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Texas Instruments

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Introduction

Texas Instruments: The Story of An American Company traces the remarkable journey of a pioneering technology company whose innovations have transformed not only the American industrial landscape but also the modern world. From its humble beginnings in geophysical services to its rise as a global semiconductor powerhouse, Texas Instruments (TI) embodies the spirit of invention, adaptability, and perseverance that characterizes the most enduring American enterprises.

This book presents an authoritative account of TI's origins and evolution, beginning with its foundation as Geophysical Service Incorporated (GSI) in the early twentieth century. As the company navigated the demands of oil exploration and the seismic shifts of World War II, it continually reinvented itself, capitalizing on new opportunities in electronics and emerging technologies. The transition from GSI to the newly minted Texas Instruments in the 1950s set the stage for decades of groundbreaking achievements. The introduction of the commercial silicon transistor and the invention of the integrated circuit by Jack Kilby not only cemented TI's role as a technological leader but also revolutionized entire industries.

The chapters ahead chronicle a series of pivotal moments: from the production of the world's first portable transistor radio to advancements in computer logic chips, calculators, and consumer electronics. TI's commitment to research and innovation propelled it into new markets, including the invention and commercialization of Digital Light Processing (DLP) technology—a development that shaped visual media and entertainment. Strategic acquisitions, like those of Burr-Brown and National Semiconductor, positioned Texas Instruments as the dominant force in analog technology, further strengthening its impact in the semiconductor domain.

Amid cycles of technological disruption, competitive pressures, and strategic refocusing—including a decisive exit from the defense business—TI has demonstrated a consistent ability to adapt, diversify, and thrive. The company's focus today on analog and embedded processing not only reflects market realities but also its vision for meeting the needs of a data-driven, interconnected world. Its educational technology products underscore an ongoing commitment to supporting students and educators, while its emphasis on environmental sustainability and responsible business practices speaks to a broader sense of corporate citizenship.

As we explore the history, present circumstances, and future prospects of Texas Instruments, this book aims to provide valuable insights not only for business and technology enthusiasts, but for anyone interested in how American innovation continues to shape the global future. Through stories of breakthrough inventions,

leadership, setbacks, and remarkable recoveries, the chronicle of Texas Instruments offers a window into the dynamic forces at work in modern industry—and the enduring influence of a company that calls Dallas, Texas, its home.

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CHAPTER ONE: The Geophysical Service Origins: Foundations in Oil Exploration

The story of Texas Instruments, a company synonymous with semiconductors and digital innovation, doesn't begin in a gleaming electronics laboratory or with the hum of silicon chip fabrication. Instead, its genesis is found deep beneath the earth's surface, amidst the rugged terrain of oil exploration. The year was 1930, a time when the world was grappling with the Great Depression, yet the relentless pursuit of energy, particularly oil, drove innovation in unexpected corners. It was in this environment that Geophysical Service Incorporated (GSI) was born, laying the foundational bedrock for what would eventually become Texas Instruments.

GSI was the brainchild of two visionary individuals, John Clarence Karcher and Eugene McDermott. Their expertise lay in seismography, a then-emerging science that promised to revolutionize the way oil and gas deposits were located. Prior to this, wildcatters often relied on intuition, surface observations, or sheer luck in their quest for black gold. Seismography, however, offered a more scientific and systematic approach, using carefully generated seismic waves to map subsurface geological structures. Karcher and McDermott, recognizing the immense potential of this technique, established GSI to provide specialized seismographic services to the burgeoning petroleum industry.

The core of GSI's early operations revolved around seismic exploration. This involved creating small, controlled explosions at the surface, sending shockwaves deep into the earth. These waves would then reflect off different geological layers and return to the surface, where they were detected by sensitive instruments called geophones. By analyzing the time it took for the waves to return and their characteristics, GSI's geophysicists could construct a detailed picture of the underground formations, identifying anticlines, salt domes, and other structures often associated with oil and gas traps. It was a painstaking process, requiring meticulous data collection and interpretation, but it offered a far higher probability of success than previous methods.

GSI quickly established itself as a leader in this specialized field, providing crucial services to oil companies desperate to minimize the risks and maximize the efficiency of their drilling operations. The demand for accurate geological mapping was immense, especially as the industry pushed into new and more challenging territories. GSI's teams, equipped with their specialized knowledge and growing arsenal of seismic equipment, traversed diverse landscapes, from the oil fields of Texas and Oklahoma to international ventures. Their work was vital, acting as the subsurface cartographers for an industry that fueled the rapidly industrializing world.

By 1939, GSI's growing prominence led to a corporate reorganization. The company was re-established as Coronado Corp, with GSI itself becoming a subsidiary. This structural change reflected the expanding scope and ambition of the enterprise, even as its core business remained rooted in geophysical exploration. The leadership understood that their expertise in sensing and interpreting signals, even if those signals were seismic waves rather than electronic pulses, held broader implications for future technological development.

A pivotal moment in GSI's early history, and indeed for the future trajectory of what would become Texas Instruments, occurred on December 6, 1941. Just one day before the attack on Pearl Harbor plunged the United States into World War II, a significant ownership change took place. Eugene McDermott, along with three other key GSI employees - Cecil H. Green, J. Erik Jonsson, and H. B. Peacock - purchased GSI. This acquisition marked a crucial consolidation of ownership and vision among individuals who would play instrumental roles in guiding the company through its next transformative phase. It was a testament to their belief in GSI's capabilities and their foresight regarding the evolving technological landscape. Little did they know that the impending global conflict would dramatically redirect GSI's path, shifting its focus from the quiet depths of oil exploration to the dynamic world of defense electronics.

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