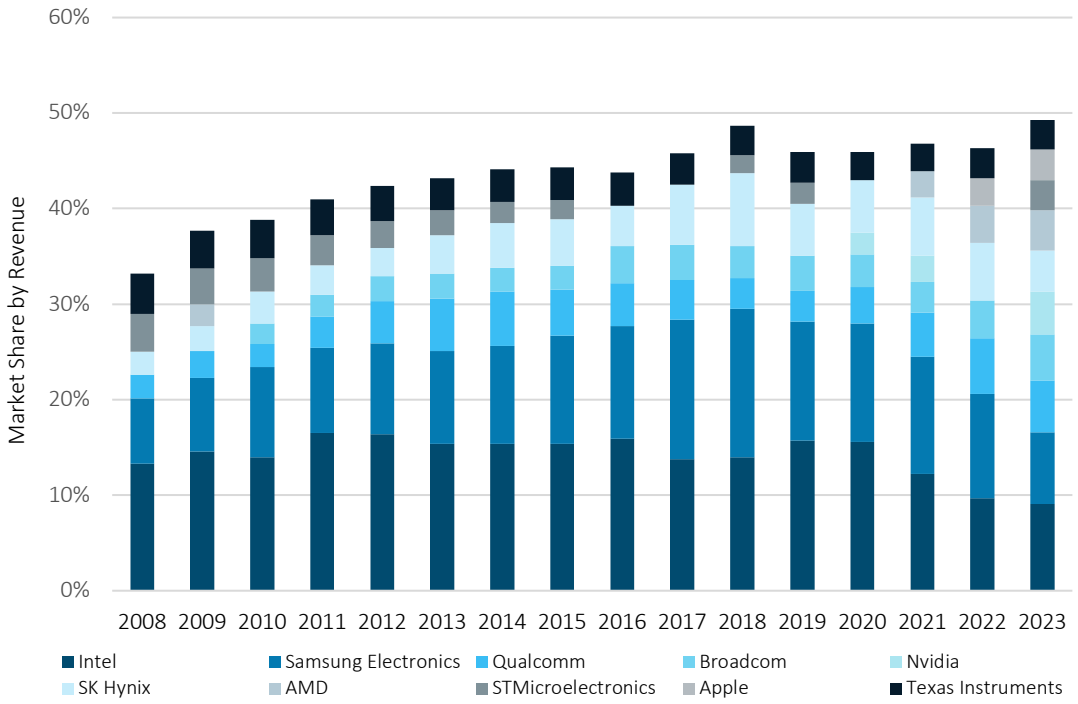


*Figure 4: Global market share of leading semiconductor vendors (Source: Gartner, 2024)*

In addition to Intel's closest competitors in terms of offerings and technology, namely NVIDIA and AMD, other companies also stand out as major players in the industry, albeit operating differently. Samsung, similarly to Intel, produces a wide range of semiconductor components – however, the company's primary focus is internal consumption, not so much on selling components to other OEMs, thus operating as more of an indirect competitor to Intel. Other companies exemplified by the outlined competitors in figure 4, such as Qualcomm, Broadcomm, SK Hynix, STMicroelectronics, Apple, and Texas Instruments, all operate in various segments of the market, offering products ranging from mobile processors to memory modules and embedded systems. While these companies compete with Intel across different segments, they are generally considered indirect competitors due to their focus on specific niches within the semiconductor industry. For instance, Qualcomm dominates the mobile chipset market, while Broadcom specializes in networking and wireless communication solutions. SK Hynix is a major player in memory chips, while STMicroelectronics focuses on embedded systems and microcontrollers. Apple designs its own processors for its devices, primarily for

iPhones and iPads, rather than selling chips to other OEMs. Texas Instruments, on the other hand, produces a wide range of semiconductor products, including analog and embedded processors. Regardless, these companies direct and indirectly contribute to the competitive landscape of the semiconductor industry and competitive distinction arises from factors such as market focus, product differentiation, and target customer segments, which vary among these competitors.

# Current Marketing Strategy

## IV. Value Proposition

Intel's value proposition revolves around their proclaimed purpose to "create world-changing technology that improves the life of every person on the planet" (Intel, 2022b). Embedded within Intel's core values is a steadfast commitment to customer-centricity, fearless innovation, results-driven culture, unity, inclusion, quality, and integrity. These values ensure that Intel remains aligned with its purpose (Intel, 2024e).

## V. Segmentation, Targeting, & Positioning

Considering Intel operates as various business units, each with their own product portfolios and customers groups, segmentation is vital for the company to effectively meet clients' unique needs. By segmenting their customers through geographical, demographic, psychographic, and behavioral factors, Intel can identify their requirements for effective targeting and positioning. Geographical segmentation enables Intel to adapt its product offerings to specific regions considering factors like infrastructure, regulatory requirements, and political relations. Demographic segmentation helps the company tailor products to different age groups, income levels, and other relevant traits further enhanced by psychographic factors that focus on understanding lifestyles, values, and personalities of consumers. Additionally, behavioral segmentation aids the company in analyzing purchasing patterns, market lifecycles, usage behaviors and technological adoption curves.

By appropriately segmenting consumers, Intel is then able to effectively target different market sectors through its varied portfolio, according to the criteria outlined in segmenting. For example, regions with high demand for gaming PCs may be targeted with marketing efforts highlighting Intel's high-performance processors optimized for gaming, or those who already possess these processors might be targeted with promotions for the latest workstation-grade CPUs. Specific chips will be marketed towards the retail market, while others will be targeted to B2B clients and thus advertised appropriately. Other aspects of the firm can also be highlighted through effective targeting, such as efforts to inform environmentally conscious consumers about the company's sustainability efforts and corporate responsibility. Through an effective segmentation approach, Intel can maximize marketing effectiveness and thus position itself accordingly in the industry.

The company aims to position itself as a long-standing industry leader that, despite traditional in the market, is an innovator and leading provider of high-performance semiconductor solutions. Intel emphasizes its position in the industry by through focusing on their strategic priorities of accelerating growth, improving their execution, deploying capital and evolving the company's culture (Intel, 2024g), striving to maintain its industry leadership.

# VI. The Marketing Mix

### *a. Product*

Intel offers a diverse range of products that cater to various computing needs across different sectors. At the core of its product portfolio are microprocessors, including key brand products such as Intel Core Ultra Processors and Intel Xeon Scalable Processors, catering to both consumer and enterprise markets. Additionally, Intel provides a wide array of select systems and devices, including laptops, gaming systems, and networking solutions. The company also offers chipsets, AI accelerators, and software solutions designed to meet the evolving demands of artificial intelligence and data processing (Intel, 2024d). From edge and embedded processors to storage solutions and intellectual property, Intel's product portfolio spans hardware, software, and services, constantly updated thanks to intense research and development investments ensure it remains at the forefront of technological innovation in the semiconductor industry. Upcoming products expected by the company consist of new generation mobile processors, desktop processors, GPUs and adjacent technologies as well (Intel, 2022a).

### *b. Price*

Intel implements a pricing strategy that combines elements of both premium pricing and market-oriented pricing to effectively position its products in the semiconductor industry. Its premium pricing approach reflects the superior performance of the company's products, thus attempting to maintain a reputation for high quality offerings. In addition to this approach, its market-oriented angle considers market conditions and competitor prices to adjust its strategy accordingly, ensuring competitiveness while maximizing profits and responding to competitive pressures. The pricing and margins of Intel's products vary across different market segments and product lines, ranging from lower-priced entry-level platforms, such as those based on Intel Atom processors, to higher-end platforms powered by Intel Xeon processors (Intel, 2024a). Moreover, gray market activities and unauthorized resale of Intel products pose the company challenges in monitoring demand and pricing dynamics, impacting revenue opportunities and potentially harming reputation (Intel, 2024a). Intel employs various pricing strategies, including discounts, rebates, and incentives, to enhance the acceptance of its products and technologies.

### *c. Placement*

Intel's distribution and placement strategy encompass various channels to reach its customers globally, including OEMs (Original Equipment Manufacturers), distributors, retailers, and online platforms. Through collaborations with OEMs, Intel integrates its processors into

various computing devices. Retailers and online channels make the company's products accessible to consumers for standalone purchases or custom builds. This multi-channel approach allows Intel to cater to diverse customer needs and preferences, enhancing its market reach and accessibility. Additionally, Intel's global presence, with offices, manufacturing facilities, and research centers in numerous countries, ensures efficient distribution and support infrastructure, further strengthening its placement strategy (Intel, 2024a).

### *d. Promotion*

The company employs a mix of promotional strategies to create awareness, generate interest, and drive sales. Intel's promotional activities include direct marketing and further co-marketing programs to expand the reach of its brands beyond traditional marketing efforts. Direct marketing activities mostly consist of "digital and social media and television, as well as consumer and trade events, industry and consumer communications, and press relations (Intel, 2024a). One of Intel's most iconic marketing efforts was the "Intel Inside" campaign, which emerged in the 1990s as an end-user campaign and has since become synonymous with Intel's brand identity (Intel, 2024c) This campaign highlighted Intel's technology as an essential component of computing devices, emphasizing the quality and performance associated with Intel processors.


*Figure 5: Intel's "Intel Inside" print ad from 1991 (Source: Intel, 2024c)*

Intel's promotional strategies offer a comprehensive approach in reinforcing brand image through simplifying complex technical subjects, driving demand, and retaining a competitive market edge.

### *e. People*

Intel places significant emphasis on its stakeholders, foremost recognizing the crucial role of over 124 thousand employees (Intel, 2024a). The company's human capital strategy revolves

around three pillars: hiring and retaining the best talent, developing employees to their full potential, and fostering a winning culture. Alongside these pillars, Intel supports the belief that people are fundamental to the company's success, driving its strategy and growth ambitions. To achieve this aim, Intel invests in programs and benefits that support the evolving world of work and the needs of its employees, focusing on hiring and retaining high-quality talent by developing individuals' skills to their full potential and providing extensive training programs, rotational assignment opportunities, mentoring, engagement through employee resource groups, and health and wellness resources (Intel, 2024a). Fostering a culture of empowerment, inclusion, and accountability by making employees feel valued, challenged, and rewarded is essential for attracting, developing, and retaining top talent according to the company.

## VII. Growth Strategy

Intel's growth strategy has taken new directions upon the appointment of Pat Gelsinger as the company's CEO in 2021. Recognizing main areas of concern faced by the company, Gelsinger and his team developed a thorough and ambitious growth strategy for Intel. Acknowledging the era of distributed intelligence, the company aims to transition from a CPU-centric company to a multi-architecture xPU provider, expanding product offerings to cater to diverse computing needs, including the recent AI-enabling chip booming demand (Intel, 2023). This strategy benefits from various angles being explored by the company, giving rise to multiple initiatives such as Intel's IDM 2.0, Smart Capital, and RISE (Intel, 2024a).

Intel's IDM 2.0 strategy represents a significant shift in the company's semiconductor manufacturing approach. This strategy encompasses three core components: firstly, the company intends to leverage its internal factory networks on a global scale to reaffirm Intel's commitment to internal manufacturing of its own products, process innovation, and technological advancement. Secondly, Intel hopes to expand its use of third-party foundry capacities in order to optimize product roadmaps when necessary for increased flexibility and scale. Lastly, Intel is "building a world-class foundry business, Intel Foundry Services", with significant expansion plans such as the construction of multiple FABs throughout the US as well as Europe (Intel, 2021a). This move not only diversifies Intel's revenue streams but also establishes the company as a major competitor in the foundry market, which is currently dominated by one major player, Taiwanese foundry TSCM. The company aims to surpass competitors in producing leading-edge chips by 2025, signaling a renewed focus on technological innovation and excellence (Cutress, 2021).

The Smart Capital approach by Intel is a fundamental component of its IDM 2.0 strategy as well, enabling the company to pursue opportunities in the market while managing margin structure and capital spending. Smart Capital aims at optimizing capital utilization through the expansion of manufacturing capabilities, governmental support for leveraging incentives in the semiconductor industry, and collaboration with potential customers for advance payments in order to mitigate investment risks (Intel, 2024a).

Lastly, but just as importantly, Intel reveals commitment to corporate responsibility and sustainability through the company's RISE initiative, standing for a more "responsible, inclusive, and sustainable world, enabled by technology and expertise" (Intel, 2024a). Through deploying and nurturing several forms of capital for the company's strategy, namely financial, intellectual, manufacturing, human, social and relationship, and natural capital, Intel hopes to successfully complete its growth strategy while maintaining socio-environmental commitments in mind.

# Recommendations

## VIII. Proposed Marketing Strategy

### *a. Challenges faced by Intel*

A proposed marketing strategy for Intel to pursue can only be developed and proposed upon the comprehension of its challenges.

Foremost amongst Intel's challenges is the erosion of consumer trust and brand image stemming from the company straggling technologically and missing on opportunities to capitalize on innovations such as EUV technology and manufacturing advancements in smaller processing nodes. Additionally, Intel's belated entry into the AI market allowed competitors to gain ground, most notably NVIDIA, which seized dominance in market share and emerged as one of the largest companies in the stock market in terms of evaluation (Randewich, 2024). Gaining ground is also AMD, a close competitor of Intel that has been narrowing the competitive gap as well. Due to this combination of factors, Intel now faces the task of catching up with the industry, hastening to match rivals' advancements, rather than forge ahead as it has done traditionally. Moreover, the company's ambitious plan to release 5 nodes within 4 years requires substantial capital expenditures, possibly conveying financial challenges amid current fiscal strains if not appropriately hedged.

Keeping in mind the main challenges faced by the company as of this time, the proposed marketing strategy should revolve around maintaining focus on some capabilities and additionally increasing focus on others. Intel's current AI inference and edge applications focus and foundry efforts should be kept and sustained.

### *b. Strategies to be sustained*

*AI Inference & Edge Computing Focus*

According to Batra et al. (2019), AI represents an optimal opportunity for semiconductor companies to capture up to 50% of total value from the technology stack. This stack enables both AI training and inference, with training occurring through model parameter optimization through a training dataset, and inference occurring when the trained model is deployed to perform tasks – simply put, training consists of work done by organizations to build the model initially while inference occurs on the server side when deploying it to users. Additionally, edge applications of AI involve running inference tasks directly on devices at the edge of the network, allowing

devices to run tasks without relying on constant internet connection or external servers – a good example for sound understanding of the concept is autonomous vehicles, which rely on onboard hardware for AI recognition, not a cloud server.

The preferred architectures for deep training rely on GPUs, due to their parallel processing capabilities. However, inference, as well as training rely mostly on CPUs as well as on application-specific integrated circuits (ASICs). Considering Intel's biggest competitor, NVIDIA, focuses on providing GPU hardware solutions, inference and edge applications present a huge opportunity for Intel to capture its share of the AI sector. Already presenting strong results on its CPU efforts for AI inference (Intel, 2023), Intel must drill down their AI-use CPU efforts alongside an enhanced focus on designing and manufacturing ASICs as well, as the architecture is bound to grow in popularity both for inference as well as for training.

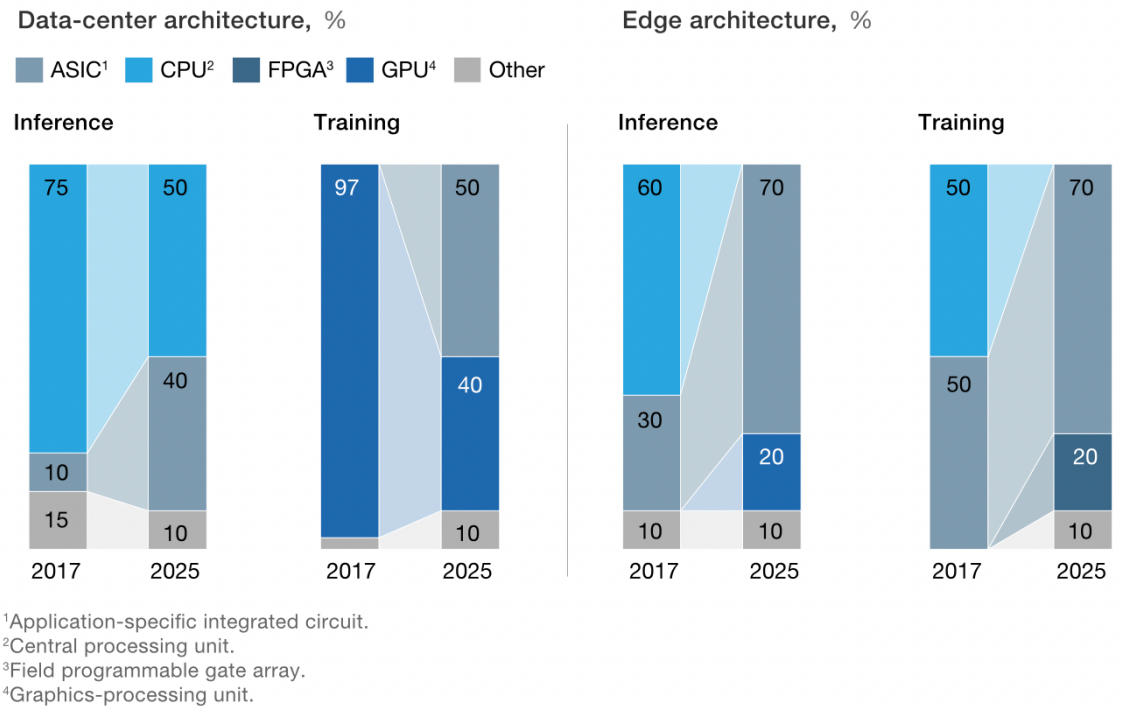


*Figure 6: Expected growth of preferred semiconductor architectures for compute (Source: Batra et al., 2019)*

These will be present in both data-center architecture and edge architecture, enhancing the use cases for these integrated circuits and microvertical solutions. Thus, by providing pioneering CPUs and ASICs within the industry and focusing on solutions for specific industries, Intel may be able to gain ground against its biggest competitors and stay ahead of the industry once more, finally capturing their share of the AI market.

*Foundry Focus*

The angle that Intel has taken on creating Intel Foundry Services leverages strong and rare capabilities from the company as well as governmental support in a very monopolized market, and aligns it on the track to restoring technological leadership. The company's foundry

capacities will not only provide a pathway for capturing value from competitors, but it will also "provide increased flexibility and scale to optimize product roadmaps for cost, performance, schedule, and supply" (Intel, 2024a). Currently, Samsung and TSMC are the sole foundries capable of manufacturing the most advanced node sizes, leading to not only a lack of production options for chip designers but also possible capacity shortages, due to increased market demand but also possible political tensions among key countries involved in the semiconductor supply chain (LaPedus, 2021). By fully embracing its foundry business unit, Intel has the opportunity to capture yet another share of value production in the semiconductor industry, and should thus focus on doing so within their strategy as well.

### *c. Strategies to be implemented*

*Aggressive Software Development*

A large component of NVIDIA's market dominance revolves not only on the quality of its GPUs, but also on the accompanying API computing platform, CUDA. CUDA is C/C++ based parallel programming model developed by NVIDIA for general computing, allowing code to be executed and run, thus executing functions on NVIDIA's GPUs only, as it is incompatible with other brands' hardware. With CUDA, developers can dramatically speed up computing applications and "achieve higher parallelism and efficiency than general-purpose CPU code", justifying its popularity among users of NVIDIA's GPUs, including those looking for high-performance computing, data mining, computer modelling, deep learning and machine learning (Priya, n.d.). CUDA stands out among parallel programming models for its seamless integration with hardware, simplified coding process, and early market entry. This advantage has given NVIDIA the opportunity to refine the platform over time and secure a loyal user base, as both consumers and enterprises have tailored their applications for CUDA, resulting in a lock-in effect (Rickard, 2023).

With that in mind, a strategic addition to Intel's product mix would be the aggressive pursuit of its own CUDA alternative to develop a competitive substitute for the industry. To challenge the competitor's dominance in the GPU computing market, it must leverage its strengths – such as employing over 15,000 software developers (Intel, 2024f) – while addressing weaknesses in existing platforms. Intel should focus on a comprehensive ecosystem that rivals CUDA's capabilities and offers superior flexibility, easiness of conversion and interoperability across hardware vendors.

Firstly, Intel should develop an effective conversion tool to analyze existing CUDA code and automatically translate it into optimized code for Intel's hardware, additionally providing comprehensive documentation and support for developers transitioning from CUDA to their own platform. Furthermore, a unified software platform that spans diverse hardware architectures should be prioritized. This platform should offer seamless integration with popular machine learning frameworks like TensorFlow and PyTorch, ensuring compatibility and minimizing transition barriers. It should provide extensive developer tools and support for debugging

utilities, enabling the detection of weaknesses to be addressed and thus rigorous performance benchmarking and validation.

Moreover, Intel should invest in open-source compiler stacks to support platform-agnostic code compilation, enabling developers to target diverse hardware easily. By consolidating efforts under a unified umbrella and emphasizing vendor-neutral solutions, Intel can demonstrate a strategic commitment to breaking the inertia around CUDA dependence. Additionally, collaboration with industry partners such as AMD can be harnessed to establish standardized compilation chains and streamline the transition from CUDA dominance to hardware-neutral code, democratizing AI software and providing accessible ecosystems to users.

Intel does currently provide an alternative to CUDA, a model denominated OneAPI, which aims to simplify the development of applications for heterogeneous computing environments. Nevertheless, OneAPI has not yet made itself an established ecosystem due to a lack of equitable breadth and depth of resources when compared to CUDA. Moreover, competition suffers from developer inertia, as switching from CUDA to a new programming model like OneAPI requires retraining and retooling for developers, thus requiring Intel's platform to offer a clear advantage and incentive over NVIDIA's. For that reason, the company must very intensely focus on making transitioning as smooth and easy as possible by providing extensive support and incentives for switching.

Intel must thus consolidate fragmented initiatives into a single coherent framework with a unified programming focus to transform AI hardware-software compatibility. This strategy would not only help fragment NVIDIA's dominance but also enhance Intel's brand image as a leader also in GPU technology, increasing demand for Intel's software and hardware alike and developing a demand for an ecosystem of Intel products.

*Retail Marketing Campaign: "Intel Inside, AI Everywhere"*

In light of brand image challenges faced by Intel currently, the company should also strategize a comprehensive market campaign aimed at the general end-user public in order to rebuild consumer trust and revitalize the brand's image and awareness, aggravated by Intel's technological stagnation and failure to seize recent opportunities. Additionally, a successful campaign would likely translate renewed trust into higher sales volumes, instill investor confidence and attract potential partners and collaborators. This could lead to additional funding opportunities, strategic alliances, and joint ventures, all of which could contribute to Intel's financial stability and long-term growth prospects.

Considering the current state of the semiconductor industry and general public knowledge, Intel's campaign should focus on the AI revolution and the company's role within it, drawing inspiration from one of the most successful campaigns in the semiconductor industry, Intel's "Intel Inside" campaign in the 90s upon the PC revolution. The parallels between the successful campaign and the potential campaign, now focused on the growth of AI in the public's ordinary life, are striking.

Just as in the 90s, when consumers were confused about which computer to buy amidst a sea of options, today's consumers are increasingly encountering AI-powered electronics in various aspects of their lives. However, understanding the implications, upsides, and downsides of AI technology can be daunting. To address this need, Intel's "Intel Inside, AI Everywhere" campaign can educate consumers about the role of AI in enhancing their everyday experiences and solving common problems. By targeting tech-savvy individuals who are not necessarily AI experts but are interested in staying informed about technological advancements, the campaign can position AI-enabled electronics as premium products offering superior performance, efficiency, and convenience compared to non-AI devices. Namely, Intel should focus on the "early adopters" of the technology adoption curve, bridging the gap between technological advancements and mass adoption in the market, and leveraging B2B client relationships to penetrate the B2C market successfully through the campaign.

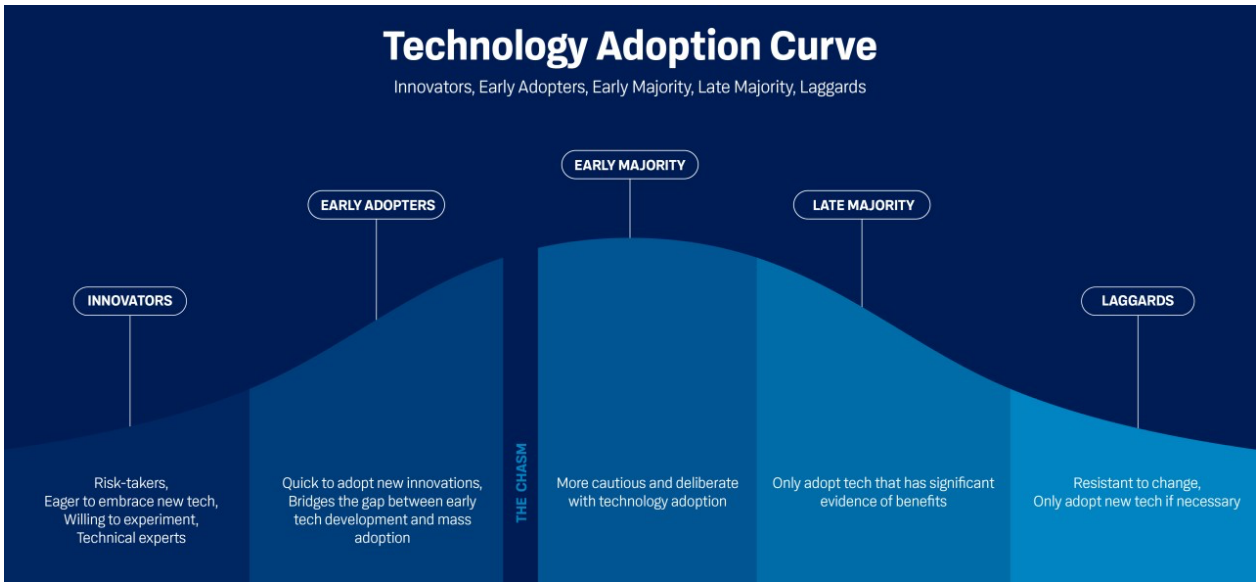


*Figure 7: The technology adoption curve (Source: https://www.linkedin.com/pulse/understanding-technology-adoption-curve-roadmap-success-uzopc/)*

The implementation of the campaign should draw on the successful strategies of the "Intel Inside" campaign, adapted to the context of AI technology. This includes concise, simplified and precise communication, utilizing slogans or catchphrases that succinctly convey the benefits of AI in everyday life. Additionally, the campaign can leverage sonic branding and the peak-end rule to create a lasting impression on consumers, incorporating recognizable sounds or music cues associated with AI technology. These strategies may also benefit from nostalgia marketing, which "creates a positive, emotional feeling by using familiar ideas, concepts, songs, symbols and products from previous years, associating a brand with something that customers have fond memories of" (Clark, 2023).

Intel should simplify complex AI terminology and showcase how AI-powered devices activated by Intel chips, with user-friendly features and interfaces, can enhance daily life just as PCs did in the 90s when individuals still had trouble in adapting to the technology. Furthermore,

by highlighting Intel's essential and traditional market presence through investments in R&D, strategic partnerships through co-op ads, and cutting-edge technologies, the campaign can rebuild confidence in the brand and instill a sense of pride and loyalty among consumers. Through targeted messaging, strategic differentiation, and multi-channel implementation, Intel can, through this campaign, position itself as a leader in the AI market and drive adoption of AI technology in daily life, improving its brand image and driving revenue growth.

The following budget plan outlines the resource allocation for the campaign, encompassing multiple advertising channels to maximize reach and impact.

| Category | Details | Budget |
|---|---|---|
| Channels | | |
| Digital | Social Media Ads | $4,000,000 |
| | Online Display Ads | $5,000,000 |
| Television | Production Expense | $1,500,000 |
| | Media Placement | $7,000,000 |
| Print | Magazine Ads | $1,500,000 |
| | Newspaper Ads | $750,000 |
| Co-op Ads (not accounted in campaign total budget due to percentual conditional) | | |
| Fund Allocation | 3% of sales to B2B chip customers who advertise Intel AI chips in their products | Assuming $60bn in sales, 3% allocation: $1,800,000,000 |
| Reimbursements | 50% of cost of co-op ads split with partners | Assuming client expenditure of $60,000, 50% reimbursement: $30,000 |
| Other | | |
| Market Research | | $2,500,000 |
| Promotional Events & PR | | $3,250,000 |
| | Total: | $25,500,000 |

Conclusively, the proposed marketing strategy for Intel addresses the significant challenges the company faces, including technological stagnation, heightened competition, and the need to regain consumer trust in light of the state of the industry's competitive macro-environment and taking into consideration factors discussed in the situational analyses. By focusing on sustaining current strengths in AI inference, edge computing, and foundry services, while implementing aggressive software development initiatives and launching a retail marketing campaign, Intel can reposition itself as a leader in the industry and regain its competitive edge.

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