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A NEW ERA IN CANCER CARE: SIEMENS HEALTHINEERS´ TRANSFORMATIVE ACQUISITION OF VARIAN – STRATEGIC RATIONALE AND SYNERGY EXPLORATION

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Abstract

This case study examines the potential acquisition of Varian Medical Systems by Siemens Healthineers, focusing on its strategic rationale, financial valuation, and payment structures. It explores the possible integration of Varian's cutting-edge oncology solutions with Siemens' advanced diagnostic and imaging technologies to create a comprehensive cancer care ecosystem. By utilizing frameworks such as SWOT, Porter's Five Forces, and valuation models, the study highlights anticipated synergies in market expansion, innovation, and revenue growth. Furthermore, it evaluates the financing strategy, assessing its potential impact on leverage, shareholder value, and operational liquidity, offering a holistic analysis of the transaction's implications.

Keywords

M&A, Corporate Finance, MedTech, Oncology, Cancer Care Innovation, Financial Analysis, Siemens Healthineers, Varian Medical Systems, Strategy, Synergies, Valuation, Payment Methods

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Table of Contents

Table of Exhibits:

Introduction

On August 2, 2020, Bernd Montag considered the possibility of acquiring Varian Medical Systems (hereinafter referred to as “VMS” or “Varian”). At that time, VMS’s market value was around $13 billion. Executing the deal could represent a significant step for Siemens Healthineers (subsequently referred to as “SHL” or “Siemens”), positioning the company as a formidable player in the global healthcare technology market. While SHL was already a well-established leader in imaging, diagnostics, and healthcare solutions, acquiring VMS, a leader in cancer treatment and therapy, could provide a distinctive opportunity to expand its reach into oncology, a critical area in healthcare.

For Montag, the CEO of SHL, the potential acquisition represented more than a strategic expansion; it could signify an opportunity to transform the company’s long-term trajectory by entering the high-growth cancer treatment market. Although SHL had achieved stable growth and profitability within its existing segments, the VMS acquisition might raise numerous questions: How would this substantial investment impact Siemens' financial health? What payment structure would best support the acquisition while avoiding over-leveraging or diluting shareholder value? Most importantly, would the anticipated synergies justify the high acquisition premium?

If the acquisition proceeds, SHL may encounter significant financing needs and must carefully evaluate the implications of each available option. Would a cash payment strain operational liquidity? Could debt financing undermine its credit profile? Alternatively, would an equity issuance best support long-term growth despite the risk of shareholder dilution? Considering these factors, Montag and the SHL leadership team face critical decisions that could shape not only the company’s financial structure but also investor confidence and the market’s perception of its future in oncology.

This case study examines the costs and benefits of the acquisition and evaluates its viability, including the strategic fit, intrinsic valuation, and terms necessary for finalizing the deal. These decisions could ultimately shape SHL's growth trajectory, its role in advancing cancer care, and its position in the competitive global healthcare industry.

Company Background & History

Siemens Healthineers

Siemens Healthineers, a leading global provider of healthcare solutions and services, operates across numerous countries through its parent company, Siemens Healthineers AG, headquartered in Munich, Germany, along with its subsidiaries. The company traces its origins to Siemens & Halske, originally named "Telegraphen-Bauanstalt von Siemens & Halske," which was established in October 1847 by Werner von Siemens (1816-1892) and Johann Georg Halske (1814-1890). Werner von Siemens, a visionary 19th-century inventor, transformed the electrical industry with pioneering innovations such as the pointer telegraph and the dynamo-electric principle (Siemens 2017). These advancements laid the groundwork for modern electrical engineering and included milestones like Europe's first long-distance telegraph line, the world's first electrically powered railway in 1879, and the first electric tram system in 1881 (Siemens 2013).

Despite increasing competition, Siemens consistently expanded its innovative capabilities. In 1933, the company entered the medical technology sector by acquiring Reiniger, Gebbert & Schall AG, forming Siemens-Reiniger-Werke AG (Siemens 2019), which marked the beginning of Siemens' specialization in medical advancements.

Following World War II, Siemens underwent significant restructuring, merging Siemens & Halske, Siemens-Schuckertwerke, and Siemens-Reiniger-Werke in 1966 to establish Siemens AG, which became the foundation for its operations. By 1975, Siemens had

made significant strides in medical technology with the introduction of computed tomography (CT) technology, an advanced imaging method combining X-rays and computer technology to create detailed internal body images. That same year, Siemens launched its first CT head scanner, Siretom, followed by the release of the first full-body CT unit, SOMATOM, in 1977 after three years of further development (Siemens Healthineers 2015).

In 1989, Siemens reorganized into smaller independent units to enhance transparency and responsiveness to market demands. Despite facing challenges such as a major corruption scandal in the early 2000s, Siemens demonstrated resilience through robust reforms and a renewed focus on sustainability, automation, and digitalization. By 2015, the company committed to becoming climate-neutral by 2030, achieving significant reductions in CO2 emissions by 2020.

In May 2014, Siemens' CEO Joe Kaeser announced plans to establish the medical technology division as a separate entity. This vision materialized in 2016, when the healthcare sector was rebranded as Siemens Healthineers, underscoring its focused expertise in medical technology. In 2018, Siemens Healthineers AG went public on the Frankfurt Stock Exchange through an initial public offering (IPO), marking a pivotal step toward independence and sustained growth.

With a diverse product portfolio encompassing imaging, diagnostics, and advanced therapies, Siemens Healthineers offers extensive services such as consulting, maintenance, operational management, and training. Today, the company is recognized as a pioneer in healthcare innovation, committed in its mission to revolutionize care delivery and enhance patient outcomes globally.

Varian Medical Systems

Varian Medical Systems, Inc. was founded in 1948 by brothers Russell and Sigurd Varian in California. The company initially specialized in advanced radar and microwave tube technologies, such as the V-42 Klystron, which were pivotal for defense and communications during that era. By the late 1950s, Varian had grown significantly, becoming publicly traded on the New York Stock Exchange in 1959. In 1960, the company made a pivotal shift toward healthcare by introducing the Clinical 6 medical linear accelerator, demonstrating the effectiveness of linear accelerators (LINACs[1]) in treating cancer. This strategic move provided the opportunity for Varian's eventual leadership in oncology and radiation therapy (Varian Medical Systems, Inc. n.d.).

Throughout the 1960s, Varian sought innovation and diversification, acquiring radio tube manufacturer Eitel-McCullough and establishing a division for minicomputers. The commercialization of its first medical linear accelerator boosted the profitability of its oncology division and solidified its focus on cancer care. Simultaneously, Varian contributed to non-medical fields, such as space exploration, with ion pumps that supported the 1969 moon landing (Varian Medical Systems, Inc. n.d.).

In the 1970s, Varian expanded its healthcare innovations, developing a full-body CT scanner, which was later sold to General Electric. The 1980s marked significant breakthroughs, including the launch of the Clinical 2500, the first linear accelerator with dual-energy capabilities, and the multileaf collimator (MLC) in 1990, which enhanced the precision of radiation therapy by shaping beams to match tumor contours. By the 1990s, the company introduced PortalVision, enabling real-time beam verification, and

[1] A linear accelerator accelerates charged particles to high energies, producing beams capable of targeting and destroying cancerous tissue (U.S. Department of Energy, 2014).

VARIS, a software solution for radiation therapy management (Varian Medical Systems, Inc. n.d.).

As Varian entered the late 1990s and early 2000s, it continued to innovate and expand globally. The Clinac EX series of linear accelerators, SmartBeam™ IMRT, and the acquisition of GammaMed boosted its offerings in radiotherapy. The introduction of Dynamic Targeting IGRT improved treatment accuracy through enhanced patient positioning, and RapidArc Radiotherapy significantly reduced treatment times.

A key milestone came in 2010 with the launch of the TrueBeam system, which advanced radiotherapy and radiosurgery. Subsequent innovations like the Edge radiosurgery suite and HyperArc HDRT further established Varian as a leader in oncology software and systems, with its ARIA and Eclipse platforms adopted globally. The company also strengthened its position in proton therapy through the acquisition of ACCEL Instruments and advancements in intensity-modulated proton therapy (IMPT) (Varian Medical Systems, Inc. n.d.).

In the late 2010s, Varian embraced AI and cloud-based technologies to enhance personalization and efficiency in cancer care. Acquisitions like Noona Healthcare in 2018 and the launch of Ethos therapy in 2019 exemplified this approach. Thus, all these important milestones in Varian's history allowed the company to solidify its role as a global leader in cancer treatment innovation (Zippia n.d.).

Portfolio of Products

Siemens Healthineers Portfolio of Products

Siemens operates through three primary segments: Imaging, Diagnostics, and Advanced Therapies.

The Imaging segment specializes in developing and delivering advanced imaging systems and solutions to healthcare providers, enabling the visualization of internal body structures for clinical analysis, diagnosis, treatment planning, and monitoring. Its product portfolio includes magnetic resonance imaging (MRI), computed tomography (CT), radiography equipment, molecular imaging systems, and ultrasound machines. MRI, a non-invasive imaging technique, creates detailed images of internal structures, including organs, tissues, and other anatomy (National Institute of Biomedical Imaging and Bioengineering, 2019a). Siemens Healthineers offers a range of MRI products, including 1.5T, 3T, 7T MRI scanners, and MR-PET scanners (Molecular MRI). Exhibit 1 provides details on the fifteen MRI systems available from Siemens Healthineers.

CT uses X-rays and advanced computer processing to produce detailed, cross-sectional images of the body. These tomographic images provide a three-dimensional view of internal structures, supporting accurate diagnosis and treatment planning (National Institute of Biomedical Imaging and Bioengineering, 2019b). Exhibit 2 outlines the CT scanners available from Siemens Healthineers. Exhibit 3 provides summaries of radiography equipment, molecular imaging systems, and ultrasound machines.

The Diagnostics segment offers laboratory, molecular, and point-of-care solutions to enable accurate, timely, and efficient medical testing. The portfolio covers a range of disciplines, including immunochemistry, hematology, urinalysis, and molecular PCR testing. Exhibit 4 provides an overview of the Diagnostics portfolio available from Siemens Healthineers.

Lastly, the Advanced Therapies segment delivers innovative technologies to support minimally invasive procedures and image-guided therapies. Its products are designed for applications in cardiology, interventional radiology, surgery, and radiation oncology.

This segment includes angiography systems and mobile C-arms, summarized in Exhibit 5.

Varian Medical Systems Portfolio of Products

Varian Medical Systems operates through two main segments: Oncology Systems and Proton Solutions (PS).

The Oncology Systems segment designs, manufactures, sells, and services hardware and software solutions for cancer treatment, including conventional radiotherapy and advanced modalities such as fixed-field intensity-modulated radiation therapy (IMRT), image-guided radiation therapy (IGRT), volumetric modulated arc therapy (VMAT), stereotactic radiosurgery (SRS), stereotactic body radiotherapy (SBRT), artificial intelligence (AI)-driven adaptive radiotherapy (ART), and brachytherapy, along with quality assurance equipment (Varian Medical Systems, Inc. 2019).

The hardware portfolio includes linear accelerators (LINACs), which deliver conventional and advanced treatments (IMRT, IGRT, VMAT, SRS, SBRT, ART), as well as brachytherapy machines. Varian's LINAC offerings include TrueBeam®, EDGE®, Clinac® iX, Trilogy®, UNIQUE™, Ethos™ Therapy, and the Halcyon™ treatment system. The brachytherapy portfolio comprises the VariSource™ HDR and GammaMedplus™ iX HDR/PDR afterloaders, the BrachyVision™ treatment planning system, the VariSeed™ LDR prostate planning system, the Vitesse™ software, and the Bravos™ system (Varian Medical Systems, Inc. 2019). Exhibit 6 and Exhibit 7 provide an overview of the LINAC and brachytherapy portfolios of VMS.

The software products support and optimize various stages of cancer treatment and clinical workflows. This portfolio includes treatment planning tools (Eclipse™ and RapidPlan®), oncology information systems (ARIA®, FullScale™, and Varian

Treatment™), analytics software (Insightive™ and Velocity™), oncology platforms (OncoPeer™ and 360 Oncology®), and additional solutions (Qumulate™ and Noona®). Exhibit 8 provides an overview of the software products.

The Proton Solutions segment develops, designs, manufactures, sells, and services systems for delivering proton therapy. These systems utilize proton beams, a precise form of external beam radiotherapy, to effectively target tumors while minimizing damage to surrounding healthy tissues. The portfolio includes the ProBeam® system, ProBeam® Compact, and ProBeam® 360°. Exhibit 9 provides an overview of the PS products.

Mission and Vision

Siemens Healthineers

Siemens Healthineers mission is to support healthcare providers to increase value through the expansion of precision medicine, the transformation of care delivery, the enhancement of patient experience, and the digitalization of healthcare (World Economic Forum n.d.).

In line with its mission, Siemens' vision is to pioneer breakthroughs in healthcare that benefit everyone, everywhere, in a sustainable manner. The company aims to assist healthcare professionals in delivering high-quality care through continuous innovation, leading to optimal patient outcomes (Siemens Healthineers n.d.a).

Varian Medical Systems

The mission of VMS is to bring together the world's best talent to succeed in the ongoing mission to save lives. The organization focuses on developing and delivering efficient, easy-to-use, and cost-effective oncology solutions that make a tangible difference in cancer treatment. This mission is driven by a passion for improving patient outcomes and advancing cancer care globally (Varian Medical Systems, Inc. 2019).

The vision of Varian Medical Systems is to imagine a world without the fear of cancer. By innovating new technologies and fostering collaboration among clinical teams, Varian aims to empower healthcare professionals and patients in the fight against cancer. The organization envisions a future where advancements in cancer treatment lead to new victories, ultimately reducing the impact of cancer on people's lives (Varian Medical Systems, Inc. 2019).

Industry Analysis

The global healthcare industry encompasses organizations, technologies, and services dedicated to advancing health worldwide, including medical care, pharmaceuticals, medical devices, public health, and health financing. Similarly, the medical technology (MedTech) industry, as a key component of the healthcare sector, focuses on the development, manufacturing, and distribution of devices and equipment designed to diagnose and treat diseases, monitor health, and enhance healthcare delivery. These products range from surgical instruments, imaging systems, and implants to wearable health devices, diagnostic tests, and digital health tools, including telemedicine platforms and AI-driven technologies.

In recent years, both industries have undergone significant transformations, driven by advancements in technology and evolving global healthcare needs (Allen 2020). In 2018, global health spending reached $8.3 trillion, accounting for approximately 10% of global GDP (World Health Organization 2020c). This growth, while steady, had slowed, with GDP growth surpassing health spending for the first time in five years. Despite this slowdown, healthcare spending was projected to grow at a compound annual growth rate (CAGR) of 5% between 2019 and 2023, rebounding from a 3.2% growth rate in 2019, which had slowed down from 5.2% in 2018 (Allen 2020). In addition to the existing challenges, the COVID-19 pandemic further intensified the need for advanced healthcare

solutions (Cohen, Furstenthal, and Jansen 2020). However, it also served as a catalyst for innovation, particularly in telehealth and digital health, with telehealth usage soaring from 11% of consumers in 2019 to 46% by April 2020, reflecting the industry's growing dependence on digital solutions.

The MedTech industry experienced similar growth. Between 2018 and 2019, revenues grew by 7%, reaching a record total of $407.2 billion and marking three consecutive years of expansion (Spence, Welch, and Babitt 2019). However, the industry's long-term outlook faced potential risks due to insufficient investment in R&D and a lack of collaboration among key stakeholders. Despite a positive rebound in R&D spending, which increased by 11% in 2018, following a challenging 2017, uncertainties persisted regarding the sustainability of this growth, with companies returning more cash to shareholders than reinvesting in research.

SHL, as a leading global provider in imaging, diagnostics, and innovative therapy systems, solidified its position as a key player in the MedTech industry by generating €14.5 billion in revenue in 2019, marking a 6% growth compared to the previous year (Siemens Healthineers 2019b). Additionally, the company strongly invested in R&D, spending €1.3 billion in 2019, up from €1.28 billion in 2018.

As previously mentioned, the healthcare industry was experiencing substantial digital transformation, with AI and data analytics playing an increasingly crucial role (Siemens Healthineers 2019b). SHL capitalized on these trends by integrating AI into its diagnostic tools to improve accuracy and efficiency. Furthermore, SHL was advancing in robotics and minimally invasive surgical technologies, which aligned with global healthcare demands for more cost-effective and precision-based solutions. This push toward personalized medicine and the use of connected devices for remote patient monitoring positioned the company well within the industry.

These advancements in healthcare and MedTech directly intersect with the growing global oncology industry. Valued at over $142 billion in 2019, with a CAGR of 15.4% since 2000, oncology has become the leading therapeutic area (GlobalData 2020). Cancer treatment, particularly in the areas of immunotherapy and targeted therapies, had been a primary driver of growth (Aitken et al. 2019). Likewise, spending on cancer treatment reached nearly $150 billion in 2018, driven by rising cancer incidences and advancements in treatment options, marking the fifth consecutive year of double-digit growth.

VMS is a central player in the oncology market, particularly known for its leadership in radiation therapy and proton therapy (Varian Medical Systems, Inc. 2019b). The company had an outstanding fiscal year in 2019, achieving multiple operational records and reporting double-digit revenue growth for the second consecutive year. Specifically, oncology system orders grew by 9%, and the company's investment in R&D reached 8% of revenue, signaling its commitment to driving innovation.

This success is further supported by VMS's unique position at the intersection of healthcare and medical technology, where its specialization in precision oncology positions the company as a key player in both industries (Varian Medical Systems, Inc. 2019b). By offering advanced solutions, such as radiation and proton therapy, VMS thrives as data-driven approaches become increasingly essential in cancer treatment (Aitken et al. 2019).

Competitive Analysis

Siemens Healthineers is a global leader in the medical technology industry, specializing in the development, manufacturing, and sale of imaging, diagnostic, and advanced therapy products and services. Headquartered in Germany, with major operations in the US and China, the company operates in over 70 countries worldwide.

Similarly, Varian Medical Systems is a leading provider of radiotherapy and cancer care solutions, operating in the MedTech industry, characterized by rapid technological advancements and substantial investment in robotics and AI.

This analysis examines the major competitors of Siemens Healthineers and Varian, situating both companies within the broader trends and forces shaping the MedTech industry, which has experienced continuous growth and innovation over recent years. The continuous growth of the industry over the past three years has been consistent, particularly in regions such as the United States and Europe, which are home to some of the most influential players in the sector.

The United States accounts for approximately 41.6% of the global MedTech market capitalization (MedTech Europe 2021), solidifying its position as the largest regional contributor. US companies have consistently led in innovation, with AI algorithms in healthcare receiving regulatory approval and robotic surgery platforms securing a growing share of venture funding. In 2019 alone, robotic surgery attracted investments exceeding $6 billion. Moreover, the U.S. remains the leader in MedTech exports, benefiting from its established ecosystems and leading-edge technologies (EY 2019).

On the other hand, European markets account for around 28% of the global market, with Germany being the dominant player, representing 20% of Europe’s MedTech market. This market is characterized by rapid evolution, with products typically having a lifecycle of 18 to 24 months before being replaced by newer innovations. In 2019, nearly 14,000 new patents were filed with the European Patent Office (EPO), underscoring the region's focus on continuous innovation (MedTech Europe 2020).

Siemens Healthineers Competitors

In the MedTech industry, where innovation and regulatory changes are constant, understanding the key players is essential. Equally important is assessing how Siemens Healthineers positions itself within this competitive landscape. To achieve this, we will examine the companies that operate in similar areas and pose the greatest competitive challenges to Siemens Healthineers (Exhibit 10).

One key competitor is Koninklijke Philips NV, a Netherlands-based healthcare company operating across the Diagnosis & Treatment, Care, and Personal Health sectors. Within the Diagnosis & Treatment segment, Philips directly competes with Siemens Healthineers in Diagnostic Imaging, producing MRI machines and CT scanners. Philips also has a strong presence in Image-guided Therapy (e.g., X-ray systems) and Ultrasound technologies, further intensifying competition in these areas.

Another notable competitor is QIAGEN NV, recognized for its expertise in sample technologies. QIAGEN specializes in isolating and preparing deoxyribonucleic acid (DNA), ribonucleic acid (RNA), and proteins from blood, tissue, plants, and other materials. These technologies, often referred to as assay technologies, directly compete with SHL' Molecular Diagnostics Systems, such as its Versant® product line.

Additionally, Abbott Laboratories, an American healthcare company with a market capitalization twice that of Siemens Healthineers, is one of the most influential competitors in this group. Abbott operates across four segments: Established Pharmaceutical Products, Diagnostic Products, Nutritional Products, and Medical Devices. Within the diagnostics space, Abbott produces devices for immunoassay and molecular diagnostics, competing directly with SHL's diagnostic platforms.

Furthermore, Medtronic plc, an Ireland-based company, operates across a wide range of sectors within the healthcare industry, including the Minimally Invasive Therapies Group and the Restorative Therapies Group. Within these segments, Medtronic provides biologic solutions for the orthopedic market and, in collaboration with their Neurosurgery division, offers robotic assistance for spine procedures. Their Mazor™ robotic platform competes directly with Siemens Healthineers' C-arm products, such as the Cios Spin, in enabling precision during spinal surgeries.

Lastly, Varian Medical Systems is a significant player in the market and a competitor of Siemens Healthineers in the oncology and advanced therapies sectors.

In the competitive medical technology industry, Siemens Healthineers faces strong rivals such as Philips, QIAGEN, Abbott Laboratories, Medtronic, and Varian Medical Systems, each excelling in areas like diagnostics, oncology, and advanced therapies. These competitors challenge Siemens Healthineers' position with innovation, diverse portfolios, and specialized solutions, emphasizing the importance of staying ahead through technological advancements and strategic focus.

Varian Medical Systems Competitors

Cancer treatment markets are defined by fast-paced technological advancements, intense competition, and significant pricing pressures. Hence, it is important to assess Varian's competitors to understand their strategic positioning, market share, and potential impact on Varian's growth and innovation opportunities (Exhibit 11)

One of Varian's principal competitors is Ion Beam Applications SA (IBA), which operates in a niche market focusing exclusively on proton therapy systems for cancer treatment. Despite its smaller scale compared to other competitors, the growing clinical acceptance of proton therapy provides significant opportunities for IBA's expansion into

new markets. However, its highly specialized focus limits its ability to diversify revenue streams (IBA n.d.).

Accuray Incorporated has developed an area of expertise in targeted radiation therapies with its focus on precision systems like the CyberKnife platform. Accuray's strength lies in addressing emerging markets with cost-effective solutions. However, it faces strong competition from larger players with broader portfolios, making it vulnerable in mature markets (Accuray n.d.).

Viewray, another competitor, leverages MRI-guided radiation therapy to position itself as a leader in this emerging field. The company is well positioned in the market due to its innovation, but its limited scale and lower revenues compared to competitors make it dependent on acquiring market share in specific technological sectors (ViewRay n.d.). Similarly, Eckert & Ziegler specializes in nuclear medicine, offering radiopharmaceuticals and isotope-based therapies[2]. The Radiopharmaceutical's growing demand offers significant growth opportunities, however, its competitiveness in larger MedTech segments is limited due to its specific focus (Eckert & Ziegler n.d.).

Elekta AB is a major competitor with a diversified portfolio, directly challenging Varian and other oncology-focused companies. Its integrated solutions combining imaging and treatment technologies provide a competitive advantage. While Elekta is a strong global player, its scale is slightly smaller compared to Siemens Healthineers, which may affect its ability to compete on a global level in the long term (Elekta n.d.). Lastly, as mentioned above, SHL is also an important competitor for Varian.

In conclusion, Varian faces a diverse range of competitors, from smaller firms to large industry players. As the healthcare industry continues to evolve, success will depend on

[2] isotopes are variants of a chemical element that have the same number of protons but differ in the number of neutrons, resulting in distinct atomic masses while retaining the element's chemical properties.

a company's ability to innovate and adapt to the increasing demand for personalized, AI-driven, and minimally invasive healthcare solutions (Varian Medical Systems, Inc. 2019).

Macroenvironment Impact

The external factors influencing strategic decisions in the healthcare sector can be systematically categorized and analyzed using the PESTEL framework, which examines political, economic, social, technological, environmental, and legal dimensions. This framework offers a robust approach to understanding these forces that shape the industry, providing valuable insights into the sector's challenges and opportunities.

Among these external factors, government policies and funding priorities play a crucial role in shaping healthcare strategies, particularly in addressing critical public health challenges such as cancer. In recent years, governments worldwide have increasingly prioritized cancer treatment, investing substantially in prevention, diagnosis, and care (World Health Organization 2020d). The WHO's 2020 report emphasizes that strategic efforts in cancer care, particularly early diagnosis and treatment, can significantly reduce mortality rates, highlighting the need for global cooperation, especially in low-income countries. To achieve universal health coverage, many nations have incorporated cancer care into national health benefit packages, expanding access to advanced treatments and driving demand for innovations in radiotherapy and oncology technologies. Similarly, high-income countries, such as the United States, have boosted funding for cancer research and treatment through organizations like the National Cancer Institute, fostering innovation in advanced cancer care solutions.

The critical role of healthcare in national policies became even more pronounced during the COVID 19-pandemic. The global economic environment in 2020 was profoundly affected by the pandemic, with the International Monetary Fund (IMF) projecting a global

economic contraction of 4.9%, underscoring the pandemic's severe impact on economic activity (International Monetary Fund 2020). Despite this economic downturn, healthcare emerged as a priority sector, with governments increasing investments to strengthen healthcare infrastructure. This fiscal emphasis ensured that critical areas, such as oncology, continued to receive attention, fostering opportunities for advancements in medical technologies (World Health Organization 2020d).

In addition to economic and political factors, demographic trends have further amplified the demand for healthcare services, particularly in oncology. Aging demographics have played a significant role in driving the demand for healthcare services. By 2019, the global population aged 65 and older had reached 703 million, a figure projected to double to 1.5 billion by 2050 (United Nations Department of Economic and Social Affairs 2019). This trend is particularly pronounced in high-income countries, where aging populations bear a greater burden of age-related illnesses, including cancer. Estimates from 2020 indicate that 62% of new cancer diagnoses and 76% of related deaths occurred among individuals aged 65 and older (European Society for Medical Oncology 2020). The convergence of these trends has significantly intensified the demand for advanced oncology technologies to address growing healthcare needs.

Technological advancements have also emerged as a crucial factor driving transformation in the healthcare industry. Innovations in radiotherapy, particularly the integration of AI, have significantly improved the precision and effectiveness of cancer treatments. AI has streamlined labor-intensive tasks and enhanced treatment accuracy, paving the way for a transformative era in oncology care (Sheng 2020). Digital health solutions powered by AI have gained significant traction, with McKinsey & Company observing in 2020 that AI has the potential to revolutionize healthcare by enhancing diagnostic accuracy and enabling personalized treatments (Spatharou, Hieronimus, and Jenkins 2020). At the

same time, increasing investments in medical research and development, particularly in oncology and AI, underscores the sector's focus on leveraging cutting-edge technologies to address complex challenges (Francolini et al. 2020).

While much of the focus has been on meeting healthcare demands and leveraging technology, growing attention is also being directed toward the industry's environmental impact. A 2019 study reveals that the U.S. healthcare system is responsible for approximately 8.5% of the nation's greenhouse gas emissions, highlighting concerns about the sector's significant environmental footprint (Health Care Without Harm 2019). In response, governments and international organizations have introduced regulations aimed at promoting sustainability. The European Commission's Green Deal, introduced in 2019, set the ambitious objective of making Europe the first climate-neutral continent by 2050. This initiative encouraged healthcare companies to adopt greener technologies, such as energy-efficient medical devices and sustainable manufacturing practices (European Commission 2019). Organizations have increasingly prioritized sustainable practices, aligning with these regulations to reduce environmental impact while preserving the quality of care (World Health Organization 2017).

Finally, legal frameworks play a vital role in shaping operations within the healthcare sector. The U.S. Food and Drug Administration (FDA) enforces stringent safety and efficacy standards for medical devices, including radiotherapy systems, through comprehensive pre-market approval processes (U.S. Food and Drug Administration 2019). In Europe, the General Data Protection Regulation (GDPR), implemented in 2018, established a robust framework for data privacy, significantly impacting digital health companies by requiring extensive compliance measures, such as data protection impact assessments (Lea 2018). Additionally, mergers and acquisitions in the healthcare sector are subject to antitrust reviews aimed at preventing anti-competitive practices. The

European Commission has historically scrutinized major transactions, including Johnson & Johnson's acquisition of Synthes in 2012 and Medtronic's acquisition of Covidien in 2015, often mandating divestitures to address competition concerns and maintain fair market dynamics. These examples underscore the critical importance of adhering to regulatory expectations to safeguard competitiveness and ensure operational integrity.

Siemens Healthineers & Varian Medical Systems Business Model

Siemens Healthineers

SHL operates a robust and forward-looking business model (Exhibit 12), solidifying its position as a global leader in healthcare solutions and services. Backed by a strong heritage and substantial support from Siemens AG, the company leverages its scale, expertise, and resources to deliver innovative medical technologies and comprehensive services spanning imaging, diagnostics, and advanced therapies. This model is further strengthened by strategic partnerships, significant investments in research and development, and a dedicated emphasis on digitalization and AI.

Key partnerships are crucial to SHL's success, solidifying its position as a trusted collaborator in the healthcare industry. In 2019, the company established significant agreements with global institutions, including a long-term partnership with the University of Missouri System to enhance rural healthcare through advanced technologies and an acquisition of a majority interest in ECG Management Consultants to better address customer needs in the U.S. market. Internationally, SHL partnered with München Klinik in Germany to modernize laboratory diagnostics and collaborated with Dallah Health Company in Saudi Arabia to manage radiology technology at Nakheel Hospital in Riyadh (Siemens Healthineers 2019b). These initiatives underscore SHL's reputation for delivering innovative and customized solutions to its global clientele.

Building on its partnerships, SHL's core activities encompass the development, manufacturing, and sale of advanced medical devices and diagnostic tools. These efforts are supported by comprehensive after-sales services, including equipment maintenance, operational management, and customer training, which ensure long-term customer relationships. Research and development are central to the company's strategy, with R&D expenditures totaling €1,328 million in fiscal year 2019, compared to €1,281 million in 2018 (Siemens Healthineers 2019b). The resulting R&D intensity, defined as the ratio of R&D expenditures to revenue, was 9% in 2019, slightly lower than 10% in 2018. This substantial investment enables SHL to maintain its position at the forefront of innovation, particularly in imaging, diagnostics, and digital health technologies.

A key element of SHL's success is its highly skilled workforce and its emphasis on intellectual property. As of 2019, the company employed over 52,000 professionals across engineering, research, and healthcare services (Siemens Healthineers 2019b). This workforce supports a global installed base of more than 600,000 devices, providing a strong foundation for recurring revenue streams. SHL also maintains a robust intellectual property portfolio of over 18,500 patents, including more than 13,500 granted patents. This, along with the financial stability afforded by Siemens AG's 85% ownership, positions SHL for sustained growth and innovation.

The company's clear value proposition is reflected in its ability to deliver high-quality, cost-effective healthcare solutions that improve patient outcomes while reducing costs for providers. Its portfolio encompasses the entire care continuum, including prevention, early detection, diagnosis, treatment, and follow-up care. Through the integration of AI and digital technologies, SHL advances precision medicine and optimizes healthcare workflows, further strengthening its leadership position in the industry.

This leadership is underpinned by a resilient financial foundation. In fiscal year 2019, SHL generated €14.5 billion in revenue, marking an 8% increase compared to 2018 (Siemens Healthineers 2019b). The Imaging segment contributed €8.9 billion, reflecting 10% growth, while Diagnostics generated €4.1 billion, with a 4% increase, and Advanced Therapies delivered €1.6 billion, achieving 9% growth. Regionally, the Americas led with €5.8 billion in revenue, followed by Europe, the Middle East, and Africa (EMEA) with €4.6 billion, and Asia/Australia with €4.1 billion. Notable contributions came from the United States (€4.9 billion, reflecting 10% growth) and China (€1.8 billion, achieving 9% growth), emphasizing the significance of these key markets.

Lastly, SHL leverages favorable healthcare market trends, including aging populations, the rising prevalence of chronic diseases, and the growing demand for digital transformation, to solidify its position in the industry. Its Strategy 2025 outlines a clear roadmap for strengthening market leadership, enhancing digital capabilities, and expanding into high-growth regions such as China and India. Strategic acquisitions, including a majority stake in ECG Management Consultants and the acquisition of Corindus Vascular Robotics, further expand SHL's offerings and market reach. These initiatives reflect the company's commitment to driving innovation, addressing evolving healthcare needs, and achieving sustainable growth in a rapidly transforming industry.

Varian Medical Systems

Varian Medical Systems operates with a comprehensive business model and forward-thinking model (Exhibit 13) that integrates advanced cancer treatment solutions, strong partnerships, and long-term customer relationships.

Varian has established strategic alliances to enhance its technological capabilities and market reach. Key partners include Siemens Healthineers for diagnostic imaging,

McKesson Corporation for workflow optimization, and Tennessee Oncology and Michigan Oncology Quality Consortium, which utilize its Noona software for patient-reported outcomes. Collaborations with Grail Inc. and Fusion Pharmaceuticals Inc. further strengthen Varian's focus on innovative cancer detection and treatment (Varian Medical Systems, Inc. 2019).

The company's activities are centered on product development, manufacturing, and customer support. Varian invests 8% of its annual revenue in research and development to create cutting-edge technologies like AI-powered Ethos and Eclipse treatment planning software. Its manufacturing operations ensure high-quality production of linear accelerators, proton therapy systems, and imaging devices. Customer support includes installation, maintenance, and 24/7 technical assistance to ensure optimal system performance (Varian Medical Systems, Inc. 2019).

Key resources include Varian's advanced technology portfolio, extensive R&D facilities, and partnerships with healthcare providers. A skilled workforce supports the company's mission to deliver integrated cancer treatment systems globally. These resources enable Varian to remain at the forefront of oncology solutions (Varian Medical Systems, Inc. 2019).

Varian's value proposition is to enhance cancer care by improving clinical outcomes through precision technologies and personalized treatment workflows. The company simplifies complex processes with AI-powered tools like Ethos and Noona, underscoring its commitment to patient-centric innovation. Its high Net Promoter Score (NPS) reflects customer satisfaction and loyalty (Varian Medical Systems, Inc. 2019).

The company delivers its solutions through direct sales to oncology centers, distribution networks, and digital platforms like ARIA and Noona for software access and customer

support. This ensures its innovations reach diverse customers, including hospitals, clinics, academic institutions, and government health programs.

Revenues are generated across two main segments, that can be further divided into three smaller sections for ease of analysis. Oncology Systems Products, which include hardware like linear accelerators and software like Eclipse, accounted for 51% of revenue in 2019, growing 10.53% to $3,062 million. Oncology Systems Services, comprising maintenance, upgrades, and operational support, contributed 44%. Proton Solutions, providing systems like ProBeam and related support, represented 4% of revenue, with a slight decline of -3.36% to $144 million. Total revenues grew by 10.5% from $2,919 million in 2018 to $3,225 million in 2019, driven by strong growth in oncology systems (Exhibit 14).

Varian's global revenue distribution reflects its diversified market presence. In 2019, the Americas accounted for 48% of total revenues, EMEA (Europe, Middle East, and Africa) contributed 33%, and APAC (Asia-Pacific) represented 19%. This regional balance ensures resilience against economic fluctuations (

Exhibit 15).

Cost structures include high R&D investment, manufacturing expenses, employee salaries, and costs for integrating acquired technologies. These expenditures support Varian's leadership in radiation therapy and its commitment to delivering quality cancer care solutions.

Looking ahead, Varian focuses on innovating radiation therapy with AI and adaptive technologies, expanding into emerging markets, and broadening its portfolio to include interventional oncology and cardiology. These initiatives, supported by strategic

acquisitions like CyberHeart and Endocare, aim to increase Varian's global impact and drive sustainable growth (Varian Medical Systems, Inc. 2019).

Varian's business model demonstrates its dedication to transforming cancer care. With a strong revenue distribution across products, services, and regions, the company is well positioned for continued success.

Past M&A Deals

Mergers and acquisitions (M&A) have been instrumental in shaping the healthcare and MedTech industries, enabling companies to meet growing demands for technological innovation, cost-efficiency, and market consolidation. Over the past decade, firms have increasingly leveraged M&A to enhance digital health capabilities, expand into high-growth markets, such as oncology and precision medicine, and deliver comprehensive solutions spanning diagnostics, treatment, and patient monitoring.

Several notable M&A transactions highlight the transformative impact of these deals. In 2004, GE Healthcare acquired Amersham for $9.5 billion, strengthening its molecular imaging and diagnostics portfolio to support the growing demand for personalized medicine (General Electric 2004). A decade later, Medtronic's $42.9 billion acquisition of Covidien established the company as a global leader in surgical devices, significantly expanding its product portfolio and geographic footprint (Medtronic 2014). This acquisition exemplified the trend of large-scale consolidation aimed at enhancing operational efficiencies and fostering technological advancements.

The oncology industry has also been a central focus of M&A activity. In 2018, Roche acquired Foundation Medicine for $2.4 billion, enhancing its capabilities in genomic profiling and personalized cancer care while highlighting the growing importance of precision medicine in oncology (Roche 2018). The following year, Bristol-Myers

Squibb's $74 billion acquisition of Celgene combined expertise in immuno-oncology and expanded its pipeline of innovative cancer therapies, cementing its position as a leader in cancer treatment (Bristol-Myers Squibb 2019).

These transactions illustrate the strategic objectives driving consolidation within the healthcare and MedTech industries. Companies have consistently used M&A to integrate advanced technologies, such as AI and digital health platforms, expand market reach in emerging regions, and strengthen R&D capabilities to accelerate the development of groundbreaking therapies.

"Envision" Partnership

The collaboration between the two companies extends beyond the announcement of the acquisition. In 2012, following Siemens' decision to exit the linear accelerator market, Siemens and Varian established a strategic partnership aimed at reshaping cancer care by creating a comprehensive and integrated oncology ecosystem (Varian 2012).

A key component of this partnership is Siemens' commitment to providing software connectivity that links its installed base of over 2,000 linear accelerators and imaging systems to Varian's ARIA oncology information system. By simplifying connectivity and clinical workflows, the partnership enhances the value proposition for Siemens' existing customer base while extending Varian's reach globally.

Furthermore, the partnership emphasizes joint research and development efforts, bringing together R&D teams from both organizations to innovate imaging and treatment technologies. This collaboration aims to create more precise, personalized cancer care solutions, advancing the frontiers of early detection, diagnosis, and therapy (Siemens Healthineers n.d. b).

The Next Chapter

The announcement of SHL's potential acquisition of VMS represents a significant milestone in the company's strategic evolution, emphasizing its commitment to advancing cancer care. This proposal highlights SHL's transformative vision to revolutionize oncology care and strengthen its position as a leader within the global healthcare sector. If completed, the acquisition seeks to establish a fully integrated oncology ecosystem by combining diagnostics, treatment, and follow-up care to address the escalating global burden of cancer. Leveraging VMS's expertise in precision oncology and adaptive radiotherapy, SHL is positioned to drive transformative advancements that shape the future of cancer care.

As discussions progress, several critical questions emerge, particularly regarding the acquisition's strategic and financial implications. Key considerations include the strategies SHL might adopt to realize the projected synergies, such as enhancing operational efficiencies and driving revenue growth. Additionally, to what extent could the acquisition strengthen SHL's market position and accelerate digital transformation within the healthcare sector? Finally, how might SHL structure its financing strategy to support sustained growth while maintaining shareholder confidence?

These questions highlight the complexity and scale of the potential acquisition, along with its potential to shape SHL's strategic trajectory. Realizing the anticipated synergies will require a strong focus on effective integration and execution should the deal proceed. Furthermore, success will depend on SHL's ability to navigate regulatory challenges, harmonize corporate cultures, and seize opportunities in high-growth markets.

This potential acquisition is more than a strategic decision. It demonstrates SHL's dedication to advancing global healthcare by investing in innovative technologies and

expanding into new markets. The resolution of these critical questions will ultimately determine the success of this proposal and its role in the global fight against cancer.

Teaching Note

Case Synopsis

In August 2020, Bernd Montag, the CEO of SHL, considered a bold and transformative move: the possible acquisition of VMS, a global leader in cancer treatment technology. This proposed deal could represent more than a mere expansion. It could serve as an opportunity to redefine SHL' role in healthcare by establishing a fully integrated ecosystem encompassing diagnostics, treatment, and follow-up care.

However, such a monumental step would entail significant risks and tough decisions. Montag and his leadership team would need to address the challenge of strategically integrating two global giants. They would also need to value the company while accounting for future synergies and determine the optimal financing method—whether through cash, debt, equity, or a combination—ensuring the deal avoids over-leveraging the company or eroding shareholder value.

This case places participants in Montag's position as they weigh the strategic, financial, and ethical dimensions of this hypothetical acquisition. It provides insight into the complexities of mergers in the healthcare sector, focusing on valuation, financing options, and the potential for transformative synergies in a rapidly evolving industry.

Learning Objectives

This case study is structured to analyze Siemens Healthineers' acquisition of Varian Medical Systems through a comprehensive review of its strategic rationale, valuation, and payment methods. Each component offers students insights into critical decision-making areas of M&A deals, particularly in cross-border contexts. Its main goals are to:

- Analyze the strategic rationale behind M&A activity, including synergies, growth opportunities, and market positioning.
- Assess valuation methodologies and their application in determining a fair acquisition price, while analyzing the potential impact of the deal on valuation.
- Assess market sentiment, credit implications, and shareholder impact related to major acquisitions.
- Understand the factors influencing the choice of payment methods in M&A transactions, focusing on capital structure and financial positioning.

Target Audience

This case is designed for Master's students pursuing a degree in Management, or Finance, with an emphasis on courses such as Corporate Finance, Corporate Valuation, Financial Statement Analysis, and Mergers, Acquisitions, and Restructuring. The target students are expected to have foundational knowledge in corporate finance concepts, including valuation methods, financial statement analysis, and the strategic considerations involved in corporate mergers, acquisitions, and restructuring processes.

Teaching Plan

This case study can be divided into three sequential parts, each representing an individual component of the thesis. It’s structured for two or three class sessions, with each part designed to build upon the preceding discussion. Students are encouraged to read the case study before the class, reflect on assigned questions, and conduct light independent research on recent M&A trends, Siemens Healthineers, Varian Medical Systems and the overall MedTech market.

Assignment Questions

1. Strategic Analysis and Strategic Fit of the Acquisition

1.1 Discuss the rationale behind the acquisition of Varian Medical Systems. How does this acquisition align with Siemens' broader "Strategy 2025" goals, particularly in advancing its position in the healthcare sector and achieving long-term growth?

1.2 Evaluate Siemens' potential acquisition of Varian Medical Systems by conducting an in-depth analysis of the industry landscape and the strategic fit between the two companies. Your answer should:

- Use Porter's Five Forces model to assess the competitive environment of the healthcare technology and medical imaging industry. Discuss why this industry presents strategic appeal for Siemens, particularly in terms of growth, profitability, and competitive advantage.
- Conduct a SWOT analysis for both Siemens and Varian. Highlight key strengths and weaknesses of each company, as well as opportunities and threats they face in the industry. Explain how Siemens' resources and capabilities might complement Varian's strengths and mitigate its weaknesses, and vice versa.

1.3 What strategic, cultural, and financial synergies are anticipated to result from Siemens Healthineers' proposed acquisition of Varian, and how might these synergies contribute to deal's potential success?

2. Assessing Varian's Acquisition Value

2.1 Review the general macroeconomic conditions and provide projections for relevant variables. Then, identify and analyze the key value drivers in the sector, incorporating an assessment of Varian's specific past performance.

2.2 Reformulate Varian Medical Systems' financial statements by separating them into core operations, non-core operations, and financial activities. Explain your rationale behind your assumptions and how this segmentation could impact your assessment of Varian's financial performance for valuation purposes.

2.3 Prepare past and projected simplified financial statements for VMS: Income Statements, Balance Sheets, and Cash Flow statements organized for valuation purposes.

2.4 Conduct a valuation analysis of Varian Medical Systems. At what price do you believe Siemens Healthineers should propose their acquisition? Present quantitative results using various valuation methods, and always justify your assumptions.

3. Evaluating Payment Strategies in the Acquisition

3.1 Examine Siemens Healthineers' financial position and its limitations. What payment methods were viable for the acquisition, and how did the selected payment structure impact Siemens Healthineers' leverage ratios, capital structure, and credit profile? Assume Exhibit 16 provides an analysis of the selected payment structure.

3.2 What effect did Siemens Healthineers' chosen payment method have on its earnings per share and the value delivered to shareholders?

3.3 How did investors respond to the announced synergies associated with the Varian acquisition, and what were the implications of the chosen payment structure for risk-sharing between Siemens Healthineers and Varian's shareholders on the day following the announcement of the transaction terms?

Question 1.1

Considering the primary motivations behind mergers and acquisitions, one key objective is to achieve greater market power. This can be accomplished when a firm can either elevate its pricing above competitive levels or reduce its operational costs below its competitors. By strategically acquiring businesses in related sectors, companies can strengthen their competitive advantage and enhance their market positioning (Ghosh Ray 2010, 50-51).

Additionally, horizontal mergers and acquisitions allow firms to acquire competitors within the same industry, thereby consolidating market power through cost efficiencies and revenue synergies. Research suggests that such horizontal M&As, especially when conducted with firms sharing similar characteristics, often result in superior performance outcomes compared to acquisitions involving unrelated businesses (Ghosh Ray 2010, 50-51).

Considering these factors, we conclude that our case qualifies as a horizontal merger and acquisition, aimed at achieving market power by capitalizing on these synergies. Hence, to thoroughly understand the acquisition, a strategy analysis of SHL will be conducted.

Siemens Healthineers Strategy 2025 is built to position the company as a global leader in healthcare technology, leveraging digitalization, artificial intelligence, advanced diagnostic and therapeutic systems. The strategy is divided into 2 phases - the reinforcing phase and the upgrading phase - to guide Siemens Healthineers from the present into 2025 (Siemens Healthineers, 2019b).

The first phase is the reinforcing phase (which was completed in 2019) and focused on establishing an independent market presence, rolling out new platforms and products, and implementing cost-saving measures to improve productivity.

The second phase, the upgrading phase, started at the beginning of 2020 and is expected to be completed by the end of 2022. This phase targets to accelerate growth across three main segments – imaging, diagnostics, and advanced therapies – while improving earnings and market reach.

Let's focus on the upgrading phase to understand how the planned strategy of Siemens Healthineers aligns with the possible strategy behind the acquisition.

Siemens Healthineers has set ambitious financial goals with a target of over 5% to 6% annual revenue growth and 6%-12% annual earnings per share growth. These growth efforts are concentrated not only in existing markets but also in adjacent fields, allowing Siemens Healthineers to expand its footprint while building resilience against market fluctuations (Siemens Healthineers, 2019b).

In the Imaging segment, Siemens is focused on continuous innovation and digitalization, particularly through the integration of artificial intelligence to support diagnostics and clinical decision-making. The goal is to make Siemens' imaging systems increasingly autonomous, precise, and efficient, which enhances the diagnostic process (Siemens Healthineers, 2019b).

The Diagnostics segment is designed to take advantage of laboratory automation, bringing the growth of this segment closer to industry averages by expanding point-of-care solutions and introducing more advanced experiments (Siemens Healthineers, 2019b).

In the Advanced Therapies segment, Siemens Healthineers has positioned itself at the forefront of minimally invasive, image-guided procedures, especially following its acquisition of Corindus Vascular Robotics. This segment aims to increase both the quantity and complexity of procedures by leveraging technologies such as robotics and

digital surgery tools to improve patient outcomes and clinician precision (Siemens Healthineers, 2019b).

Across all segments, Siemens Healthineers has outlined three fundamental strategic priorities. First, the company seeks to expand its market share in key growth regions, targeting high-growth markets such as China, India, the Middle East, and Africa. These regions are rapidly advancing their healthcare infrastructure, often with government support for digital health and diagnostic capabilities. Second, Siemens aims to strengthen partnerships with leading healthcare providers by using its strategic consulting expertise, particularly through its association with ECG Management Consultants. These partnerships are focused on implementing large-scale projects that support healthcare digitalization, with the broader goals of improving patient outcomes and reducing overall healthcare costs. Third, Siemens is committed to a comprehensive digital transformation, emphasizing internal digitalization to optimize processes, boost efficiency, and cut costs. This involves integrating AI and automation into both manufacturing and customer-centric operations, while also expanding digital offerings such as the teamplay digital health platform (Siemens Healthineers, 2019b).

Additionally, investment in research and development remains a priority for Siemens Healthineers, with a particular focus on AI and digital tools. In 2019, the company dedicated €1,328 million to R&D, demonstrating its commitment to technological innovation. This funding supports the expansion of Siemens' AI-driven solutions, including over 40 AI-based applications across imaging, diagnostics, and advanced therapies. Through these investments, Siemens aims to enhance clinical accuracy and operational efficiency, relying on advanced data analytics and machine learning (Siemens Healthineers, 2019b).

Moreover, strategic acquisitions have played a vital role in strengthening Siemens Healthineers' technology portfolio and expanding into related fields. The acquisition of Corindus Vascular Robotics has been the foundation of Siemens' expansion into robotic-assisted, minimally invasive vascular interventions, enabling more complex procedures with greater precision and safety. Another key acquisition, ECG Management Consultants, enhances Siemens' consulting capabilities in the U.S., allowing the company to offer comprehensive services that extend beyond medical technology to include healthcare management and strategic project implementation (Siemens Healthineers 2019b).

But how does this approach align with the strategic objectives underlying this possible acquisition? To address this question, it is essential to examine how the acquisition could impact Siemens Healthineers' overall strategy.

To begin with, the strategy behind the acquisition can be divided into two essential points. The first focal point relates to the possibility of Siemens expanding its offerings in the oncology sector. Specifically, given that Varian is a specialist in cancer treatment and radiation therapy, this acquisition could enable Siemens to provide a comprehensive cancer care pathway, from diagnosis to specialized treatment.

Secondly, through the acquisition, Siemens Healthineers could create a broader impact beyond cancer treatment. In particular, the acquisition may lead the company to expand its role as a holistic healthcare partner across various diseases and healthcare needs. This, in turn, strengthens the Upgrading Phase objective, by enabling the expansion of point-of-care solutions.

Additionally, the rising incidence of cancer across the Americas and Europe highlights its status as a critical area of growth in healthcare. In 2018, over 3.7 million cases were

recorded in the Americas and nearly 4.6 million in Europe, with projections indicating continuous growth due to aging populations, lifestyle changes, and environmental factors. This has led to significant investment in cancer detection and treatment infrastructure, emphasizing the increasing importance of oncology as a field of medical research and public health focus (World Health Organization 2020a; World Health Organization 2020b). Hence, this rapid growth leads to a rising demand for precision medicine and AI-driven solutions, which might position Siemens Healthineers to deliver a more comprehensive range of offerings, supporting healthcare providers in delivering precise, personalized care. Thus, this highlights one of Siemens' key strategic priorities.

Furthermore, the strategic acquisition of Varian could provide Siemens Healthineers with access to an established customer base, a robust R&D network, and deep market expertise, reinforcing its presence in both existing and adjacent markets. Consequently, this merger not only would extend Siemens Healthineers' market reach but also would unlock new revenue streams within the high-growth oncology sector, accelerating progress toward the market expansion goals of the Upgrading Phase.

Equally important, the integration of Varian's digital solutions and AI-driven platforms into Siemens Healthineers' ecosystem might be a pivotal step in advancing its transformation goals. For example, Varian's advanced oncology software, including ARIA and Eclipse, could enhance Siemens Healthineers' capabilities in precision medicine and clinical decision support. As a result, this synergy would strengthen Siemens Healthineers' digital offerings, placing AI and data-driven decision-making at the core of its service portfolio. By doing so, Siemens Healthineers could reinforce its leadership in digital healthcare, directly supporting the digital transformation priorities outlined in the Upgrading Phase.

Question 1.2

To fully evaluate the strategic implications of Siemens' potential acquisition of Varian, it is essential to analyze both the competitive environment and the internal capabilities of the two companies. By using Porter's Five Forces model, we can assess the dynamics of the healthcare technology and medical imaging industry, identifying its strategic appeal in terms of growth, profitability, and competitive advantage. Additionally, conducting a SWOT analysis for Siemens and Varian will allow us to uncover each company's strengths, weaknesses, opportunities, and threats. This dual approach provides a robust framework for understanding how Siemens' resources and capabilities can complement Varian's strengths, address its weaknesses, and unlock mutual benefits in a competitive and rapidly evolving industry

The five forces (Porter)

The fundamental idea of Michael Porter's work is that "industry profitability is determined by competitive intensity." Hence, his Five Forces model describes what are the fundamental forces that drive a competitive industry. Porter wanted to demonstrate that firms in any industry face limitations in maximizing profit, not only due to competition with rivals but also due to four additional forces that collectively define the intensity of competition: Internal Rivalry, Threat of new entrants, Ease of substitution, Customer power and Supplier power (Evans 2020, 82–86).

Following the theoretical introduction to Porter's Five Forces, an analysis of these forces within the MedTech industry will be conducted.

The Medical Technology industry is characterized by **high barriers to entry**, primarily due to substantial capital investments in research and development (R&D). Medical technology companies must allocate substantial financial resources to develop innovative

products, conduct rigorous testing, and ensure compliance with the latest clinical and regulatory standards. Furthermore, new entrants face demanding requirements, such as FDA regulations (for the USA) or CE marking standards (for Europe), which involve rigorous clinical testing and evaluation to confirm product safety and effectiveness (MedTech Europe 2019; Deloitte 2019).

Another barrier is the necessity for specialized expertise. Medical technology products, especially those for diagnostic imaging, cancer treatment, or implantable devices, require deep knowledge in specific fields such as biomedical engineering, software development, and clinical science. This specialized knowledge is not only costly to acquire but also hard to develop in a short period, making it difficult for newcomers to achieve the technical sophistication that established companies possess (McKinsey & Company 2021).

Economies of scale also play a crucial role in maintaining high entry barriers in the MedTech industry. Established MedTech firms benefit from economies of scale in manufacturing and distribution, allowing them to reduce costs and offer competitive pricing, further discouraging new competitors.

The bargaining power of suppliers in the MedTech industry is **generally low** due to the industry's reliance on a diverse and fragmented supplier base for essential raw materials, components, and specialized services. This fragmentation significantly limits individual suppliers' ability to influence pricing and terms, as no single supplier dominates the market. Additionally, MedTech companies often have access to multiple sourcing options, enabling them to switch suppliers with relative ease if necessary. This flexibility reduces supplier leverage, allowing MedTech firms to maintain favorable supply terms and avoid overdependence on any single supplier.

On the buyer side, **bargaining power is high,** driven by the consolidation of healthcare providers and the growing influence of group purchasing organizations (GPOs). These larger healthcare systems and GPOs have consolidated purchasing power, enabling them to negotiate more favorable pricing and terms with MedTech suppliers. Additionally, the ongoing rise in healthcare costs has made buyers increasingly price-sensitive, prompting them to demand value-based solutions that provide measurable clinical and economic benefits. This price sensitivity gives buyers a stronger position when negotiating with MedTech companies (KFF 2023).

The **threat of substitute products or services in the MedTech Industry is moderate to high,** primarily due to rapid technological advancements that facilitate the development of alternative treatments or diagnostic methods, challenging existing MedTech products. To remain competitive, companies in this industry must continuously innovate (McKinsey & Company 2023). Additionally, non-medical alternatives, such as lifestyle adjustments or pharmaceutical options, can act as substitutes in certain cases, further reducing the demand for specific medical devices (Deloitte 2020 a).

Finally, **competition among existing players in the MedTech industry is intense**, as the market comprises a wide variety of companies, from large multinational corporations to smaller, specialized firms. To gain a competitive edge, companies strive to differentiate their products through innovation, quality, and service. However, the rapid pace of technological advancements means that these differentiators can quickly become outdated, further intensifying competition as companies work to maintain their unique offerings (McKinsey & Company 2021; AdvaMed n.d.).

But what aspects of this industry make it so appealing to Siemens that acquiring Varian could be considered valuable?

Firstly, Varian's strong presence in the radiation oncology field, with its leading technologies in cancer treatment, could provide Siemens with immediate entry into a highly specialized area of MedTech, bypassing substantial R&D costs and regulatory barriers.

As a leader in radiotherapy and oncology software, Varian's proprietary technologies set it apart from competitors which could make the acquisition a strategic advantage. Siemens could leverage Varian's innovations to expand its advanced imaging and therapy portfolio, creating an integrated cancer care solution.

The combination of Siemens' enhanced portfolio with Varian's cancer treatment technologies would offer hospitals a comprehensive all-in-one solution, reducing their dependency on multiple vendors. This possible integration strengthens Siemens' negotiating position with healthcare providers and purchasing organizations.

By offering integrated oncology solutions, Siemens could create a product ecosystem that is harder for competitors to substitute. By facilitating seamless diagnosis, treatment planning, and therapy, these solutions appeal to both providers and patients, reducing the risk of substitution by alternative or non-medical treatments. Thus, this enhanced portfolio would reinforce what has been done through the "Envision" partnership.

Radiotherapy, a rapidly growing segment of MedTech driven by the global rise in cancer cases, represents a key opportunity. Through the acquisition of Varian, Siemens could fortify its competitive position against major industry players such as Abbott Laboratories and Philips, gaining a stronger presence in this expanding market.

Lastly, Varian's established distribution network could provide Siemens with an opportunity to enhance its market reach, aligning with one of Siemens' key strategic

priorities. This expansion could target regions with high demand for cancer treatments, such as North America, Europe, and emerging markets.

SWOT Analysis

Initially introduced by Kenneth R. Andrews in the 1960s at Harvard Business School, the SWOT tool was designed to help strategists distinguish between elements under the firm's control (internal) and those beyond it (external). Strengths and Weaknesses represent internal capabilities or limitations, while Opportunities and Threats capture external market conditions that the organization may leverage or mitigate. By promoting brainstorming, SWOT encourages a holistic view of an organization's position (Evans 2020, 30-32).

But how can Varian's resources and capabilities offer strategy value to Siemens Healthineers?

Based on the analyses presented in Exhibit 17 and Exhibit 18, it is possible to draw relevant conclusions regarding the strengths, weaknesses, opportunities, and threats (SWOT) of each company.

Firstly, Varian's specialization in radiation oncology, including advanced products like proton therapy, would directly address Siemens Healthineers' limited oncology portfolio. By integrating Varian's cutting-edge cancer treatment solutions, Siemens Healthineers could expand its offerings to include comprehensive cancer care, making it a more holistic provider, as it has already been identified as an opportunity of the industry.

Furthermore, the collaboration would also allow Siemens Healthineers to reduce its dependency on imaging and diagnostics by adding a high-demand, specialized oncology segment. This is particularly valuable given the substantial growth potential of the oncology market (see note 2 of the SWOT analysis in the appendix).

In addition, Both Varian and Siemens Healthineers invest heavily in R&D, enabling potential synergies in technological innovation. Varian's expertise in radiation therapy and AI-based treatment planning could complement Siemens Healthineers' strengths in diagnostics, imaging solutions, and digital transformation. Together, they could accelerate advancements in oncology through AI-driven precision treatment planning, adaptive therapy, and personalized medicine, aligning with Siemens' strategic priorities.

Moreover, Varian's expertise in managing regulatory challenges within oncology could help Siemens address compliance costs across different healthcare sectors. By combining their resources, they could simplify and accelerate regulatory approvals in global markets.

Finally, together, the companies could establish a more fortified position against competitors. This is because they would now cover a wider spectrum from diagnostics to oncology treatment. Such diversification would not only enhance their competitive edge but also protect them from market fluctuations in any single segment.

Question 1.3

When we think of an M&A case, synergies are often the foundation that drives strategic decisions. They represent the additional value created when two companies combine their resources, expertise, and market presence to achieve goals unattainable individually (Berk and DeMarzo 2017).

But what specific factors could make the collaboration between Siemens Healthineers and Varian not just valuable but strategically transformative? The following analysis will explore how these synergies support the rationale for the deal, exploring their impact on market expansion, operational efficiencies, and technological advancements.

Regarding the cultural fit, we can conclude that both companies share several core values that align closely and could support each other's strategic objectives.

Firstly, both Varian and Siemens Healthineers have a strong commitment to innovation. Each company has established a longstanding history of advancing healthcare technology, demonstrating sustained dedication to pushing the limits in their respective fields. Varian has been a leader in radiotherapy technology for over 70 years, while Siemens Healthineers has been innovating in medical technology for more than 120 years. This shared commitment to innovation highlights their desire to improve healthcare outcomes, which is a key component of their partnership.

Secondly, there is a shared focus on patient-centric care. Both Varian and Siemens Healthineers prioritize improving patient outcomes, especially in life-critical areas such as cancer care. Their joint efforts would aim to make precision medicine and targeted therapies more accessible, ultimately enhancing the effectiveness of treatments for patients.

Lastly, both companies are guided by purpose-driven missions. Each organization is committed to improving global health through cutting-edge technologies that enable clinicians to deliver accurate, timely, and personalized care. This alignment of purpose underscores their shared aspiration to transform healthcare and make a meaningful impact on patients' lives by equipping healthcare providers with the tools necessary for high-quality, individualized treatment (Siemens Healthineers n.d a; Siemens Healthineers n.d. c; Varian n.d.).

Moreover, as already mentioned, market expansion is a key priority for Siemens and the integration of Varian would present a strategic opportunity to achieve this goal. Varian's well-established presence in emerging markets such as China and India—where it holds a 75% and 55% market share in radiation therapy, respectively—would provide a strategic avenue for growth and address rising demand for cancer care services in underserved populations. With Varian's expanded global footprint, covering over 70

countries, Siemens Healthineers could gain access to a robust international network capable of delivering a wide range of healthcare solutions on a global scale (Siemens 2020b).

The combined entity could leverage Varian's trusted relationships and reputation in oncology, enabling Siemens Healthineers to combine its diagnostic tools with Varian's cutting-edge radiotherapy technology. This would also reinforce the existing "Envision" Partnership between both companies, by exemplifying the natural synergy between the two entities, highlighting how their combined strengths could enhance oncology care.

Additionally, with Varian's technology benefiting over 4 million patients annually and Siemens Healthineers' diagnostic tools serving 240,000 patients per hour, the combined entity would demonstrate an unprecedented capacity for patient care. Thus, this merger would be particularly transformative in oncology and diagnostic imaging, where demand for integrated solutions continues to grow (Siemens Healthineers 2020b).

Finally, the combined workforce of 64,000 skilled employees would be essential in driving innovation and expanding access to advanced healthcare solutions in underserved regions. This expertise could enable the introduction of cutting-edge, technology-driven approaches to cancer care, further solidifying the companies' commitment to address global healthcare systems' complex and evolving needs (Siemens Healthineers 2020b).

The medical device technology sector's rapid growth, particularly in oncology and cardiovascular innovation, emphasizes the strategic importance of innovation synergies in mergers. The following section explores how combining Varian and Siemens Healthineers' resources, R&D capabilities, and partnerships strengthens their capacity to drive transformative healthcare solutions (Siemens Healthineers 2020b).

Firstly, the medical device technology sector is experiencing significant growth, particularly in cancer and cardiovascular diagnostics and treatment, positioning it as a primary focus for innovation and investment. This industry has shown impressive progress, with revenues increasing by 6.3% between 2019 and 2020, reaching $446 billion—a positive trend highlighting the merger's strategic focus on innovation synergies (EY, 2020).

Secondly, over the past four years, approximately $1.5 billion has been invested in advancing research and development, leading to record levels of innovation intensity within the sector. Both companies are recognized as leaders in healthcare technology, and their merger could bring together over 1,000 R&D engineers from Varian with more than 9,000 from Siemens Healthineers. This united expertise would offer substantial potential to achieve the ambitious technological advancements outlined in their strategic plans.

Another core aspect of the merger's innovation strength lies in the possibility of combining Varian's 120 active clinical collaborations with Siemens Healthineers' extensive partnerships, which include over 90% of the world's leading healthcare providers. This integrated network, along with strengthened operational and sales channels, could present a powerful opportunity to drive unique value creation through the shared expertise and resources of both companies (Siemens Healthineers 2020b). By focusing on these innovation synergies, the merger might aim in maximizing its impact and deliver cutting-edge solutions for the healthcare industry.

Regarding revenue synergies, the acquisition of Varian could significantly boost Siemens Healthineers' revenue growth, which had already been on a steady upward path. To be more precise, in the past five years, Siemens Healthineers revenues' have grown by 12.2% (Siemens Healthineers 2019b). By incorporating Varian's capabilities and market presence, Siemens Healthineers would accelerate this growth trajectory immediately. As

a combined entity, they could achieve an annual growth rate exceeding 5%, a notable improvement compared to Siemens Healthineers' previous standalone performance. This synergy in revenue is a direct reflection of the enhanced value the acquisition brings (Siemens Healthineers 2020b).

According to Deloitte's report, *"Creating Value through M&A in the Medical Technology Industry,"* past analyses of transactions in the MedTech industry reveal that synergies derived from acquisitions typically drive sales growth rates between 7% and 12%, with a median target of 11%. Therefore, when comparing this to the target announced by Siemens, we can conclude that their projections are not significantly higher than what is commonly observed across the industry (Deloitte 2020 b).

Additionally, the acquisition is expected to drive a significant increase in EBIT synergies, with estimates reaching €300 million by FY2025. Integrating Varian's products strengthens Siemens Healthineers' growth and increases its steady income by expanding its services, despite the challenges of the COVID-19 pandemic. This recurring revenue is an essential factor in Siemens Healthineers' ability to sustain growth, contributing to a stable financial outlook for the combined entity (Siemens Healthineers 2020b).

In conclusion, by integrating Varian's expertise and capabilities with its own, Siemens Healthineers would enhance its market position and broaden its service offerings, reinforcing its role as a global leader in healthcare innovation.

Appendix:

Exhibit 1 - MRI Products Portfolio of SHL

MRI Products	Description	Image
1. 1.5T MRI Scanners	Magnetic resonance imaging systems with a 1.5 Tesla field strength, ideal for routine clinical applications such as neuro, cardiac, whole-body, and musculoskeletal imaging. They provide high-quality images, shorter scan times, and compatibility with patients having metal implants, making them versatile and cost-effective solutions for healthcare providers.	
1.1. MAGNETOM Sola	A 1.5T MRI scanner featuring BioMatrix technology for individualized imaging, GO technologies for automated workflows, and Turbo Suite for faster exams. It delivers consistent results for complex cases, including whole-body, neuro, and musculoskeletal imaging.	
1.2. MAGNETOM Altea	A 1.5T MRI scanner with a 70 cm open bore, featuring BioMatrix technology for personalized imaging and Turbo Suite for faster scan times. It excels in patient comfort and provides high-quality imaging for neurology, musculoskeletal, and cardiac applications.	
1.3. MAGNETOM Aera	A 1.5T MRI scanner featuring a 70 cm open bore for enhanced patient comfort, advanced Tim 4G technology for high-resolution imaging, and DotGO workflow for optimized efficiency in neurology, oncology, and cardiac applications.	
1.4. MAGNETOM Avanto eco	A 1.5T MRI scanner featuring Tim+Dot technology for seamless workflow automation and high-resolution imaging. Known for its reliability, it supports advanced neuro, cardiac, and musculoskeletal imaging while ensuring patient comfort with its quiet scanning capabilities.	
1.5. MAGNETOM Sola Cardiovascular Edition	A 1.5T MRI designed for advanced cardiac imaging, featuring BioMatrix technology and Cardiac Dot Engine for precise and efficient diagnostics.	
1.6. MAGNETOM Amira	A 1.5T MRI scanner focused on cost-efficiency and reliability, featuring Tim 4G technology for high-quality imaging and low operating costs. Ideal for routine clinical applications with streamlined workflows.	

1.7. MAGNETOM Espree eco	A 1.5T MRI scanner with a 70 cm open bore and a compact design, offering patient comfort and high-quality imaging. It features advanced energy-saving technologies, making it an eco-friendly choice for routine and advanced clinical applications.	
1.8. Mobile MRI Scanner	A 1.5T MRI system designed for mobility, enabling high-quality imaging in diverse locations. It features compact design, flexible deployment, and advanced imaging capabilities for neurology, cardiology, and musculoskeletal diagnostics, ensuring reliable results in a portable format.	
2. 3T MRI Scanners	Magnetic resonance imaging systems with a 3 Tesla field strength, offering superior image quality and resolution for advanced clinical applications such as neuroimaging, functional MRI (fMRI), cardiac, and oncology diagnostics. They enable faster scan times, enhanced anatomical detail, and advanced capabilities, making them ideal for complex cases and research-focused healthcare providers.	
2.1. MAGNETOM Vida	A 3T MRI scanner featuring BioMatrix technology for personalized imaging, GO technologies for automated workflows, and exceptional image quality. It excels in advanced applications, including neurology, cardiology, and oncology, with a focus on efficiency and patient comfort.	
2.2. MAGNETOM Lumina	A 3T MRI scanner with BioMatrix technology for personalized imaging, a 70 cm open bore for enhanced patient comfort, and Turbo Suite for faster scan times. It delivers high-quality imaging for advanced applications in neurology, cardiology, and musculoskeletal diagnostics.	
2.3. MAGNETOM Skyra	A 3T MRI scanner featuring a 70 cm open bore for enhanced patient comfort, Tim 4G technology for high-resolution imaging, and advanced applications in neurology, cardiology, and body imaging. It combines performance and efficiency for diverse clinical needs.	
2.4. MAGNETOM Prisma	A 3T MRI scanner designed for cutting-edge research and clinical applications, featuring ultra-high gradient strength and advanced imaging capabilities. It excels in functional MRI (fMRI), diffusion imaging, and neuroscience, providing unparalleled image quality and precision.	

2.5. MAGNETOM Verio	A 3T MRI scanner featuring a 70 cm open bore for improved patient comfort and accessibility. It offers high-resolution imaging with Tim (Total Imaging Matrix) technology, making it ideal for advanced clinical applications such as neuro, cardiac, and musculoskeletal imaging.	
3. 7T MRI Scanner	Magnetic resonance imaging systems with a 7 Tesla field strength, delivering ultra-high-resolution images for advanced clinical and research applications. They provide exceptional detail for neuroimaging, musculoskeletal studies, and vascular imaging, making them ideal for studying fine structures and complex conditions in specialized settings.	
3.1. MAGNETOM Terra	A 7T MRI scanner designed for ultra-high-field imaging, offering unparalleled resolution and detail for advanced clinical and research applications. It excels in neuroimaging, musculoskeletal studies, and vascular imaging, with dual-mode capability for both research and clinical use.	
4. MR-PET Scanner	Hybrid imaging systems combining magnetic resonance imaging (MRI) and positron emission tomography (PET), allowing simultaneous anatomical and functional imaging. These scanners are ideal for advanced applications in oncology, neurology, and cardiology, providing comprehensive diagnostic insights by integrating structural and metabolic data.	
4.1. Biograph mMR	A hybrid imaging system combining 3T MRI with Positron Emission Tomography (PET), enabling simultaneous anatomical and functional imaging. It provides precise diagnostic insights for oncology, neurology, and cardiology, making it ideal for advanced molecular imaging and research applications.	

Exhibit 2 - CT Products Portfolio of SHL

Computed Tomography	Description	Image
1. Dual Source CT Scanners		
1.1. SOMATOM Force	A high-performance dual-source CT scanner offering exceptional image quality with low radiation and contrast doses, ideal for cardiology, oncology, and emergency imaging.	
1.2. SOMATOM Drive	A high-performance Dual Source CT system featuring Straton® MX Sigma tubes, offering advanced imaging for pediatrics, cardiology, oncology, and emergency care. It enhances diagnostic reliability with low kV imaging, free-breathing CT, and tin filtration for reduced dose and improved image quality.	

2. Single Source CT		
2.1. SOMATOM X.cite	A high-performance single-source CT scanner with intelligent user guidance (myExam Companion) for complex protocols like Cardiac, Neuro, and Dual Energy exams. Featuring the Vectron™ X-ray tube, StellarInfinity Detector, and FAST 3D camera, it ensures high-resolution imaging and optimal patient experience with an 82 cm bore and tablet-based workflow.	
2.2. SOMATOM Edge Plus	An advanced CT scanner with Dual Energy, StellarInfinity Detector, and AI-powered myExam Companion, delivering precise imaging, simplified workflows, and reduced radiation doses.	
2.3. SOMATOM go.Top	A 128-slice CT scanner ideal for trauma and advanced cardiac imaging, featuring a tablet-based workflow, myExam Companion, and TwinBeam Dual Energy for dose-neutral dual energy imaging. Designed for high-volume emergency departments and streamlined coronary CTA procedures.	
2.4. SOMATOM go.All	A 64-slice CT scanner with a tablet-based workflow, myExam Companion, and Tin Filter technology for low-dose, personalized imaging. Featuring a fast 0.33s rotation speed and high reliability, it minimizes downtime with preventive maintenance required only every 36 months.	
2.5. SOMATOM go.Up	A 64-slice CT scanner with a wireless tablet workflow, myExam Companion, and Stellar detector for exceptional image quality. Features Tin Filter technology for low-dose exams, Recon&GO automation for efficiency, and optional Calcium Scoring for expanded clinical capabilities.	
3. Mobile Head CT		
3.1. SOMATOM On.site	A portable head CT scanner for bedside imaging in ICUs, reducing patient transport and enhancing care delivery. Features include a motorized trolley, telescopic gantry, integrated Touch UI with myExam Companion, and a self-shielded system to minimize radiation exposure.	

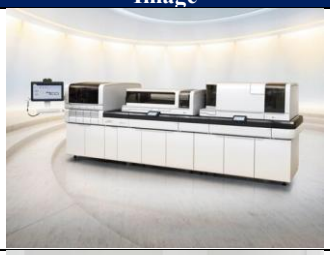
Exhibit 3 - Radiograph, Molecular Imaging Systems, and Ultrasound Machines Portfolio of SHL

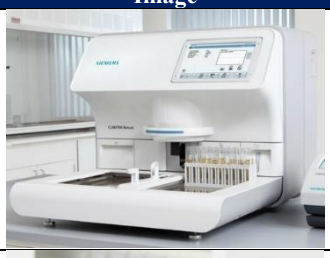
Radiography	Description	Image
MOBILETT Elara Max	A highly versatile mobile X-ray system designed for ease of use, enhanced infection control, and seamless connectivity. Featuring a lightweight, compact design, it delivers high-quality imaging directly at the point of care, supporting fast and efficient workflows in diverse clinical settings.	
YSIO X.pree	A cutting-edge digital X-ray system featuring myExam Companion for intelligent user guidance and high-quality imaging. With advanced automation and AI-driven tools, it streamlines workflows, enhances diagnostic precision, and adapts seamlessly to a wide range of clinical applications.	
MULTIX Impact	A versatile and cost-effective digital X-ray system designed for high-quality imaging and efficient workflows. Featuring myExam Companion for intuitive user guidance, it supports a broad range of clinical applications while enhancing productivity and patient care.	
Molecular Imaging Systems (PET/CT scanners)	**Description**	**Image**
Biograph Vision™	A high-performance PET/CT scanner designed for precision imaging and early disease detection. Featuring an industry-leading 3.2 mm detector resolution and advanced digital technologies, it delivers high image quality, reduced scan times, and lower radiation doses to enhance diagnostic accuracy and patient care.	
Biograph™ mCT	A versatile PET/CT scanner combining high-performance molecular imaging with advanced CT capabilities. It provides exceptional image quality, reduced scan times, and enhanced patient comfort, supporting a wide range of clinical applications, from oncology to cardiology and neurology.	
Biograph™ Horizon	A cost-effective PET/CT scanner offering high-quality imaging for oncology, cardiology, and neurology applications. It features advanced imaging technologies, low radiation doses, and streamlined workflows to enhance diagnostic accuracy and clinical efficiency.	

Symbia Evo™	A high-performance SPECT system designed to deliver exceptional image quality, faster scans, and increased patient comfort. It supports a wide range of nuclear medicine applications, enhancing diagnostic accuracy and workflow efficiency in clinical environments.	
Symbia Evo™ Excel	A versatile SPECT/CT system combining high-quality SPECT imaging with low-dose CT for improved diagnostic precision. It is designed for efficiency, offering streamlined workflows, compact installation requirements, and enhanced patient comfort for a broad range of nuclear medicine applications.	
Ultrasound Machines	**Description**	**Image**
ACUSON Sequoia	A state-of-the-art ultrasound system delivering exceptional image quality, even for technically challenging patients. It features advanced technologies like Deep Abdominal Transducer and BioAcoustic Imaging to enhance diagnostic precision, improve workflow efficiency, and support a wide range of clinical applications.	
ACUSON Redwood	A compact, versatile ultrasound system designed to deliver high-quality imaging and advanced applications. With AI-powered tools, efficient workflow features, and portability, it supports a wide range of clinical settings, including cardiology, radiology, and point-of-care imaging.	
ACUSON Juniper	A highly adaptable and compact ultrasound system designed for high-quality imaging across a variety of clinical applications. Its lightweight design and advanced imaging capabilities make it suitable for diverse patient populations, supporting efficiency and reliability in any clinical environment.	
ACUSON Bonsai	A portable cardiovascular ultrasound system optimized for point-of-care imaging. It delivers high-quality imaging with advanced features for cardiac and vascular assessments, supporting quick diagnostics and improved patient care in both clinical and mobile settings.	
ACUSON P500	A portable point-of-care ultrasound system designed for fast, reliable imaging in critical and emergency settings. With advanced imaging technologies and a compact design, it supports a wide range of applications, including cardiac, abdominal, and vascular assessments, enhancing diagnostic confidence in demanding environments.	

ACUSON Freestyle Series	A wireless ultrasound system designed for point-of-care imaging, offering unmatched flexibility and ease of use. Its wireless transducers enhance infection control and streamline workflows, making it ideal for interventional procedures, emergency care, and mobile clinical settings.	

Exhibit 4 - Diagnostics Products Portfolio of SHL

Immunochemistry	Description	Image
Atellica Solution Immunoassay & Clinical Chemistry Analyzers	A scalable immunoassay and clinical chemistry analyzer designed for high-throughput laboratories. It features innovative sample handling with the patented Atellica Magline® Transport, AI-driven workflow automation, and a broad test menu, providing flexibility, speed, and accuracy for diverse diagnostic needs.	
ADVIA Centaur XPT	A high-throughput immunoassay analyzer designed for efficiency and reliability in clinical laboratories. It offers an extensive test menu, advanced automation, and exceptional precision, making it ideal for high-demand environments requiring consistent and accurate results.	
ADVIA Centaur XP	A robust immunoassay system designed for medium-to-high-volume laboratories. It delivers reliable, high-quality results with an extensive test menu, intuitive workflow, and advanced automation to enhance productivity and diagnostic accuracy.	
ADVIA Centaur CP	A compact immunoassay system designed for low-to-medium-volume laboratories. It provides a broad test menu, fast turnaround times, and reliable performance, making it ideal for labs seeking efficient and cost-effective diagnostic solutions.	
IMMULITE 2000 XPi	A versatile immunoassay system designed for medium-to-high-volume laboratories. It offers a comprehensive test menu, reliable performance, and streamlined workflows, ensuring fast and accurate results for a wide range of diagnostic applications.	
Hematology	**Description**	**Image**
ADVIA 560 and 560 AL Systems	A compact, reliable hematology analyzer designed for low-to-medium-volume laboratories. It delivers accurate, high-quality results with a 5-part differential, user-friendly operation, and efficient workflows to meet every day diagnostic needs.	

ADVIA 360	A compact and efficient hematology analyzer ideal for small to medium-sized laboratories. It provides reliable, high-quality results with a user-friendly interface, supporting routine diagnostics with minimal maintenance and easy operation.	
Hematek 3000 System	A reliable and efficient automated slide stainer designed for hematology laboratories. It ensures consistent, high-quality staining results with a user-friendly interface, low maintenance requirements, and the capacity to handle high workloads.	
ADVIA 2120i Hematology System with Autoslide	A high-throughput hematology analyzer offering advanced automation for large laboratories. It provides a 5-part differential, accurate results, and integrated slide preparation with Autoslide, streamlining workflows and enhancing productivity in high-volume settings.	
CellaVision DM9600	An advanced digital cell morphology system that automates and enhances the analysis of blood and body fluid slides. It delivers high-resolution imaging, standardized results, and improved workflow efficiency, supporting accurate and consistent diagnostics in hematology laboratories.	
CellaVision DM1200	A digital cell morphology system designed for medium-to-large hematology laboratories. It automates blood and body fluid slide analysis with high-resolution imaging, standardized classification, and efficient workflows, enhancing diagnostic accuracy and productivity.	
Urinalysis	**Description**	**Image**
Urinalysis CLINITEK Novus® Automated Urine Chemistry Analyzer	An automated urinalysis system combining urine chemistry and particle analysis in a single platform. It delivers high-throughput, accurate results with minimal manual intervention, making it ideal for medium-to-large laboratories seeking efficiency and reliability in urinalysis testing.	
CLINITEK Advantus Urine Chemistry Analyzer	A reliable and compact urine chemistry analyzer designed for medium-sized laboratories. It offers a broad test menu, automated workflow, and fast results, enabling efficient and accurate urinalysis for routine and specialty testing.	

CLINITEK Status+ Analyzer	A versatile point-of-care urinalysis analyzer offering quick and reliable testing for a broad range of urine chemistry parameters. Its automated quality checks ensure accurate results, making it ideal for routine diagnostics in clinical and outpatient settings.	
CLINITEK Status Connect System	A connectivity solution for the CLINITEK Status+ Analyzer, enabling seamless integration with laboratory or hospital information systems (LIS/HIS). It enhances workflow efficiency, ensures accurate data transmission, and supports centralized management of urinalysis results.	
CLINITEK AUWi PRO System	A fully automated urinalysis solution that integrates the CLINITEK AUWi PRO urine chemistry analyzer with particle analysis for seamless workflow efficiency. Designed for high-throughput laboratories, it ensures accurate, reliable results while reducing manual intervention and improving diagnostic productivity.	
Molecular Diagnostics Systems	**Description**	**Image**
VERSANT HCV Genotype 2.0 Products (LiPA)	A molecular diagnostic tool designed for the precise genotyping of the Hepatitis C Virus (HCV). It uses reverse hybridization to identify HCV genotypes and subtypes, providing critical information for personalized treatment decisions and improving patient outcomes in hepatitis management.	
Tissue Preparation System	A comprehensive portfolio of laboratory diagnostic solutions, including systems, assays, and automation tools designed to enhance efficiency and diagnostic accuracy. Covering areas such as immunoassay, clinical chemistry, hematology, molecular diagnostics, and urinalysis, these innovations support improved workflows and high-quality patient care in laboratories of all sizes.	
VERSANT® kPCR Sample Prep with the MiPLX Software Solution	An automated sample preparation system designed for molecular diagnostics, enabling efficient and consistent isolation of nucleic acids. The MiPLX Software Solution streamlines workflows by managing sample tracking and optimizing batch processing, making it ideal for high-throughput laboratories.	

Exhibit 5 - Advances Therapies Products Portfolio of SHL

Advanced Therapies	Description	Image
Cios Spin	A mobile C-arm with 3D imaging capabilities, offering high-resolution images for intraoperative precision. It is ideal for spine, trauma, and vascular surgeries, enabling enhanced surgical outcomes through advanced navigation support.	
Cios Alpha	A mobile C-arm featuring a powerful 25 kW generator and CMOS imaging technology for exceptional clarity and detail. It is designed for demanding procedures, including vascular and orthopedic surgeries, ensuring consistent high-quality imaging with dose efficiency.	
Cios Fusion	A mobile C-arm designed for smooth workflows, featuring CMOS imaging technology for consistent image quality and an intuitive interface. Ideal for a wide range of procedures, including orthopedics, trauma, and general surgery.	
Cios Select with FD	A cost-effective mobile C-arm featuring flat-detector (FD) technology for high-quality, distortion-free imaging. Designed for reliable performance in routine procedures, including orthopedics, trauma, and urology.	
Cios Select	A reliable mobile C-arm equipped with image intensifier technology, offering consistent imaging quality for routine surgical procedures such as orthopedics, trauma, and pain management. It provides cost-effective performance with straightforward operation.	
ARTIS icono	A state-of-the-art interventional angiography system designed for multi-disciplinary use in radiology, cardiology, and surgery. It delivers exceptional imaging quality, advanced 3D capabilities, and flexible workflows to support precise diagnostics and minimally invasive procedures, enhancing patient outcomes.	
ARTIS pheno	A cutting-edge robotic C-arm angiography system designed for hybrid operating rooms, supporting minimally invasive surgery and complex interventions. It provides exceptional imaging quality, flexible positioning, and advanced 3D capabilities, enhancing precision and efficiency across disciplines like vascular surgery, orthopedics, and oncology.	

Artis Q	An advanced interventional angiography system featuring cutting-edge imaging technology for precise diagnostics and treatments. Designed for use in cardiology, radiology, and surgery, it offers superior image quality, enhanced dose efficiency, and workflow optimization to support complex minimally invasive procedures.	
Artis Q.zen	A high-performance interventional angiography system combining advanced imaging quality with ultra-low radiation doses. Ideal for minimally invasive procedures in cardiology, radiology, and surgery, it utilizes innovative X-ray tube and detector technologies to optimize precision and patient safety.	
Artis zee	A versatile interventional angiography system designed to support a wide range of minimally invasive procedures in cardiology, radiology, and surgery. It offers excellent image quality, flexible configurations, and advanced workflow integration to enhance precision and efficiency in clinical practice.	
Artis one	A compact, floor-mounted interventional angiography system designed for routine and advanced procedures in cardiology and radiology. It offers exceptional imaging quality, low-dose technology, and optimized workflows, making it ideal for facilities seeking high performance with a smaller footprint.	

Exhibit 6 - LINAC Products Portfolio of VMS

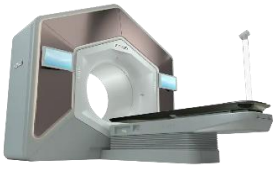
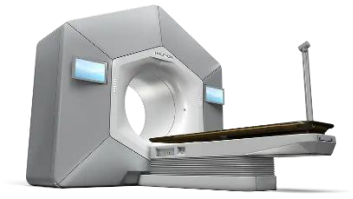
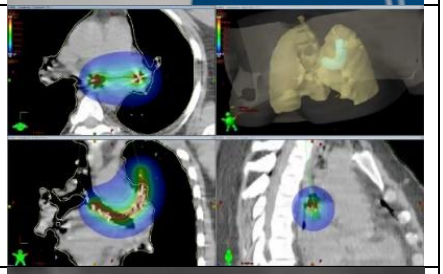
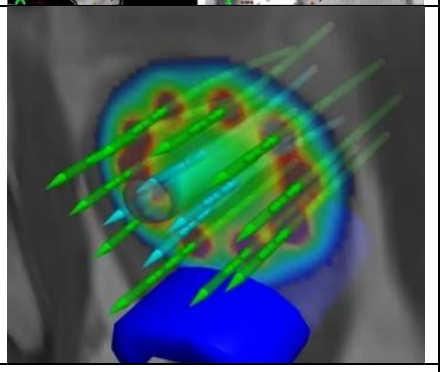
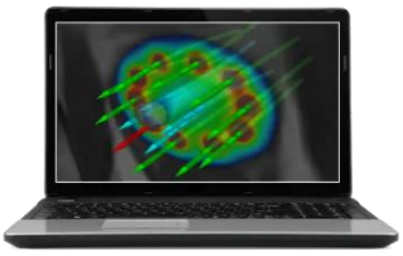
LINACs	Description	Image
TrueBeam	A high-energy radiotherapy system delivering advanced treatments like IMRT, IGRT, VMAT, SRS, and SBRT with precision, speed, and integrated imaging for effective cancer care.	
EDGE	A high-energy radiosurgery system designed for precision SRS and SBRT, featuring advanced motion management and real-time tumor tracking for non-invasive cancer treatment. 4o	
Clinac® iX	A high-energy radiotherapy system providing high-energy X-ray treatments, supporting advanced techniques like IMRT and IGRT to deliver precise and customizable cancer care.	
Trilogy®	A flexible, high-energy radiotherapy platform designed for cost-effective cancer treatment, supporting techniques like IMRT, IGRT, and stereotactic applications.	
UNIQUE™	A cost-effective, low-energy radiotherapy system tailored for emerging markets, offering advanced treatment capabilities like IMRT and IGRT for precise cancer care.	
Ethos™	An AI-powered adaptive radiotherapy system offering personalized cancer treatment with real-time adjustments, integrating imaging and delivery for optimal precision and efficiency.	
Halcyon™	A compact, energy-efficient radiotherapy system designed for simplicity and speed, offering advanced treatments like IMRT and VMAT with a streamlined, patient-centric design.	

Exhibit 7 - Brachytherapy Products Portfolio of VMS

Brachytherapy Products	Description	Image
VariSource™ HDR afterloader	An HDR brachytherapy system offering precise, targeted radiation with advanced source control and applicator flexibility.	
GammaMedplus™ iX HDR/PDR afterloader	An HDR brachytherapy afterloader providing precise dose delivery and compatibility with various applicators for efficient cancer treatment.	
BrachyVision™ system	A treatment planning system for brachytherapy that enables precise dose calculation and visualization for accurate, efficient cancer care.	
VariSeed™ LDR system	A specialized treatment planning system for prostate brachytherapy, offering precise dose calculations and streamlined workflows for efficient care.	
Vitesse™ software	A real-time treatment planning system for ultrasound-guided HDR brachytherapy, enabling precise, efficient dose calculation and delivery.	

Bravos™	An advanced afterloader for HDR brachytherapy, designed for precision, efficiency, and enhanced workflow integration, ensuring reliable and safe cancer treatment delivery.	

Exhibit 8 - Software Products Portfolio of VMS

Software Products	Description
Treatment Planning Products	
Eclipse™	A comprehensive treatment planning system that enables clinicians to create precise and personalized radiotherapy plans. It supports advanced techniques like IMRT, VMAT, and stereotactic therapies, using 3D imaging, inverse planning, and dose optimization to deliver accurate and effective cancer treatments.
RapidPlan	An AI-powered knowledge-based treatment planning tool that uses statistical models to streamline and optimize IMRT and VMAT plans. It leverages shared clinical knowledge and patient anatomy to enhance planning efficiency and improve the quality of radiation therapy treatments.
Oncology Information System Products	
ARIA	A comprehensive oncology system for managing treatment workflows, patient data, and imaging, supporting seamless care coordination and EMR integration.
FullScale™	A cloud-managed service enabling scalable, cost-efficient deployment of Varian's ARIA® and Eclipse™ software with secure remote access.
Varian Treatment™	A software solution that connects ARIA® to third-party linear accelerators, expanding compatibility and support for non-Varian equipment.
Analytics Software Products	
InSightive™	An analytics platform providing real-time clinical and operational insights through interactive dashboards and data visualizations to improve decision-making and practice management.
Velocity™	A data integration platform that consolidates imaging and treatment data from multiple systems, offering clinicians a unified view of a patient's cancer treatment history to support informed decisions.
Oncology Platform Products	
OncoPeer™	A cloud-based platform for oncology professionals to share treatment models, clinical resources, and best practices, fostering collaboration and improving cancer care efficiency across institutions.
360 Oncology®	A care management platform that integrates radiation, medical, and surgical oncology with social services and patient collaboration, enabling coordinated, multidisciplinary cancer care.
Other Products	
Qumulate™	A cloud-based platform for monitoring and analyzing machine performance data, enabling quality assurance and benchmarking in radiotherapy departments.
Noona®	A cloud-based patient engagement platform that captures real-time patient-reported outcomes, improving symptom management and enhancing communication between patients and care teams.

Exhibit 9 - Proton Solutions Products Portfolio of VMS

Proton Solutions Products	Description	Image
ProBeam® system	A precise proton therapy system using IMPT and pencil-beam scanning to target tumors while sparing healthy tissue.	
ProBeam® Compact	A cost-effective, single-room proton therapy system offering precision treatment with IMPT and pencil-beam scanning in a smaller footprint.	
ProBeam® 360°	An advanced proton therapy system with a 360-degree rotating gantry, cone-beam CT imaging, and high-definition pencil-beam scanning for precise and efficient cancer treatment.	

Exhibit 10 - SHL Competitors' Analysis (in $ Million)

Competitors	Market Capitalization	Revenues	Country of origin
Koninklijke Philips NV	38,744.30	19,190.0	Netherlands
QIAGEN NV	7,473.01	1,526.4	Netherlands
Abbott Laboratories	153,091.03	31,904.0	USA
Medtronic	117,109.94	30,557.0	Ireland
Varian Medical Systems	10,728.93	3,225.1	USA

Exhibit 11 - VMS Competitors' Analysis (in $ Million)

Competitors	Market Capitalization	Revenues	Country of origin
Ion Beam Applications SA	429,92	316,20	Belgium
Accuray incorporated	342,52	418,80	California, USA
Viewray	621,15	87,80	Ohio, USA
Eckert & Ziegler	975,89	199,77	Germany
Elekta AB	4 758,01	1 500,65	Sweden
SHL	36,071.50	16,370	Germany

Exhibit 12 - Siemens' Business Model

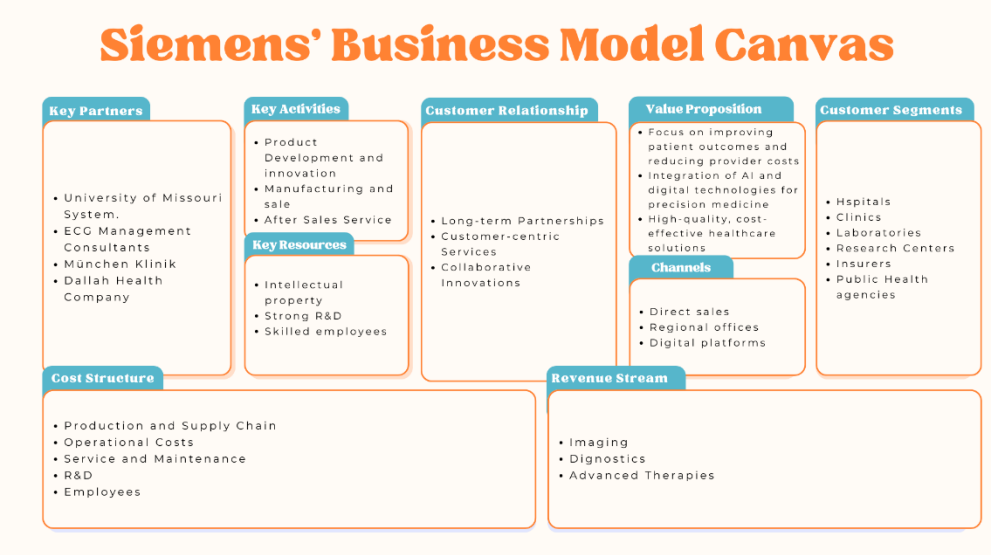


Exhibit 13 - Varian's Business Model

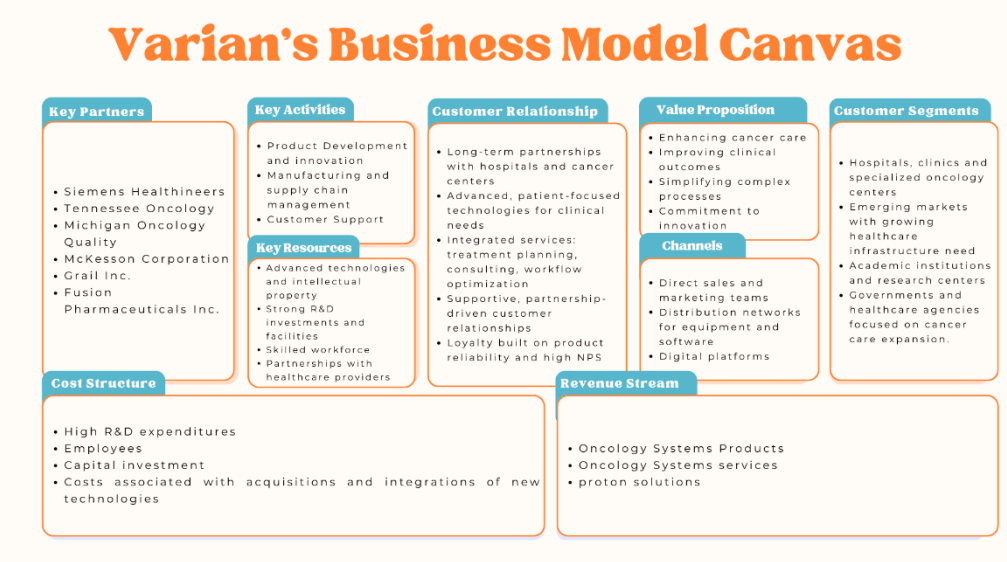


Exhibit 14 - VMS Revenues per Segment

Revenues by areas	Oct. 02, 2015	Sep. 30, 2016	Sep. 29, 2017	Sep. 28, 2018	Sep. 27, 2019
Oncology Systems Revenues	2 344	2 458	2 437	2 770	3 062
% Total Revenues	*75,63%*	*93,78%*	*93,03%*	*94,90%*	*94,94%*
% growth		*4,86%*	*-0,86%*	*13,68%*	*10,53%*
Proton Solutions Revenues	-	163	183	149	144
% Total Revenues	*0,00%*	*6,20%*	*6,97%*	*5,10%*	*4,46%*
% growth			*12,24%*	*-18,41%*	*-3,36%*
Other	144	1	-	-	19
% Total Revenues	*4,64%*	*0,02%*	*0,00%*	*0,00%*	*0,60%*
% growth		*-99,65%*	*-100,00%*		
Imaging Components Revenues	611	Discontinued	Discontinued	Discontinued	Discontinued
% Total Revenues	*19,72%*	*Discontinued*	*Discontinued*	*Discontinued*	*Discontinued*
% growth					
Total Revenues	3 099	2 621	2 619	2 919	3 225

Exhibit 15 - Total revenues by region

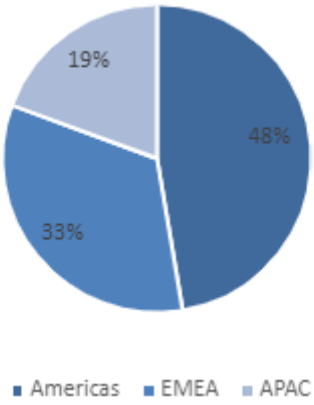


Exhibit 16 - Transaction Terms of the Agreement Between Siemens and Varian

Varian is expected to positively contribute to Siemens Healthineers adjusted basic EPS[3] within the first 12 months after closing of the acquisition. Following the closing of the acquisition, Siemens Healthineers aims for EBIT synergies of at least EUR 300 million per annum in fiscal year 2025.

Siemens Healthineers plans to finance the acquisition of Varian with a mix of debt and equity. Siemens Finance B.V., a subsidiary of Siemens Aktiengesellschaft, will provide Siemens Healthineers for a transitional period with a bridge facility in an amount of EUR 15.2 billion to finance the acquisition price and additional costs and expenses in connection with the acquisition of Varian.

Siemens Healthineers plans to replace up to approximately 50 percent of the amount available under the bridge facility granted by Siemens Finance B.V. through the issuance of equity. For this purpose, Siemens Healthineers intends to increase the share capital by issuing new shares with subscription rights expected to be excluded. In a first step, Siemens Healthineers plans to place new shares without a prospectus, depending on market conditions, still within calendar year 2020. The issuance of new shares will raise the free float and presumably the trading volumes of Siemens Healthineers shares. It is planned that the remaining amounts under the bridge facility will be refinanced through debt provided by Siemens AG or one of its subsidiaries to Siemens Healthineers. Such debt will be raised externally by Siemens AG and then be passed on to Siemens Healthineers through loans at market conditions. After closing, Varian will continue to operate under the Varian name, as a Siemens Healthineers brand.

Exhibit 17 - Varian's SWOT Analysis

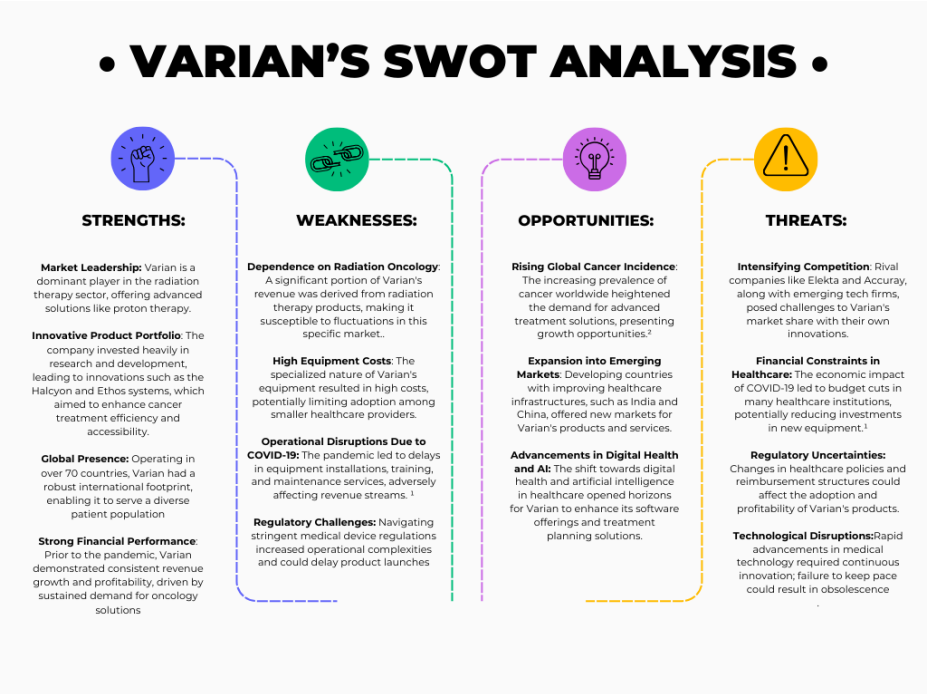
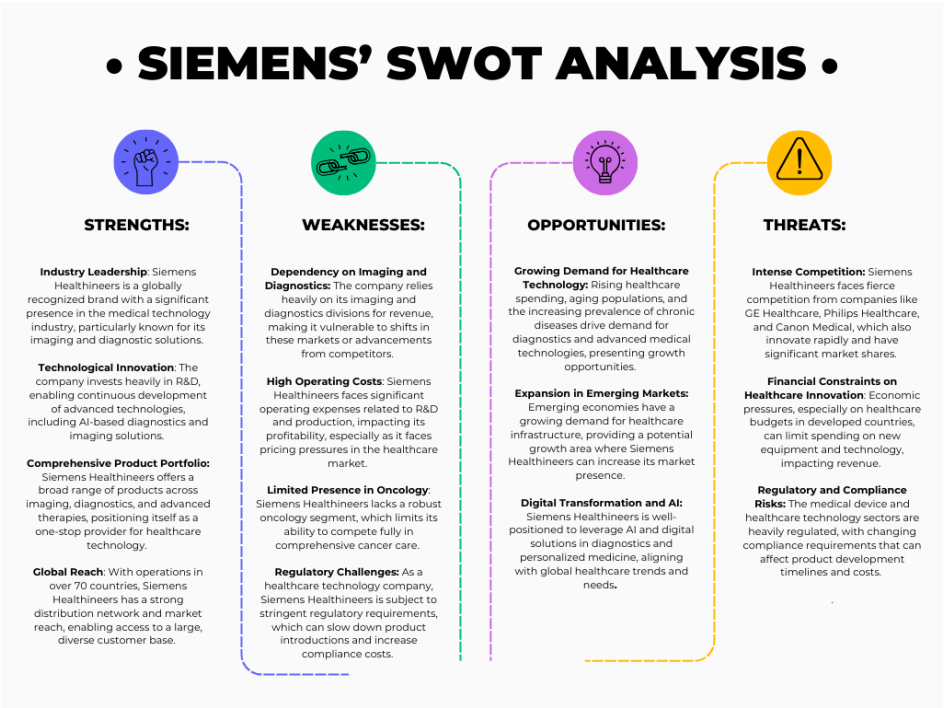


Exhibit 18 - Siemens' SWOT Analysis



[1] Regarding the disruptions caused by COVID-19, various Chief Information Officers in the health industry anticipated a decline in revenues during the second and third quarters

of 2020, followed by growth in revenues in 2021 (‘COVID-19: Recovery Expectations by Industry’, n.d.). Despite this foresight, the disruptions caused by COVID-19 can still be considered weaknesses and threats. The pandemic significantly impacted the entire economy, and had these disruptions not occurred, revenues would have been projected to grow at an even higher rate. (‘COVID-19: Recovery Expectations by Industry’, n.d.)

[2] Concerning the rising of cancer incidence, it is anticipated to continue its upward trajectory in the coming years. As reported by the World Health Organization in 2020, trends indicate a rise in cases of major cancers, such as breast and lung cancer, primarily driven by aging populations and the persistence of prevalent risk factors. In the Americas, projections reveal a consistent annual increase in cancer cases, while in Europe, a significant rise is similarly forecasted. These patterns emphasize the critical need for proactive measures in prevention and enhanced healthcare system responses. (Statista 2020)

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