

Engineering Virtue: A Virtue Ethics Analysis of Lisa Su’s Leadership at AMD (a Work in Progress)

Nathan Stryker Herrera, The University of Oklahoma

Dr. Kim Graves Wolfinbarger, The University of Oklahoma

Kim Graves Wolfinbarger is the director of the Jerry Holmes Leadership Program for Engineers and Scientists and an associate professor in the Engineering Pathways program at the University of Oklahoma. Her research explores leadership development among students majoring in engineering and related sciences. Dr. Wolfinbarger holds a PhD in Industrial and Systems Engineering, an MS in Industrial Engineering, and a BBA in Marketing, all from OU.

Engineering Virtue: A Virtue Ethics Analysis of Lisa Su's Leadership at AMD (a Work in Progress)

1.0 Introduction

In today's rapidly evolving technological landscape, the question of what defines effective leadership has become increasingly complex. Traditional leadership paradigms, rooted in charisma, strategic vision, or organizational power, often fail to capture the distinct qualities required to lead in highly technical industries [1]. As global challenges grow in complexity and the pace of innovation accelerates, leaders with backgrounds in engineering and science are rising to prominence [2].

This paper explores the nature of engineering leadership and its relationship to virtue ethics, using Dr. Lisa Su, the CEO of AMD, as a case study. Specifically, it applies Linda Zagzebski's exemplarist moral theory to analyze how Su's engineering background has shaped the virtues that define her leadership. Rather than evaluating her success through conventional performance metrics alone, this analysis will examine her moral and intellectual character traits to understand what kind of leader she is and what kind of leadership is needed in the contemporary technology-focused industry.

Before turning to the case of Lisa Su, however, it is essential to first define what makes engineering leadership distinctive. The following section introduces the theoretical and ethical foundations of engineering leadership by outlining its core values, such as public welfare, innovation, efficiency, sustainability, and collaboration. These values not only inform how engineers lead but also offer a starting point for identifying the virtues that emerge from this professional context. This foundation will provide the necessary lens for understanding Su's leadership through a virtue ethics framework in the sections that follow.

1.1 Defining engineering leadership

Engineering leadership is a distinct form of leadership that emerges from the technical, problem-solving, and ethical foundations of the engineering profession. While traditional leadership models often emphasize personal traits like charisma, vision, or influence, engineering leadership is more deeply rooted in technical expertise, methodical reasoning, and a responsibility to serve the public good. This practical and problem-centered orientation fundamentally shapes how engineering leaders approach decision-making and defines the values that underpin their actions [3]. In this context, engineering leadership is associated with several key values, including public welfare and safety, innovation through problem-solving, efficiency and optimization, sustainability, and collaborative problem-solving. These values serve as organizing principles that guide how engineers lead organizations, manage teams, and respond to real-world challenges.

One of the most prominent values in engineering leadership is public welfare and safety. This stems from the ethical obligations of the engineering profession, such as those outlined by

professional societies like the NSPE (National Society of Professional Engineers), whose first fundamental canon is to, “hold paramount the safety, health, and welfare of the public” [4]. Engineering leaders extend this commitment beyond technical design, often prioritizing the long-term societal implications of their decisions. Leaders aligned with this value advocate for products and systems that are not only effective but also safe, reliable, and ethically sound regardless of market pressures.

Another foundational value is innovation through problem-solving. Engineers are trained to approach challenges systematically, using analytical tools, modeling, experimentation, and iteration to develop optimal solutions. As such, engineering leaders are frequently drawn to continuous improvement and technical advancement. This value fosters a culture of curiosity, creativity, and resilience in the face of complexity [5].

Closely related is the value of efficiency and optimization. Engineering solutions are often evaluated based on their ability to balance performance, cost, and reliability. In leadership roles, this value may manifest in efforts to streamline operations, reduce waste, or improve systems performance. Rather than impulsive decision-making, engineering leaders tend to rely on data-driven evaluation, process refinement, and resource stewardship [5].

Sustainability has also become a central value in modern engineering leadership. With growing global concern over climate change and environmental degradation, engineers today are expected to factor long-term ecological impact into the design and execution of their work. This value expands beyond compliance to include responsible sourcing, energy efficiency, lifecycle management, and an ethic of stewardship over the planet’s resources.

Finally, collaborative problem-solving is a critical value shaped by the interdisciplinary nature of most engineering work. Rarely operating in isolation, engineers rely on teams that bring together diverse expertise to solve multifaceted problems. Engineering leaders are therefore more likely to foster flat team structures, interdisciplinary communication, and shared decision-making, emphasizing the value of collective intelligence over individual dominance.

It is important to note that while these values are integral to engineering leadership, they are not necessarily synonymous with virtues, though they may point toward them. Virtues are character traits or excellences of the person, such as wisdom, courage, or humility, whereas values are guiding principles or priorities. For instance, a commitment to public welfare may reflect the virtue of benevolence, while an emphasis on collaboration might reflect humility or justice. Scholars have explored the ethical dimensions of engineering practice, but the concept of engineering virtues as a distinct category remains an emerging area in leadership ethics. Further research is needed to map how professional values in engineering translate into stable character traits.

In sum, engineering leadership is defined by a set of values that reflect the profession’s technical, ethical, and collaborative foundations. These values serve as the theoretical basis for understanding how engineers lead. In later sections, this framework will serve to analyze how specific leaders, particularly those with engineering backgrounds, may embody or express these values in their decision-making and organizational impact.

1.2 Exemplarist moral theory

To analyze Lisa Su's leadership, I will apply an exemplarist framework, which emphasizes the direct observation of moral and intellectual virtues as they manifest in individuals. This approach provides several advantages: it allows for the identification of a master virtue, tests the unity of virtues, helps individuate specific virtues, examines the connection between intellectual and moral virtues, and reveals non-standard virtues that might not fit within traditional leadership models. In particular, I will draw on the heroes-saints-sages taxonomy developed by Linda Zagzebski [6] to categorize the types of exemplary virtues a leader may exhibit. This tripartite framework distinguishes between the hero, defined by boldness and strength of will, the saint, characterized by moral selflessness and benevolence, and the sage, marked by wisdom and intellectual clarity. By studying Lisa Su as an exemplar, I can map her leadership virtues across these archetypes, without being constrained by rigid classifications, allowing her actions and decisions to shape the understanding of her moral and professional character.

First, I will investigate whether Su's leadership is characterized by a master virtue: one overarching quality that governs her decision-making across different contexts. In many cases, corporate leaders are defined by a strategic vision or decisiveness, but in Su's case, it is worth exploring whether her leadership is best understood through *phronesis* (practical wisdom), a Confucian virtue like *ren* (benevolence), or another central guiding principle [6]. By examining her handling of AMD's financial recovery, technological innovation, and team leadership, I will assess whether her approach is rooted in a single governing virtue or a balance of multiple virtues.

Second, I will use her leadership to test the unity of virtues thesis – whether the virtues she exhibits are interconnected or function independently [6]. If her resilience in corporate restructuring is consistently accompanied by integrity and fairness, this would suggest a unified structure. However, if she exhibits certain virtues in strategic decision-making but not in other domains, it may indicate that her virtues are more situationally distinct. By analyzing moments of crisis and transformation under her leadership, I will determine how her virtues interact and whether they form a cohesive whole.

Third, I will use direct observation to identify the key virtues that define Lisa Su's leadership. Rather than relying solely on traditional leadership categories such as decisiveness, vision, and adaptability, I will examine whether her leadership reflects a unique combination of virtues. Her background as an engineer-turned-CEO may shape her leadership style in ways that are not captured by standard lists of leadership virtues.

Fourth, I will analyze the relationship between Su's intellectual and moral virtues. Given her role in a highly technical industry, it is crucial to examine how her intellectual strengths intersect with her ethical and interpersonal qualities. Does her scientific mindset reinforce her moral leadership, or are these aspects of her character separate? By studying her approach to corporate ethics, decision-making, and mentorship, I will assess whether intellectual and moral virtues are integrated in her leadership.

Finally, I will consider whether Lisa Su exemplifies virtues that do not have a conventional name. Just as MacIntyre identified *wancantognaka* in Lakota culture and Polansky identified the virtue of restraining one's powers [6], I will explore whether Su exhibits a leadership virtue that has not been explicitly defined in leadership literature. Perhaps her ability to navigate high-stakes technological shifts while fostering an environment of collaboration represents a distinctive form of leadership that is not captured by existing terminology.

By applying this framework, I aim to provide a nuanced and empirically grounded analysis of Lisa Su's leadership. This approach will not only reveal how virtues shape leadership but also demonstrate the power of exemplarist analysis in identifying, categorizing, and understanding moral and intellectual excellence in real-world figures.

2.0 Lisa Su: a leader in engineering

Dr. Lisa Su is an engineer and business executive known for her role in transforming the semiconductor industry through innovation and strategic leadership. Born in Taiwan in 1969 and raised in the United States, Su displayed an early curiosity for technology, often taking apart and reassembling electronics as a child. This passion led her to pursue electrical engineering at the Massachusetts Institute of Technology (MIT), where she earned her bachelor's, master's, and doctoral degrees. Her research at MIT focused on semiconductor materials and device physics, laying the foundation for her future contributions to the field [7].

2.1 Lisa Su before AMD

Su began her professional career at Texas Instruments in 1994, where she worked as a process engineer focused on developing thin-film technology for semiconductors. Although her time there was brief, it introduced her to the practical demands of large-scale chip fabrication. Later that year, she joined IBM, where her technical talents quickly became evident. Su initially worked in the IBM Research Division, concentrating on materials science and device physics, and she soon rose through the ranks due to her contributions [7].

Over her 12-year tenure at IBM, Su held various technical and managerial roles, culminating in her appointment as vice president of IBM's semiconductor research and development center in New York [7]. In this role, she oversaw a wide portfolio of projects related to chip design, materials innovation, and microelectronics manufacturing. She also gained experience managing cross-functional teams and collaborating with business units – an early indication of her ability to bridge technical and strategic domains. Su co-authored over 40 technical papers and earned a reputation as not only a brilliant engineer but also a leader capable of translating complex innovations into viable technologies. This phase of her career cemented her reputation as a semiconductor expert and laid the groundwork for her future leadership roles [7].

2.2 Lisa Su at AMD

In 2012, Lisa Su joined Advanced Micro Devices (AMD) as Senior Vice President and General Manager of Global Business Units at a time when the company was facing a severe financial and crisis. AMD was burdened with over \$2.5 billion in debt, struggling with declining revenues, execution failures, and rapidly losing market share to Intel and NVIDIA. Su was recruited by

former mentor and AMD board member Nick Donofrio, who acknowledged the company's dire state but believed in Su's capacity to lead under pressure. Rather than waiting for a cultural overhaul, Su took immediate action, outlining a three-pronged strategy to stabilize the business: build great products, deepen customer relationships, and simplify operations [7].

Her engineering-driven leadership quickly yielded results. Su refocused AMD on its core strength: high-performance computing, revamping the product roadmap around scalable Zen architecture and streamlining research and development efforts. This led to the launch of the Ryzen and EPYC processors, which reestablished AMD's competitive edge in consumer and enterprise markets. Strategic partnerships with original equipment manufacturers such as HP, Dell, and Lenovo strengthened AMD's position, while a timely pivot to manufacturing 7nm chips through TSMC allowed AMD to gain a process advantage over Intel. Su also championed internal alignment by creating the Radeon Technologies Group and emphasizing transparency, collaboration, and a culture of trust.

By 2017, AMD had reversed its fortunes by doubling its stock price, regaining market share, and securing major contracts, including U.S. government supercomputing projects. Under Su's leadership, AMD's market capitalization soared from under \$2 billion to over \$150 billion by the early 2020s. Beyond business performance, Su fostered a culture of mentorship and inclusion, supporting women leaders across AMD and advocating for diversity in STEM. Her approach, blending technical precision with principled leadership, exemplifies how resilience, focus, and ethical pragmatism can drive a company's, and a leader's, transformation [7].

3.0 Lisa Su as an exemplar of leadership

Lisa Su's leadership at AMD provides a compelling case study for analyzing virtue through an exemplarist lens. By examining her career, we can explore whether her leadership is guided by a master virtue, test the unity of her virtues, individuate distinct qualities that define her leadership, and assess the relationship between her intellectual and moral virtues. Furthermore, her actions can be categorized within the framework of hero, saint, and sage, three traditional moral archetypes, while also revealing virtues that do not fit neatly into these categories.

3.1 Lisa Su as a hero

The hero is defined by courage, perseverance, and a willingness to take risks in pursuit of a greater goal [6]. Lisa Su's leadership at AMD reflects these traits, particularly during the company's most vulnerable years. When she became CEO in 2014, AMD was struggling to stay afloat. The company was losing market share to competitors like Intel and NVIDIA, its stock was trading below \$3 per share, and some analysts speculated that bankruptcy was imminent. Instead of taking a cautious, incremental approach, Su made bold, high-risk decisions to redefine AMD's future [7].

One of the most defining moments of her heroism was her commitment to the development of the Zen architecture. At the time, AMD's processors were considered vastly inferior to Intel's, and it was unclear whether the company had the resources to create a truly competitive product. Betting AMD's future on a new CPU design was an immense gamble. If Zen had failed, AMD

might not have survived. However, Su's vision and perseverance ensured that the project moved forward despite financial constraints and skepticism from the tech industry. The eventual success of Zen in 2017, when AMD's Ryzen processors proved to be not only competitive but, in some cases, superior to Intel's offerings, marked one of the most surprising comebacks in semiconductor history. Before taking over, AMD was described as "uninvestable" [8]. A few years later, Su was receiving accolades left and right for her leadership.

Su's heroism also extended beyond technological innovation. She demonstrated immense perseverance when restructuring AMD's business strategy. The company was stretched thin, developing both CPUs and GPUs, and had to decide which markets to prioritize. Rather than retreating from competition, Su doubled down on high-performance computing and data centers, believing that AMD could carve out a niche against well-established giants. This decision was far from safe. It required long-term strategic patience and the ability to withstand years of uncertainty before seeing returns.

A crucial distinction here is the difference between courage and risk-taking. Risk-taking is a willingness to make uncertain moves that could result in great loss or great success, whereas courage involves the resolve to persist despite obstacles and fears. Some leaders take risks recklessly, hoping for quick rewards, but Su's risk-taking was calculated. She combined technical knowledge, industry insight, and strategic thinking to ensure that every major gamble, such as investing in Zen and competing in the high-end GPU market, was backed by a well-reasoned plan. This ability to take strategic risks without recklessness is a defining trait of heroism.

3.2 Lisa Su as a saint

While the hero is defined by bold action, the saint is characterized by compassion, selflessness, and an unwavering commitment to ethical principles. In the corporate world, where financial success is often prioritized over ethical concerns, saintly virtues are rare. However, Lisa Su has demonstrated moral leadership that goes beyond profit margins.

One of the most striking aspects of her leadership is her emphasis on collaboration and mentorship. Su has actively fostered an environment where engineers and employees feel valued. Under her leadership, AMD has consistently ranked highly in employee satisfaction surveys, and Su herself has been recognized for her efforts in supporting workplace diversity. She has been a vocal advocate for women in STEM fields, frequently emphasizing the importance of mentorship and equal opportunities.

Another example of Lisa Su's ethical leadership emerged during the global semiconductor shortage that intensified in 2020 and 2021 [9]. As companies across the world scrambled to secure a limited chip supply, Su resisted the temptation to focus solely on the most profitable markets. Instead, she took a balanced approach, continuing to serve both large corporate clients and the broader consumer base, particularly in the gaming and PC sectors. For instance, AMD maintained consistent shipment volumes of its Ryzen CPUs and Radeon GPUs, ensuring that supply was not entirely diverted to lucrative enterprise contracts. Su also publicly emphasized the importance of fair resource allocation and long-term partnerships, stating in interviews that

AMD was working closely with its manufacturing partners, including TSMC, to manage supply responsibly and transparently. Beyond AMD's internal decisions, Su became a prominent voice in public discussions about supply chain resilience. She participated in government-led forums, including meetings with U.S. officials, to help identify policy measures that could prevent future shortages, such as investment in domestic semiconductor production. Her engagement in these efforts went beyond corporate interest. It reflected a sense of civic responsibility and a commitment to systemic stability, reinforcing her reputation as a leader guided by ethical responsibility and public mindedness.

While she embodies many aspects of the saint, she does not sacrifice AMD's success for purely moral concerns, demonstrating that even ethical leaders must balance values with business imperatives. It is important to note that saintly virtues do not always align with the demands of corporate leadership. Su is not purely selfless as her primary responsibility is to ensure AMD's competitiveness and long-term success. While she often demonstrates moral clarity and ethical responsibility, she is also a highly strategic and pragmatic leader who makes bold, sometimes aggressive decisions to secure AMD's market position. For example, under Su's leadership, AMD made a decisive push into the high-performance computing market, directly challenging Intel's long-standing dominance. The launch of the Ryzen and EPYC processors was not only a technical feat but a calculated move to undercut Intel on both performance and price [7]. This competitive positioning was accompanied by assertive marketing and strategic partnerships, including high-profile wins with Microsoft and Sony for next-generation gaming consoles, which significantly expanded AMD's market share. In 2022, Su also led the \$49 billion acquisition of Xilinx, a bold move aimed at diversifying AMD's portfolio into adaptive computing and gaining ground in the data center and AI sectors. These decisions reflect a form of business pragmatism that prioritizes growth and innovation, even when it means engaging in intense industry competition. While she embodies many aspects of the saint archetype, Su does not sacrifice AMD's performance or strategic advantage for purely moral concerns. Instead, she exemplifies a form of ethical leadership that harmonizes values with clear-eyed business imperatives.

3.3 Lisa Su as a sage

The sage is defined by wisdom, intellectual humility, and the ability to see beyond immediate concerns to grasp deeper truths. Lisa Su's background as an engineer-turned-CEO positions her within this category. Unlike many executives who rise through finance or management, Su's deep technical expertise allows her to make decisions with a profound understanding of technology and its future trajectory.

One of the most evident examples of her sagacity is her early recognition of the importance of high-performance computing and AI-driven workloads. When she took over AMD, the company's market focus was not well-defined. Rather than chasing short-term profits in commodity markets, she strategically positioned AMD as a leader in high-performance computing, securing partnerships with major corporations and government projects. This foresight ensured AMD's long-term relevance in the industry.

Another trait of the sage is intellectual humility – the ability to acknowledge limits and adapt. Su has never relied solely on past successes; she continuously refines AMD’s strategy based on technological advancements and market shifts. A key example of this was her decision to re-enter the GPU market aggressively with the RDNA architecture. Despite AMD’s prior struggles in competing with NVIDIA, Su recognized that the demand for graphics processing was evolving, particularly in AI and machine learning. Rather than assuming past failures dictated the future, she made informed adjustments to AMD’s approach, demonstrating the adaptability of a sage.

A key question is whether a sage can be naive. While wisdom is a defining trait, even the most insightful leaders can face unforeseen challenges. Su, for instance, may have underestimated the speed at which AI-driven chip development would disrupt traditional semiconductor markets. AMD initially lagged behind NVIDIA in AI hardware development, a strategic oversight that the company is now working to correct. This highlights an important limitation of the sage archetype: wisdom does not equate to omniscience, and even the most forward-thinking leaders must contend with unexpected industry shifts.

3.4 Actions that do not fit the hero, saint, or sage frameworks

While Lisa Su embodies aspects of the hero, saint, and sage, not all of her actions fit neatly into these categories. Her strategic pragmatism, for example, does not align entirely with the hero’s relentless risk-taking, the saint’s selflessness, or the sage’s detached wisdom.

One example of this is her negotiation tactics. As in any industry, competition is fierce, and market positioning requires aggressive strategies. While Su has shown fairness and ethical leadership, she has also made bold moves that prioritize AMD’s dominance. For instance, AMD’s pricing and marketing strategies have at times been highly competitive, aimed at undercutting Intel and NVIDIA. These actions are neither reckless as a hero might be nor purely altruistic as a saint might be, but rather calculated maneuvers aimed at securing market share.

Lisa Su’s leadership approach exemplifies the analytical mindset often found in engineering leaders. While her style blends collaboration and decisiveness, what truly distinguishes her is the way she approaches decisions through data-driven analysis and rapid strategic prioritization. Upon joining AMD, for instance, Su was faced with a company in financial distress. Instead of following the Human Relations and Communications teams’ proposed six-month timeline to develop a formal mission and values statement, she assessed the urgency of AMD’s situation and decided it was not the optimal use of time or resources. Drawing on her technical orientation and need for clarity, she proposed a direct, streamlined strategy rooted in three clear objectives: build great products, deepen customer relationships, and simplify operations [8]. This decision reflects not just authority, but analytical reasoning under pressure.

Her analytical style continued in the execution of this turnaround. Su and her team conducted a deep analysis of AMD’s research and development roadmaps, concentrating resources on high-impact projects and consolidating the CPU architecture into a single scalable design, which later became the Zen architecture. She also formed a cross-functional committee of engineering and business leads to periodically review product direction, ensuring that AMD remained aligned with both market demands and technological feasibility. These actions illustrate a form of

leadership that is neither purely hierarchical nor egalitarian, but rather structured around iterative assessment, clear metrics, and continuous optimization. Through this lens, Su's leadership is best understood not as fitting a fixed archetype, but as a practical and analytical mode of decision-making that enabled AMD's transformation from near collapse to market competitiveness.

Another consideration is how her background as an engineer influences her leadership style. Unlike CEOs from finance or sales backgrounds, Su's decision-making is highly analytical. While this lends itself to sage-like wisdom, it also means that her leadership is shaped by data and technical expertise rather than purely philosophical or moral considerations. This pragmatic approach sometimes requires balancing short-term business realities with long-term vision, a challenge that does not fit neatly within traditional virtue archetypes.

3.5 Shifting between virtues throughout her career

Over the course of her career, Lisa Su has exemplified different virtues at different times. Early in her tenure at AMD, she was primarily a hero, taking bold risks to save the company. As she stabilized AMD's finances and established a strong market position, she increasingly embodied the sage, using her technical expertise and strategic insight to guide long-term growth. More recently, as a mentor and advocate for diversity in tech, she has exhibited the virtues of the saint, prioritizing the development of others and fostering a collaborative corporate culture. This evolution suggests that exemplary leadership is not static but dynamic, requiring different virtues at different moments. Su's ability to shift between these roles highlights the complexity of moral exemplarity and the necessity of context-dependent virtues in leadership.

3.6 Which archetype best defines Lisa Su?

If one archetype were to define Lisa Su's leadership most accurately, it would be the sage. While she has demonstrated heroism and saintly qualities, her defining strength lies in her ability to synthesize technical knowledge with strategic vision. Her leadership is not driven solely by risk-taking or moral self-sacrifice, but by wisdom, adaptability, and intellectual depth. Her decisions are consistently informed by a deep understanding of technology, markets, and human behavior, making her a quintessential example of a sage leader.

3.7 Limitations of the framework, and alternative exemplars

While the hero-saint-sage framework provides a useful lens for analyzing leadership, it is not without limitations. These three archetypes, while comprehensive in some respects, may not fully capture the nuances of modern corporate leadership. For example, contemporary executives must navigate a blend of technological, financial, and geopolitical challenges that require virtues beyond these traditional categories. This suggests that the hero, saint, and sage archetypes, while useful, do not fully capture the complexity of modern corporate leadership.

Perhaps a new category is needed: the *Strategist*, an exemplar who balances risk, ethics, and wisdom to achieve sustainable success. Unlike the hero, the strategist does not take risks for their own sake but calculates them carefully. Unlike the saint, the strategist does not act purely out of selflessness but seeks ethical solutions within business constraints. Unlike the sage, the strategist does not merely offer wisdom but actively shapes industry landscapes through forward-thinking

action. Lisa Su exemplifies this hybrid approach, blending courage, moral integrity, and technical insight into a leadership style that is uniquely suited to the complexities of the modern semiconductor industry.

Another alternative framework could include the *Innovator*, a leader defined by visionary creativity and transformative thinking. Su's role in spearheading AMD's technological resurgence aligns with this category, as her leadership is as much about foresight and ingenuity as it is about moral and intellectual virtues. By considering these alternative models, we gain a richer, more nuanced understanding of Lisa Su's leadership. While she aligns most closely with the sage, her ability to blend multiple virtues and adapt to changing circumstances suggests that exemplary leadership defies rigid classification.

4.0 The role of engineering

Lisa Su's background as an engineer has played a pivotal role in shaping her leadership style and the virtues she has demonstrated throughout her career. Unlike many corporate executives who come from business, finance, or management backgrounds, Su's foundation in electrical engineering has provided her with a distinct perspective on problem-solving, decision-making, and strategic thinking. This technical expertise has not only influenced the development of her virtues but has also shaped the prevalence of certain virtues over others in her leadership journey.

4.1 Precision and analytical thinking as the basis for wisdom

At its core, engineering is a discipline rooted in logic, problem-solving, and precision – qualities that naturally align with the virtues of the sage. Su's ability to approach complex problems with a methodical mindset has allowed her to make highly calculated decisions, whether in product development or corporate strategy. Her deep understanding of semiconductor physics and microprocessor design has given her an edge in an industry where technical knowledge is essential for long-term success.

This technical expertise has enhanced her intellectual virtues in several ways. First, it has instilled in her a commitment to evidence-based decision-making, ensuring that her leadership is guided by data and rational analysis rather than intuition or short-term impulses. Second, it has fostered intellectual humility – the recognition that no problem is solved in isolation and that innovation requires continuous learning. This aligns closely with Aristotelian *phronesis*, or practical wisdom, which is essential for navigating complex and evolving challenges.

4.2 Risk mitigation over recklessness in heroic virtues

While Lisa Su has demonstrated heroic qualities, such as resilience, bold vision, and perseverance, her engineering background appears to shape the way she expresses these traits. In *Exemplarist Moral Theory*, Zagzebski characterizes the hero not as reckless, but as someone who willingly undertakes risk for a worthy goal, even at personal cost. Heroic virtue involves moral courage and commitment in the face of adversity, but it does not exclude prudence or foresight.

Su's approach to risk aligns with this conception of heroism, though it is also distinctly shaped by the discipline of engineering. Engineers are trained to assess potential failure points, mitigate

unnecessary risk, and optimize outcomes – a mindset capable of tempering purely intuitive or impulsive action. For instance, when AMD was nearing collapse, Su’s pivot toward high-performance computing and advanced chip design was not without risk given the company’s financial fragility. However, it was not a blind leap; it was a strategic move grounded in Su’s technical expertise and her ability to interpret market trajectories. The development and successful launch of the Zen architecture exemplifies this. It was a high-stakes initiative, but it was executed through extensive internal analysis, resource prioritization, and architectural innovation.

In this sense, Su does not represent a departure from heroic virtue as Zagzebski defines it; rather, she exemplifies a form of heroism that is measured, analytical, and rooted in expert judgment. Her heroism is not diminished by this calculated approach, it is deepened by her ability to blend courage with wisdom, bold action with responsible risk management.

4.3 Pragmatic altruism instead of traditional saintly virtues

Engineering, as a discipline, places a strong emphasis on practical problem-solving and functional outcomes. As a result, the expression of saintly virtues in engineering leaders may look different from those in professions traditionally associated with altruism or moral care, such as social work or philanthropy.

Lisa Su’s commitment to mentorship, diversity, and corporate responsibility exemplifies what might be called *pragmatic altruism* [11], a form of ethical leadership that is both morally grounded and aligned with performance-based outcomes. For example Su emphasized that “the best way, and it’s not just about women, it’s about talent in general, is to give great people big opportunities and let them shine” in a 2024 interview [10]. Su’s advocacy for inclusive leadership extends beyond public statements. She has actively supported initiatives for women in technology, championed STEM education, and prioritized building an inclusive workplace culture. These efforts have contributed to AMD’s growing reputation as an ethical, forward-thinking company. Notably, Su rarely frames these commitments as isolated moral imperatives. Instead, she consistently connects them to AMD’s core business goals: innovation, talent retention, and global competitiveness.

Far from undermining the saintly dimension of her leadership, this integration of ethical and strategic thinking may actually strengthen it. According to Zagzebski, saintly virtue involves exceptional moral excellence, but it does not require the abandonment of practical concerns [6]. Su’s ability to embed ethical values within AMD’s long-term strategic vision represents a grounded form of saintliness: one that is not expressed through overt sentimentality, but through principled and pragmatic action. This example challenges assumptions that saintly virtue must be self-sacrificial or divorced from institutional success. In the context of engineering leadership, moral excellence may be most powerfully demonstrated when ethics and performance reinforce one another.

4.4 Why one virtue prevailed over others

Given Lisa Su's educational and professional background in electrical engineering, it is not surprising that she most clearly exemplifies the sage rather than the hero or the saint. Research suggests that professional training shapes not only technical competencies but also leadership dispositions [1]. For instance, engineers are often trained to value analytical thinking, precision, and systemic problem-solving [13], which aligns with the characteristics associated with sage leadership, such as wisdom, foresight, and the ability to navigate complexity [6].

By contrast, leaders with backgrounds in finance or business may be more likely to emphasize assertive decision-making and bold strategic positioning – traits aligned with the hero archetype. Studies have shown that MBA programs, for example, often prioritize risk-taking, competitive market dynamics, and shareholder value maximization [12]. Meanwhile, leaders who emerge from fields like social work, education, or human services tend to score higher on measures of empathy, care ethics, and moral attentiveness [12], aligning more closely with saintly virtues.

Su's dominance as a sage is consistent with the engineering emphasis on data-driven decision-making and system optimization. Her leadership is defined less by grandiose vision or emotive appeal and more by her ability to synthesize complex information, anticipate technological trends, and implement long-term strategies with precision. This is evident in her restructuring of AMD's product roadmap, her strategic focus on high-performance computing, and her measured yet effective response to industry-wide challenges like the semiconductor shortage.

While she has demonstrated elements of heroism in taking calculated risks during AMD's turnaround and saintliness in her ethical leadership and mentorship, her core virtue appears to be wisdom. Her decisions are marked not just by boldness or empathy, but by careful calibration – a hallmark of the sage.

4.5 The broader implications of an engineer as a leader

Lisa Su's career raises important questions about the relationship between technical expertise and executive leadership. While it may once have been more common for CEOs to emerge from business, law, or economics backgrounds, recent trends suggest a shift: nearly half of Fortune 500 CEOs now hold degrees in engineering or closely related technical fields [1]. This reflects a broader recognition that deep technical literacy is not only valuable but often essential for navigating the complexities of today's innovation-driven industries.

However, what distinguishes Su is not just that she's an engineer in the C-suite, but how her engineering mindset shapes her leadership virtues. Unlike some technical leaders who remain focused on product development or operational efficiencies [13], Su has integrated her technical acumen into high-level strategy, risk management, and even ethical decision-making. Her ability to synthesize complex data, anticipate technological shifts, and align those insights with organizational transformation positions her as a model for a new kind of executive, one who blends the wisdom of the sage with the pragmatism of an engineer.

Her leadership suggests that the exemplarist framework may need to evolve to account for new types of virtues shaped by specialized knowledge. In an era where artificial intelligence,

quantum computing, and biotechnology are shaping the future, the ability to combine technical expertise with strategic vision may become one of the most valuable forms of leadership. Future exemplar frameworks might include categories such as the *Technologist*, a leader who integrates scientific knowledge with practical decision-making, or the *Systems Thinker*, who excels at understanding and managing complex, interdependent structures.

4.6 Discussion

Lisa Su's leadership is most clearly aligned with the sage archetype, a result of how her engineering background has shaped her approach to decision-making. The analytical rigor, systems thinking, and iterative problem-solving that are core to engineering education naturally foster virtues like wisdom, prudence, and foresight. These virtues reflect underlying values such as precision, reliability, and long-term functionality, values that define Su's leadership just as much as her actions do.

This contrasts sharply with leaders from other professional domains, whose training and values may produce different virtue profiles. For example, Howard Schultz, the former CEO of Starbucks, came from a background in communications and sales [14]. His leadership often emphasized narrative-driven heroism and saintly values which portrayed Starbucks as a social movement rather than just a business, and himself as a moral entrepreneur [15]. Schultz prioritized expansive, sometimes idealistic visions of corporate responsibility, such as offering benefits to part-time workers or taking public stances on racial inequality [16]. These actions align more with virtues of moral courage and compassion, rooted in values like justice, empathy, and brand-driven identity-building.

By contrast, Su rarely relies on narrative or moral appeal to galvanize change. Instead, her leadership is defined by clarity, evidence-based decision-making, and technical understanding. Even when she champions values like mentorship or diversity, they are framed as strategic imperatives for strengthening AMD's capabilities, not simply as moral obligations. This difference reveals how professional training and value systems shape the kinds of virtues leaders cultivate and display. While Schultz used storytelling and emotion to lead a values-driven company culture, Su uses logic and systems-thinking to build a resilient one. Both are virtuous in distinct ways. Su's case reminds us that wisdom as a virtue doesn't just involve knowledge, but the disciplined application of that knowledge to complex systems, often in ways that resist easy moral or emotional appeals.

These distinctions matter because they highlight the interdependence of values and virtues. Virtues don't arise in a vacuum; they are informed by the values leaders prioritize, which are themselves shaped by disciplinary norms and professional training. Su's example doesn't just demonstrate a different kind of leadership; it underscores how the virtue of wisdom is cultivated through a value system that prizes insight over instinct, clarity over charisma, and precision over persuasion.

5.0 Conclusion

Lisa Su's leadership at AMD exemplifies the dynamic interplay between wisdom, heroism, and saintly virtues, shaped by her background as an engineer. Through a meticulous analysis of her career, it is evident that while she has demonstrated qualities from all three monolithic categories, she most closely aligns with the sage archetype. Her technical expertise has allowed her to make highly informed decisions, her calculated risk-taking has driven AMD's resurgence, and her pragmatic approach to leadership has fostered an ethical and inclusive corporate culture.

One of the most significant takeaways from Su's leadership is the importance of technical knowledge at the executive level. In an era where industries are becoming increasingly driven by innovation, leaders who can bridge the gap between technical expertise and strategic vision may prove to be the most effective. Su's career challenges the notion that corporate success is solely the domain of those from business or financial backgrounds, instead highlighting the growing need for leaders who understand the complexities of the technology that drives their industries.

Furthermore, her leadership suggests that the exemplarist framework may need to evolve beyond the traditional categories of hero, saint, and sage. Su does not fit neatly into any one category but instead represents a new kind of leader – one who integrates analytical thinking, calculated risk-taking, and ethical pragmatism. Future frameworks might consider new archetypes, such as the *Technologist* or *Systems Thinker*, to better account for leaders emerging in highly specialized fields.

Ultimately, Lisa Su's career serves as a compelling case study in modern leadership, demonstrating that intellect, strategy, and adaptability are just as crucial as boldness and moral conviction. Her impact extends beyond AMD, setting a precedent for the future of leadership in the tech industry and beyond. As the business landscape continues to evolve, Su's legacy will stand as an example of how expertise, vision, and resilience can transform not only a company but an entire industry.

References

- [1] G. M. Warnick, B. Prowse, W.-L. Mook, and A. Beng, "Overview and Challenges in Developing a Comprehensive Leadership Development Program in a Fortune 500 Company," *2021 ASEE Virtual Annual Conference Content Access Proceedings*, Feb. 2024, doi: <https://doi.org/10.18260/1-2--37554>.
- [2] J. Yang and F. Feng, "Engineer CEOs and Corporate Innovation," *Journal of Applied Finance & Banking*, vol. 10, no. 6, pp. 1792–6599, 2020.
- [3] M. R. Kendall and C. Rottmann, "Student leadership development in engineering," *New Directions for Student Leadership*, vol. 2022, no. 173, pp. 7–12, 2022, doi: <https://doi.org/10.1002/yd.20474>.

- [4] National Society of Professional Engineers, *Code of Ethics for Engineers*, Jul. 2019. <https://www.nspe.org/sites/default/files/resources/pdfs/Ethics/CodeofEthics/NSPECodeofEthicsforEngineers.pdf>.
- [5] C. Rottmann, R. Sacks, and D. Reeve, "Engineering leadership: Grounding leadership theory in engineers' professional identities," *Leadership*, vol. 11, no. 3, pp. 351–373, 2015, doi: <https://doi.org/10.1177/1742715014543581>.
- [6] Linda Trinkaus Zagzebski, *Exemplarist Moral Theory*. Oxford University Press, 2017.
- [7] S. Kumari and J. Nair, "Lisa Su's strategic leadership: Will she change her approach post Xilinx and Pensando acquisitions?" *The Case for Women*, pp. 1–27, Sep. 2023, doi: <https://doi.org/10.1108/cfw-07-2022-0020>.
- [8] L. Dishman, "How this CEO avoided the glass cliff and turned around an 'uninvestable' company," *Fast Company*, Sep. 11, 2018. <https://www.fastcompany.com/90229663/how-amds-ceo-lisa-su-managed-to-turn-the-tech-company-around>.
- [9] D. Bigman, "CEO Of The Year: A Conversation With AMD's Revolutionary Lisa Su," *ChiefExecutive.net*, Oct. 23, 2024. <https://chiefexecutive.net/ceo-of-the-year-a-conversation-with-amds-revolutionary-lisa-su/>.
- [10] A. Javed, "Lisa Su on AMD's Strategy for Growth and the Future of AI," *Time*, Sep. 29, 2024. <https://time.com/7026241/lisa-su-amd-ceo-interview/>.
- [11] P. Prasarnphanich and C. Wagner, "The role of wiki technology and altruism in collaborative knowledge creation," *The Journal of Computer Information Systems*, vol. 49, no. 4, pp. 33–41, 2009.
- [12] K. S. Cameron, D. Bright, and A. Caza, "Exploring the Relationships between Organizational Virtuousness and Performance," *American Behavioral Scientist*, vol. 47, no. 6, pp. 766–790, 2004, doi: <https://doi.org/10.1177/0002764203260209>.
- [13] S. Maslen, J. Hayes, S. Holdsworth, and O. Sandri, "When Ethics is a technical matter: engineers' strategic appeal to ethical considerations in advocating for system integrity," *Science and Engineering Ethics*, vol. 27, no. 4, p. 46, 2021, doi: <https://doi.org/10.1007/s11948-021-00324-7>.
- [14] Simmons, J. "Howard's way." *RSA Journal*, vol. 151, no. 551, pp. 22–23, 2004.
- [15] Rippin, A. "Space, place and the colonies: re-reading the Starbucks story. *Critical Perspectives on International Business*, vol. 3, no. 2, pp. 136–149, 2007, doi: <https://doi.org/10.1108/17422040710744944>.
- [16] C. Toller, "THE CASE FOR... Playing the race card," *Canadian Business*, vol. 88, no. 4, p. 20, 2015.