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The Role of Performance Reports and Financial Health for Value Creation in Healthcare System: A Case Study of NHS East Kent, UK and ASP Cosenza, Italy

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Abstract

Value creation is the most debatable topic in healthcare in recent decades. The present study is descriptive in nature; two case studies were investigated—East Kent Hospitals University NHS Foundation Trust (EKHUFT), UK, and Provincial Health Authority (ASP) Cosenza, Italy—to examine the comparative performance and financial analysis of the healthcare frameworks over an 8-year period from 2015 to 2022. The research explores thematic priorities in sustainability, technological innovation, and training by ensuring the system’s high-quality service delivery and operational efficiency, along with financial stability, which is critical for value creation in any healthcare system to achieve long-term goals. This study employs a mixed-method approach by integrating keyword trend analysis and financial ratio assessment to provide a comprehensive understanding of how healthcare delivery systems prioritize strategic initiatives, navigate challenges, and allocate resources.

This study demonstrates the significant differences in the thematic focus of each healthcare system and their value creation. NHS East Kent represents a structured approach towards the variables, including sustainability, technological innovation, and training, underscoring its commitment to long-term goals. In contrast, the ASP Cosenza struggles with multiple challenges like workforce shortages, resource constraints, and delays in implementing structured and consistent strategies. Despite these challenges, it showed commitment to address regional healthcare needs. ASP Cosenza took the initiative to implement renewable energy projects and prepare its hospitals for emergency response training.

This thesis highlights various limitations, particularly in ASP Cosenza, including the use of scanned image files, data gaps, and untimely publication

in their database. Nevertheless, adapting advanced analytical methods gives valuable insight for policymakers and healthcare governments to take the initiative to deal with upcoming challenges. The findings emphasize that a stable, efficient, and resilient healthcare system can serve as a driver for value creation. By identifying the gaps, the study offers a framework for evaluating thematic priorities and financial discourse to add value to healthcare.

Keywords: Healthcare System, Sustainability, Technological Innovation, Training, Value Creation, Financial Ratio

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Chapter 1

Introduction

Overview

This study examines the British and Italian healthcare systems specifically directed to East Kent Hospitals University NHS Foundation Trust (EKHUFT) and Provincial Health Authority (ASP) Cosenza hospitals by conducting a descriptive analysis of performance reports and analyzing the financial health through reviewing the annual report and accounts during the years 2015 to 2022. The present chapter highlights the background of the study and a brief introduction to how the British and Italian healthcare systems work, the integral role of spending in healthcare, exploring how hospital performance and financial stability create value, and lastly, the interrelationship among sustainability, technological innovation, and training, representing how these components inclusively aid in a viable, resilient healthcare delivery system. In addition, the chapter discusses the problem statement(s) along with the research objectives and questions that guide this study and ends with a chapter summary.

1.1 Research Background

Healthcare is an essential human right. The right to health is as important as sustenance and housing. On September 25, 2015, global leaders at the United Nations (UN) General Assembly ratified 17 sustainable development goals (SDGs) and 69 targets under "Transforming Our World." In this commitment, leaders vowed to undertake significant and transformative actions to eradicate poverty and hunger, promote gender equity, empower women and girls, and guarantee that all individuals experience human dignity and equality within a healthy environment. The ongoing discourse regarding basic care

and primary health care is pertinent, particularly with the inclusion of universal health coverage. The advantages of health systems that are predicated on the quality of health care are recognized globally, and there exists a general agreement among politicians that health care should be enhanced. These comprehensive, human-centric, and transformational objectives aim to guarantee that “no one is left behind” as the global community advances towards achieving the sustainability of the economy, society, and the environment in its development initiatives, practices, and policies by 2030 (specifically, target 3.8 of SDG 3, “Good Health and Well-Being”), which advocates for primary care as a strategy for achieving universal coverage [35]. Furthermore, care services must be of superior quality to enhance the health of recipients, and access to these facilities must provide financial risk security, preventing the costs from imposing excessive financial strain on users. Attaining universal health coverage entails ensuring that healthcare services across all systems, particularly conventional alternative and complementary therapies, are readily accessible, inexpensive, and of high quality. Conventional medical systems provide healthcare to more than 60% of the worldwide population in both developing and wealthy nations [42]. Consequently, nation-states and their governments must adopt integrative healthcare systems and integrate conventional medical practices and services into their national healthcare policies, planning, funding, and monitoring/evaluation processes. The WHO has observed that existing obstacles, including geographical and institutional impediments, together with the dominance of curative, hospital-centric, and disease-oriented healthcare services, have contributed to inadequate access to care services throughout the years. Healthcare systems are fundamental infrastructures that play a critical part in guaranteeing the health of populations, supporting financial development, and improving the quality of life. The outcome of these systems relies altogether upon sufficient financial investment, which supports their capability to provide services, benefits, and innovation and adapt to changing demographic and epidemiological patterns. In modern healthcare systems, the role of finance stretches beyond the basic provision of services. It helps in the betterment of health results, lessens inequalities, and drives technological and organizational developments. In this specific situation, investment in healthcare turns into a multi-dimensional need, vital for establishing sustainable, operational, and efficient systems of care [65].

The main reason for attaining the objective is to guarantee that each person has access to healthcare when required. Countries across all global regions are advancing in this respect. The healthcare industry is increasingly adopting sustainability as a fundamental operating norm. Sustainability denotes a population that “satisfies the needs of the present without jeopardizing

the capacity of future generations to fulfill their own needs” [53]. Healthcare delivery systems significantly contribute to carbon emissions and waste. Non-biological solids constitute a substantial portion of trash in clinical labs, including plastics, paper, and electronic waste. It is estimated that 850 million metric tons of greenhouse gases were generated by the manufacture and incineration of plastics, with projections indicating that these emissions may escalate to 2.8 billion metric tons by 2050 [10]. Furthermore, around 15% of healthcare waste is classified as contagious, radioactive, or poisonous. In rich countries, it is anticipated that 0.5 kg of hazardous waste is produced per hospital day; however, in underdeveloped nations, the estimate decreases to 0.2 kg [19]. Fifty nations have pledged to establish climate-resilient and low-carbon health systems; fourteen of them aim to achieve net zero by 2050 [85]. The UK’s National Health Service was the first healthcare system to pledge achieving net zero carbon emissions under its direct control and to attain net zero in indirect carbon emissions by 2045, including energy generation and the whole supply chain. This presents a framework for a comprehensive strategy to enhance the social, environmental, and financial sustainability of a public health care system [54]. Enhancements in health care are guided by quality domains, which include patient experience, safety, effectiveness, efficiency, equity, and timeliness. Sustainability is a trait that must permeate and regulate other areas [72], since healthcare should account for the needs of existing patients, the general public, and future generations.

Finance is the foundation of any healthcare system, affecting its structure, functionality, and the quality of care provided. Healthcare services, which incorporate preventive consideration, diagnostics, therapies, and rehabilitation, are asset-intensive, requiring both capital and recurring expenses [60]. Sufficient monetary resources guarantee that healthcare systems have the infrastructure, innovation, and human resources important to work effectively. Lack of funding, on the other hand, can prompt deficiencies in fundamental supplies, decreased admittance to services, and expanded waiting times for patients, all of which adversely influence patient results and overall populace wellbeing. No doubt, capital investments are significant for building healthcare infrastructure like clinics, hospitals, and diagnostic centres. Moreover, financial means are needed to put resources into modern medical equipment and data systems, which are fundamental for identifying and treating illnesses. Recurring expenditures, which incorporate employees’ salaries, clinical supplies, and subsistence of offices, likewise require predictable monetary input [59]. Without such monetary investments, healthcare systems can’t support their tasks, as they cannot develop or extend on their own to fulfil the developing needs of the citizens.

Additionally, to invest in healthcare research and development, ensuring ad-

vancements in clinical innovation, drugs, and healthcare delivery models. It is essential for working on the efficiency and cost-effectiveness of therapies, making new diagnostic equipment, and propelling general well-being techniques pointed toward preventing illnesses before they grow into exorbitant healthcare emergencies. Focusing on healthcare isn't simply a monetary transaction; it is an essential way to deal with ongoing and long-term challenges, upgrade service quality, and make an efficient system that guarantees long-haul sustainability. Value in healthcare is generally characterized as the results accomplished per unit of cost spent [28], [71]. In such a manner, investment is needed in producing value since it empowers systems to work more proficiently, upgrade technology, and provide services that meet the developing necessities of the public. Moreover, incorporating new technologies and upgrading systems can add value in multiple ways. Primarily, it enables the improvement of healthcare infrastructure and innovation, which enhances more efficacy in impactful care delivery. For instance, using electronic health records (EHRs) can streamline the management of patients' data, lessen clinical errors, and further develop coordination of care. Also, investments in clinical advances, such as minimally invasive medical surgery equipment and telemedicine stages, diminish the requirement for costly and asset-intensive practices, reducing healthcare costs while improving patient results [34].

Healthcare innovations have historically been linked to technological advancements. Furthermore, advancements in communication technology have resulted in novel applications within the fifth-generation cellular network standard, alongside the expanding utilization of artificial intelligence of things devices, both of which influence the configuration of the healthcare sector [39]. The rapid advancement of science and technology has facilitated discoveries that have benefitted all of humanity. Technological innovation has enhanced progression, development, progress, and prosperity across all sectors; it has introduced ease, comfort, convenience, and success into people's lives, making existence worthwhile. Adam [2] defined innovation as the effective application of novel concepts and the process of introducing a new idea or product to the market. Innovations in the health industry are mostly linked to technology. The digitization of healthcare has been expanding quickly, particularly since the COVID-19 pandemic [36]. Digital technology has the capacity to provide more effective, efficient, and customized healthcare systems, hence facilitating the development of sustainable healthcare models. The Food and Drug Administration (FDA) defines digital health as including customized medicine, wearable devices, telehealth and telemedicine, mobile health, and health information technology [32]. This is a streamlined innovation that enhances cost efficiency using technological platforms, networking,

software, and sensors used across many applications [29]. Digital health interventions may provide individualized, patient-centered care globally and include decision support tools that may enhance healthcare performance and quality. The customization of treatment often results in higher expenses, while digital technologies have the potential to mitigate this via improved process efficiency [74]. Big data is essential for improving data management efficiency and reducing costs in digital systems [47]. Maximizing the use of digital technologies in healthcare necessitates interoperability, which requires a collaborative atmosphere, strategic planning, regulatory measures, and globally recognized standards [8]. Appropriate interfaces must be used to ensure that the benefits of digitalization are experienced throughout the health system; the effective and sustainable execution of digital innovation relies on its incorporation into a functioning health ecosystem [21]. Digital transformation has emerged as a priority in healthcare facilities, particularly clinical laboratories, capable of enhancing their environmental, social, and economic performance. Nonetheless, digitization requires meticulous planning to ensure large-scale deployment occurs without adverse environmental effects. Modifications in healthcare protocols and ICT assistance throughout the transition from acute care to a preventive and self-care model are advantageous for both health and economic outcomes. Sachdeva's research [64] illustrates that although the implementation of new technology may incur significant expenses, careful selection may result in the adoption of appropriate technology that fosters cost-effective treatment with enduring advantages. Despite its high cost, the judicious selection and use of technology in the healthcare industry may provide a durable competitive advantage via technical advances. The WHO characterizes technology developments in the health sector as new medical device solutions designed to tackle health issues and improve quality of life. Technologies have enabled the healthcare industry to use innovations to improve service quality, hence enhancing health service delivery. It has significantly contributed to the growth and enhancement of the health service industry and is a primary factor in its current sophisticated and advanced state. Ericson [27] has examined many technological developments in the healthcare sector during the last decade. It encompasses electronic health records, eHealth, telemedicine, telehealth, portal technology, remote monitoring tools, sensors, wearable technology, pharmacogenomics, genome sequencing, and more components. These are current technical developments used in the contemporary healthcare system, contributing to advancements and progress in modern healthcare. In contemporary society, the health sector cannot provide quality and effective services to attain health sustainability without technological advancements. However, technological development alone is inadequate to enable sustain-

ability. The successful adoption and execution of innovations expect health-care professionals to get sufficient training to utilize these apparatuses. Continuous professional development plays a pivotal role in empowering health-care workers to stay up with technological innovations. Training programs should be lined up with advancing technologies, guaranteeing that clinicians, attendants, and other healthcare staff are capable of using the latest equipment and methods that can improve patient care [69]. Besides, investment in the workforce, especially concerning constant education and training, is basic for establishing value. A highly-trained workforce is better prepared to use technological innovations, stick to evidence-based procedures, and give excellent care. This, in turn, converts into better well-being results for patients, shorter emergency clinic stays, and lower healthcare costs. Furthermore, investment in preventive care can be critical to lessening the burden of ailments, particularly persistent conditions like diabetes, hypertension, and cardiovascular diseases. Preventive measures are often more cost-effective than curative treatments, and they can work on the general health of the public, diminishing the requirement for exorbitant hospitalizations and medicines down the line. Technological development assumes a basic part in working on the sustainability of healthcare systems by upgrading effectiveness, lessening waste, and improving patient health. Advancements in clinical innovation, precision medicine, occupational services, and artificial intelligence-driven identification of diseases can significantly upgrade the accuracy of identifications and the viability of therapies, while likewise diminishing the time and resources needed for these methods. Also, progressions in health information technology, for example, digitalization of health records and telemedicine stages, add more efficient healthcare conveyance and better asset distribution [36].

Moreover, the proliferation of public and private funding entities necessitates the implementation of strategic assessments on societal and scientific effects. This phenomenon arises when economic forces compel public organizations and governments to validate that expenditures in training provide a beneficial effect on society and public health. An urgent need exists to shift the existing training paradigm in the healthcare industry from knowledge and skill development to organizational transformation. It is now essential to consider training as a viable remedy. The project-based training methodology has cultivated a culture in which implementers now request training for even minor tasks [23].

Training must be regarded as an integral component of human development, focusing on skill enhancement for effective task execution. Training frameworks should be realigned to foster a transformation in the attitudes and mindsets of healthcare providers across all tiers, thereby ensuring elevated

organizational and professional commitment. All developed nations are now facing escalating expenses in the healthcare sector [18]. The demands for productivity, efficiency, and the attainment of high-quality healthcare are of paramount importance given the constraints of limited resources. Nonetheless, sustainability, technological innovation, and skilled based training in human health are interconnected.

Besides, training additionally adds to the sustainability of the healthcare workforce itself. In a period where healthcare systems face expanding pressures because of aging masses and workforce deficiencies, investments in workforce advancement are fundamental. Training guarantees that healthcare experts stay competent, propelled, and ready to give excellent care, thus reducing burnout and attrition, which could otherwise sabotage the sustainability of healthcare conveyance.

Overall, in present healthcare systems, the ideas of sustainability, technological innovation, and training are profoundly interconnected, with each impacting the others in a repeating relationship. Investments do not just work on the proficiency and adequacy of healthcare benefits but additionally guarantee that systems can proceed to work and develop concerning changing requirements of society. Sustainable healthcare systems are those that can keep contributing to high-quality care over the long haul without exploiting monetary, human, or natural resources. Accomplishing this sustainability requires strong attention to both technological development and the persistent training of healthcare experts.

1.2 The British Healthcare System

The United Kingdom (UK) is situated in northwestern Europe and comprises four constituent nations: England, Scotland, Wales, and Northern Ireland. On the geographical realm, the UK is an island country, encompassed by the Atlantic Sea, the North Ocean, the English Channel, and the Irish Ocean [43]. This geological division has generally affected the UK's social and political turn of events, including its healthcare system. The UK's maritime area has transformed its role as a focal point for worldwide trade and migration, adding to the variety of its population and, thus, its healthcare needs. The UK's map is shown in Figure 1.1. The total population of the United Kingdom was estimated to be 68.3 million at mid-year 2023 statistics, which noticed a 1% increase from the previous mid-year 2022 statistics <https://www.ons.gov.uk/>. The UK's populace is conveyed unevenly across its four nations, with Britain representing most of the populace, trailed by



Figure 1.1: Map of United Kingdom.

Scotland, Wales, and Northern Ireland. The UK's population is described by its ethnic variety, especially in major metropolitan places like London, Birmingham, and Manchester. The demographic structure of the UK, including the ageing inhabitants and huge relocation, presents one-of-a-kind difficulties for the healthcare system, particularly as far as tending to the different healthcare needs of a multicultural society. The United Kingdom is a political union, and every one of these states has its own government and healthcare system; however, they all work inside the structure of the National Health Service (NHS). Healthcare strategy is delegated to the governments of Scotland, Wales, and Northern Ireland, permitting these nations to deal with their healthcare benefits independently of the central government in Westminster, which manages healthcare facilities. This devolution considers some variety in healthcare conveyance among the four nations; however, the main standards of the NHS, general access to healthcare free at the point of purpose, remain persistent across the UK.

The modern British healthcare system was laid out in 1948 and called the National Health Service (NHS). The formation of the NHS addressed a major change in general well-being strategy, meaning to give exhaustive healthcare benefits that are free at the point of purpose for all residents <https://www.nhs.uk/>. The NHS was established on the standards of all-

inclusiveness of public health policy and value, guaranteeing that healthcare is accessible to all residents no matter what their monetary status. Preceding the foundation of the NHS, healthcare in the UK was generally given by a blend of private, charitable, and civil providers, with admittance to care often set by an individual ability to pay. The NHS is a locally funded healthcare system that facilitates their population, including essential care, expert consultations, emergency clinic care, and long-term care. The system is dominantly supported through broad tax collection, with national insurance contributions likewise assuming a part in funding healthcare. The NHS works on the rule that healthcare ought to be free for use, implying that patients don't need to pay for most services at the hour of care. This model guarantees that healthcare is available to all residents, no matter what their monetary conditions.

The National Health Service is broadly funded through general tax collection, with extra contributions from national insurance. The UK government dispenses financing to the NHS in light of the healthcare needs of the populace, with an emphasis on guaranteeing impartial access to healthcare services nationwide. Healthcare spending is delivered to regional well-being specialists and authorities who are liable for overseeing healthcare facilities in their particular regions. While the NHS is free at the place of purpose for most services, there are a few exemptions, like prescription charges in England (however these are free in Scotland, Wales, and Northern Ireland), dental care, and optical facilities, where patients might be expected to pay.

Healthcare services in the UK are significantly handled and run by the NHS;

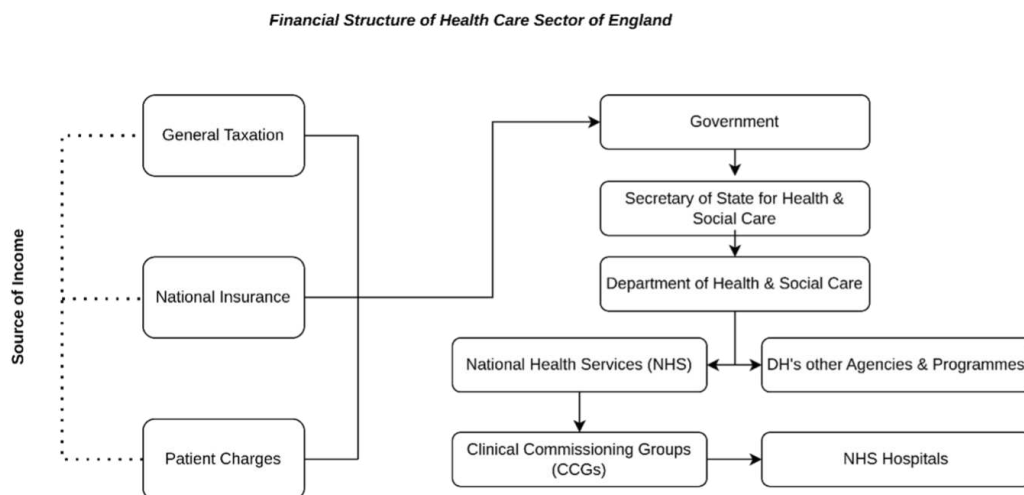


Figure 1.2: Healthcare Financial Structure of England

however, there is likewise a confidential healthcare area that works close by the NHS. Additionally, NHS Trusts and Health Boards are accountable for overseeing medical clinics, centres, and other healthcare facilities, guaranteeing that healthcare services are conveyed following national policies and strategies. Notwithstanding NHS-managed facilities, the NHS likewise contracts with private suppliers to convey specific administrations, especially in regions where demand surpasses limit or where professional services are required. The NHS additionally works closely with essential care providers, encompassing general practitioners (GPs), who serve as a primary point for most patients.

Furthermore, the UK spends 10.9% of its GDP (gross domestic product) on healthcare in the fiscal year 2023, observed to have slightly decreased in 2022 from 11.1% <https://www.ons.gov.uk>. This degree of expenditure is equivalent to other high-income nations and illustrates the UK government's obligation to provide extensive healthcare facilities through the NHS. Healthcare spending in the UK has expanded lately, determined by the rising interest in services, an ageing population, and advances in clinical innovation. Despite these expansions, the NHS faces progressing monetary difficulties, with concerns about the sustainability of subsidizing despite developing interest. The system is broadly viewed as one of the main healthcare systems worldwide, especially concerning access, value, and equity. As per different worldwide rankings, the NHS reliably performs well in regions, for example, the satisfaction of patients, admittance to care, and preventive facilities. Notwithstanding, the NHS additionally faces critical difficulties, including significant delays for elective strategies, a lack of workforce, and monetary limitations. Inside the European Union, the NHS has generally been seen as a model for widespread healthcare; however, its performance has been liable to expanding scrutiny over the years as healthcare demands keep on rising.

1.2.1 NHS East Kent

The East Kent Hospitals University Foundation Trust NHS (EKHUFT) was established in 2009. The Trust comprises five hospitals and many community clinics, catering to about 700,000 individuals and employing more than 9,000 staff members in East Kent, with the objective of “great healthcare from great people.” Its facilities include over 1,000 beds over three hospital locations, with specialized units for maternity, paediatrics, and neonatal critical care. Annually, EKHUFT treated almost 268,000 emergency attendances, 98,000 inpatient admissions, and 860,000 outpatient visits. They do 4,500,000 tests and scans annually and facilitate around 6,500 births

each year. The Trust has 5 public hospitals to cover its population, whose specialized facilities are vascular surgery, renal care, and cardiac services. The hospitals are also offering a range of elective, emergency, and perinatal services and play an integral role in adopting advanced technological innovations and providing training to healthcare professionals <https://www.ekhuft.nhs.uk/about-us/annual-reports/>.

1.3 Italian Healthcare System

Italy is situated in Southern Europe, a country that shapes a peninsula reaching out into the Mediterranean Ocean. It imparts landlines to France, Switzerland, Austria, and Slovenia toward the north, while the remainder of the nation is encircled by the Mediterranean, Adriatic, Ionian, and Tyrrhenian Oceans [14]. Italy's geological area has formed its social and monetary history and has impacted its healthcare system, especially concerning local healthcare services. The different topography, which incorporates mountainous areas in the north and coastal regions, forms varied healthcare requirements nationwide.

Italy has a populace of roughly 59 million individuals, making it the fourth



Figure 1.3: Map of Italy.

most populous country in the European Union <https://www.istat.it/>. The demographic profile of Italy is portrayed by an ageing populace, with one of the greatest extents of elder people on the planet. This demographic pattern puts critical expectations on the healthcare system, especially concerning long-haul care and the services of constant illnesses. The dissemination of the populace is lopsided, with major metropolitan habitats like Rome, Milan, and Naples facilitating enormous populations, while country regions are all the more scantily populated. Moreover, Italy is an exceptionally decentralized country, partitioned into 20 regions. The area shifts in size, inhabitants, and financial turn of events, with northern locales, for example, Lombardy and Veneto, being more industrialized and monetarily progressed, contrasted with southern districts like Calabria and Sicily. This territorial variety is reflected in the healthcare system, as every area is answerable for dealing with its healthcare services inside the structure set by national policies. Regional contrasts in healthcare services can prompt differences in the quality and accessibility of healthcare facilities.

The modern Italian healthcare system was laid out in 1978 with the for-



Figure 1.4: Regions in Italy

mation of the Servizio Sanitario Nazionale (SSN), Italy's National Health

Service. The SSN was established on the standards of universal inclusion and equivalent access to healthcare facilities for all residents and legal residents, irrespective of income. The system denoted a critical gateway from the past fragmented system of common-aid society and private healthcare givers, pushing toward a state-financed, centrally organized healthcare system. The acquaintance of the SSN pointed to decreased disparities in healthcare access and work on general well-being.

The Italian healthcare system works as a publicly funded service that gives thorough healthcare to all residents. Healthcare in Italy is financed through general tax collection, with both national and regional taxes and insurance plans adding to the subsidizing pool. National and regional income aid in the funding of the SSN, with a part of these charges reserved explicitly for healthcare. Also, regions have the power to enforce local taxes to support healthcare administrations, which permits them to fit their financial plans to fulfil nearby needs. This system of blended public and provincial subsidizing mirrors Italy's decentralized healthcare model and endeavours to offset the public healthcare needs of its residents. Moreover, it has additionally prompted fluctuation in healthcare quality and services among regions. Healthcare services in Italy are given free of charge or with the least co-

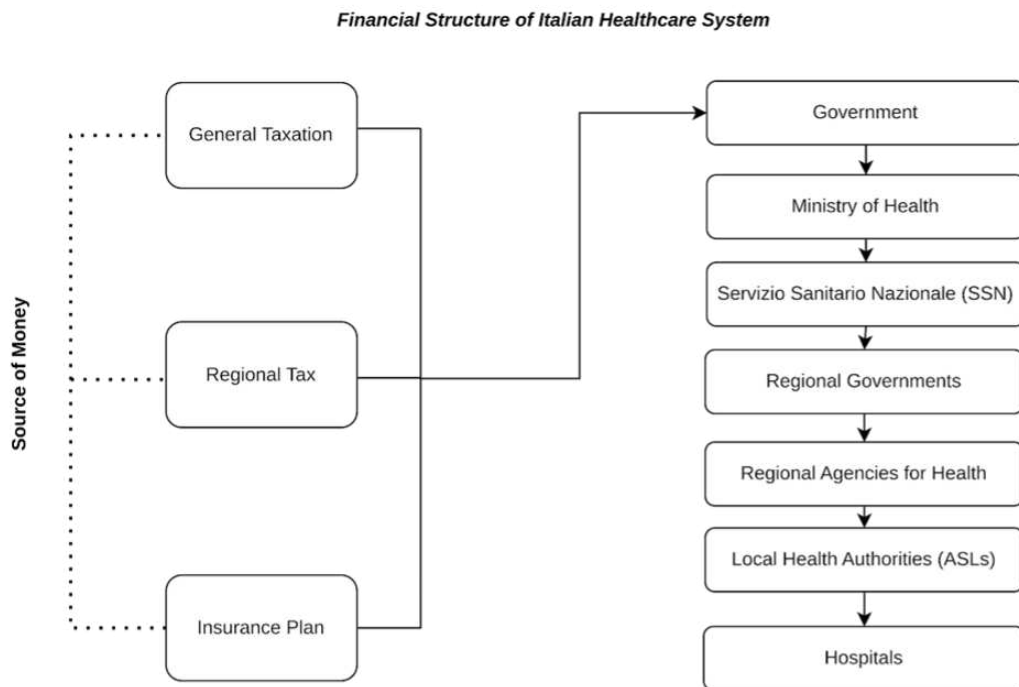


Figure 1.5: Healthcare Financial Structure of Italy.

payments at the mark of care. Essential care, expert consultations, hospitalization, and preventive facilities are overall covered by the SSN; though, a few districts might require co-payments for explicit services like dental consideration or drugs. The system means to give fair access to care; however, difficulties, for example, significant delays for non-urgent treatments and local disparities in healthcare infrastructure persist.

The responsibility for providing healthcare facilities in Italy is divided among the national government and the local authorities. While the Service of Well-being is liable for setting national healthcare strategy, laying out wellbeing-related guidelines, and guaranteeing that healthcare principles are kept up with the nation over, regional health authorities are accountable for the daily management of healthcare facilities. These regional authorities regulate medical clinics, essential care offices, and expert services, guaranteeing that healthcare is conveyed concerning the needs of the residents. Regional health authorities deal with the budgets of healthcare services, assign resources to public healthcare providers, and are accountable for contracting with private healthcare facilitators where required. This decentralized model considers adaptability in healthcare conveyance, empowering regions to overcome their healthcare challenges. However, it likewise implies that healthcare quality and access can change altogether, starting with one local and then onto the next, with more well-off northern areas by and large contributing better healthcare administrations compared with the less affluent southern area.

Italy spends 8.4% of its GDP (gross domestic product) on healthcare in the annual year 2023, whereas in 2022, the country's total expenditure on healthcare was 9% <https://www.statista.com>. Despite that, in the same way as other nations with maturing populations, Italy faces critical difficulties in keeping up healthcare facilities. Rising healthcare costs, driven by the rising pervasiveness of constant sicknesses and the developing interest in long-haul care administrations, are putting extra tensions on the healthcare spending plan. Internationally, the Italian healthcare system is profoundly regarded, especially for its accentuation on all-inclusive coverage and preventive consideration. As per the World Health Organization (WHO), Italy's healthcare system reliably positions among the top systems overall concerning efficacy, equity, value, and access to care <https://www.who.int>. Inside the European Union, Italy's healthcare system is viewed as one of the best as far as future access to essential health facilities. Notwithstanding these honours', Italy faces progressing difficulties connected with local differences in healthcare results, with certain southern districts lingering behind the remainder of the nation regarding service quality and access.

1.3.1 Provisional Health Authority (ASP) Cosenza

The ASP Cosenza was established in 2007. The province has a population of 676,119 approximately. Its territory spans 6,710 km^2 contains 150 municipalities. Moreover, it has a total of 5 public hospitals, including 3 spoke hospitals and 2 disadvantaged area hospitals. The ASP manages 663 contracted beds, and 708 hospital beds consist of 546 ordinary with 162 surgical beds.

The key services of ASP of Cosenza include emergency care, mental health, surgical and medical specialties, maternal and child health, and long-term care. One of the serious challenges faced by the province is that the majority of the staff, approximately over 70% are aged over 50 and have gaps in administrative and medical roles along with regional inequalities <https://online-aspco.sisr.regione.calabria.it>.

1.4 Significance of the study

The significance of this study lies in providing essential findings of East Kent Hospitals University NHS Foundation Trust, UK, and Provincial Health Authority Cosenza, Italy, towards sustainability, technological innovation, and training from their annual performance report and financial accounts that add value to further developing the healthcare system's potential. As public healthcare organizations are accountable and face pressure to constantly improve performance and strive to address on-going and long-term issues, figuring out how investments in sustainability, technological innovation, and workforce training can enhance value. The insights from this study will provide evidence-based recommendations for policymakers, healthcare authorities, and financial investors to set strategic plans that upgrade prompt healthcare delivery, decrease ineffectiveness, and work on patient results. Besides, the contrastive study between the EKHUFT and ASP Cosenza healthcare systems portray a distinct viewpoint on how different healthcare models address deficiencies, challenges, growing expenditures in achieving sustainability, and rising healthcare costs, adding to a more extensive comprehension of value creation in the public healthcare sectors in the regions.

1.5 Aim of the study

This study aims to investigate the hospitals' performance and financial health of public hospitals inside the NHS East Kent Foundation Trust (England,

UK) and the ASP Cosenza (Italy) over eight years (2015-2023). Through a comprehensive evaluation of performance reports and financial records, the study has investigated how sustainability, technological innovation, and training add value creation in these healthcare systems. The research will determine key factors and challenges related to further developing the healthcare system to upgrade effectiveness to acquire significant results.

1.6 Scope of the study

This study focuses on evaluating the performance reports in the context of sustainability, technological innovation, and training within designated public hospitals in two particular healthcare systems: the NHS East Kent Foundation Trust (England, UK) and the SSN Cosenza locale (Italy). The research extends eight years, from 2015 to 2023. By assessing official documents and reports, the study aims to investigate how the financial health and performance of these hospitals in key regions have impacted value creation. The study is targeted to investigate key geographical regions that influence the effective execution of financial investments, highlighting the bureaucratic and operational challenges that impede efficacy, sustainability, and overall hospital performance.

1.7 Problem Statement

Public hospitals face continuous challenges in keeping up with financial sustainability and further developing healthcare results, notwithstanding critical investments in infrastructure, innovation, and workforce expansion. Understanding the viability of these investments is pivotal for further upgrading hospital competence and efficiency and guaranteeing value creation. In this specific context, annual performance reports and financial statements give basic bits of knowledge into the functional health and financial status of hospitals, acting as crucial instruments for assessing performance over the long haul.

Nevertheless, the effect of sustainability, technological innovation, and training on hospital output and financial health remains inadequately investigated, especially in public hospitals inside the NHS East Kent Foundation Trust, UK and ASP Cosenza, Italy due to population growth and increasing healthcare burden. Throughout recent years (2015-2022), these hospitals

have confronted financial tensions, investment opportunities, and shifting levels of progress in further developing healthcare delivery.

This study aims to evaluate the annual performance reports and financial accounts of 10 public hospitals inside these two healthcare systems to assess how investments during this period have affected financial health, functional effectiveness, and value creation. By analysing the performance criteria and financial records over this eight-year time frame, the study tries to distinguish the key factors influencing the progress of these investments and the difficulties impeding ideal value creation.

1.8 Research Objectives

1. To evaluate the annual performance reports of the NHS East Kent Foundation Trust (England, UK) and the ASP Cosenza locale (Italy) from 2015 to 2022 towards the efforts on sustainability, technological innovation, and training.
2. To measure the financial health during 2015-2022 by investigating the annual accounts of both regions to form a stable healthcare system.
3. To determine the factors that contribute to value creation by enhancing hospital performance and financial stability in NHS East Kent and ASP Cosenza.

1.9 Research Questions

Q1: How the performance of the NHS East Kent Foundation Trust and ASP Cosenza has progressed from 2015 to 2022 in sustainability, technological innovation, and training?

Q2: How do the annual accounts of the organizations represent its inclusive financial health, and what standard metrics can be laid out to assess the effect of future investments?

Q3: What key factors influence the incorporation of sustainability, technological innovation, and training initiatives in public hospitals of the NHS East Kent Foundation Trust and ASP Cosenza, and how do these factors can enhance and impact long-term value creation?

1.10 Chapter Summary

This chapter presents a brief overview of two distinct healthcare systems by highlighting the NHS UK and Italian healthcare structures. It features how both systems work and contributes to their efforts, focusing on sustainability, innovation, and workforce training to make a sound healthcare framework. These investments are connected to improving healthcare results, diminishing inequalities, and encouraging development.

The chapter investigates how both healthcare systems depend on financial inputs to aid in providing basic facilities like service delivery, research, and advancement in technology, as well as the difficulties presented by ageing populations and the increasing costs of healthcare. It frames how investments in sustainability through green energy, waste management, and digital technologies, i.e., electronic health records (EHRs) and telemedicine, and a skilled workforce through training further develop efficacy, decrease costs, and upgrade patient care.

Moreover, it examines the interconnectedness of sustainability, technological development, and workforce training in making strong healthcare systems. The distinctions in regional healthcare administration set the foundation for the study by laying out the significance of strategic investments in making value and further developing healthcare results while recognizing the difficulties that public healthcare systems face in accomplishing these goals.

Chapter 2

Literature Review

Overview

Healthcare is a complex system including legal, ethical, and socio-economic components. The hospital's performance and finances are critical in defining their capacity to deliver high-quality care, retain optional sustainability, and high their ability to meet demands. It is characterized by significant technological progress and an increasing skepticism towards patients. The healthcare system no longer perceives individuals as holistic entities but rather as independent components requiring repair upon malfunction. This chapter gives a comprehensive literature review, integrating both East Kent hospitals University NHS Foundation Trust, UK and Provincinal Health Authority (ASP) Cosenza, Italy, performance and financial reports from the years 2015 to 2022, along with existing literature from academic sources.

2.1 Concepts of Sustainability, Technological Innovation, Training, and Value Creation

In recent years, there has been an increasing interest in sustainability, using information technology, and building an experienced and well-trained workforce to create value, particularly within the healthcare sector [55]. This debate is closely linked to the performance ratings of governmental and healthcare organizations. Value-based healthcare is undergoing a significant transition in the healthcare environment, aiming to provide optimal health outcomes or treatment at minimal expense [82]. This concept is compelling since it unites the interests of all stakeholders in the system and channels their combined efforts towards enhancing the performance of the healthcare

system. Conversely, it requires significant changes to the methods by which health systems offer and fund medical care, promote innovation, share data, and evaluate performance [62]. Despite continuous discourse over the particulars of its implementation, this concept may function as a strategic focal point that may guide a group's efforts.

The Faroe Islands Health Service (FHS) implemented an integrated healthcare information system (HIS) in 2010, with a current focus on maximizing its utility. The aim of this action research project is to examine the use of information technology in healthcare organizations. According to [12] value creation is defined for patients as health outcomes achieved per unit of cost spent. The examination of sustainability in service companies has only occurred fairly lately, despite the widespread acceptance of the term in industrial firms. Sustainability [4] is a critical concern for professionals in the healthcare business regarding the external environment of healthcare institutions. Both NHS East Kent, UK, and ASP Cosenza, Italy, reports not only give the insights of the system for transparency and accountability but also critical sources of data for the investment impact and evaluating their performances and financial aspirations.

To improve performance and accountability in the healthcare sector, it is crucial to provide substantial value to patients [34]. This purpose must be the paramount aim, quantifiable by the health outcomes achieved per dollar spent. This objective will benefit patients, payers, providers, and suppliers while also enhancing the economic sustainability of the healthcare system. This objective unifies the goals of all stakeholders inside the system. The consumer should be the central focus for determining value, with incentives for all other stakeholders dictated by the customer. In healthcare, value is determined not by the volume of services rendered but by the outcomes achieved [51]. One of the fundamental issues is transitioning the focus from volume to value. It is essential to recognize that process evaluation and improvement are not substitutes for monitoring outcomes and expenses; instead, they are critical tactics. The notion of value encompasses efficiency, since minimizing expenses without considering the achieved outcomes is both perilous and counterintuitive. Cost pertains not to the expenses of individual treatments but to the total expenditures associated with the whole treatment cycle for the patient's medical condition. Outcomes are particular to conditions and multidimensional, and costs do not equate to the expenses of individual treatments. Investing more funds in some services to reduce the need for others is often the most efficient approach to cost reduction. Thus, the main aim of healthcare delivery is to provide patients with a superior degree of total value [40]. Furthermore, the global increase in energy use, particularly in hospitals, has raised concerns among professionals and researchers in the

healthcare industry. This has resulted in increased operating expenditures, diminished efficiency, and adverse environmental effects. A comprehension of energy efficiency and waste management in hospitals may enhance sustainability [13] and bolster the institution's competitiveness with cost reduction. From January 2000 to May 2020, Singh et al. [70] conducted research on medical waste management across 78 countries. Their results indicate that most healthcare workers (HCW) are inadequately managed, and there is a lack of sufficient training in handling waste. The average waste generation rate ranged from 0.3 to 8.4 kilos per bed per day, with the United States recording the highest figure at 8.4 kilograms per bed per day and the biggest per capita health expenditure at 9538.1 dollars. Greece and Pakistan exhibited the highest health expenditures per capita, at \$37.9 and \$1,464.7, respectively; yet, Pakistan recorded the lowest allocation, quantified at 0.3 kilos per bed each day. Over forty percent of healthcare [1] [58] personnel had injuries when handling medical waste, despite forty-one percent of the relevant persons having received adequate training.

Innovation in the healthcare sector [7] is crucial for achieving a balance between cost efficiency and treatment quality. Efficiency inside the organization and the capacity to thrive in a competitive landscape are dependent upon it. New product innovation, entailing the introduction of novel products and services to the external market, and process innovation, focusing on the improvement of internal production processes for goods and services, are both types of innovation facilitated by technological advancements. Product innovations provide supplementary income, while process innovations focus on improving capacity and quality inside the company. Innovation in both goods and processes is essential for the survival and growth of companies.

The study by Jang et al. [15] examines the factors influencing healthcare workers' willingness to adopt new technologies, particularly U-healthcare services. They examine the attributes, functionalities, and benefits of these customized mobile services, along with the opportunities they provide. This study validates the components of the U-healthcare services adoption model. The constructs include connectivity, compatibility, complexity, perceived benefit, and perceived trust. The research offers a framework for analyzing the appeal of U-healthcare information technology to healthcare practitioners. The study supports the favorable view of U-healthcare services, highlighting the sustained provision of high-quality medical care and the facilitation of communication between hospitals and healthcare professionals. The framework that uses regular data from service delivery and patient care to generate knowledge for the purpose of continuously improving healthcare facilities. According to [26], Learning Health System LHS has the potential to revolutionize the healthcare business by delivering services that are

more efficient and effective. Frontline care emphasizes the need for continuous learning, the incorporation of new knowledge, and the implementation of that evidence. Key considerations include structure, governance, trust, culture, vision, leadership, a trained workforce, and continuous investment. Furthermore, the study underscores the need for establishing processes and systems that optimize access to high-quality data.

2.2 Sustainability, Technological Innovation, and Training in Healthcare Context

Healthcare Sustainability: The term "sustainable healthcare" [45] denotes a system that provides both cost-effectiveness and superior quality while also being environmentally friendly. It aims to meet the demands of the present healthcare system without compromising the well-being of future generations. The notion of sustainable healthcare recognizes the interconnectedness of human health and environment, promoting practices that enhance the well-being of both individuals and the planet.

Sustainability in healthcare has been a subject of discourse for many decades; nevertheless, only a limited number of institutions have effectively implemented it. To attain sustainability, it is essential to have a long-term view and consider three pillars, which are financial, social, and environmental. It is a continuous process that must be improved by the formulation of targets, focusing on the concept of the triple bottom line [78]. The notions of ethics and values are closely linked to sustainability.

Role of environmental and financial sustainability in healthcare:

The environmental issue has been a topic of discussion since the 1960s, with the student movement highlighting [48] the ecological consequences of economic advancement. Hospital management, including social responsibility and environmental issues, is often seen as a crucial element in addressing global crises. Businesses must consider the impact of their activities on the natural environment, including resource use, and integrate environmental management into their everyday practices. The need to recycle resources and improve societal quality of life is increasing. Furthermore, activities aimed at enhancing the environment have acquired traction within the corporate sector [41]. Companies are altering their management methods to prioritize environmental sustainability in collaboration with the social environment. This initiative aims to promote an evaluation of consumption patterns and modifications in standards, particularly with detectable resources or stocks.

To create a more prosperous future and effect change in companies and communities, the concept of economic sustainability emphasizes the social and environmental context. This emphasizes the requirement for substantial reforms across all sectors of the economy, yet it also shows the critical role of future generations in emphasizing economic sustainability to attain environmental advancements. Addressing the risks associated with new energy use and investments, which may initially pose economic threats, is a critical challenge that must be surmounted to effectively implement principles of economic sustainability in developing countries. Conversely, economic sustainability [48] is crucial for a secure and equitable society as it facilitates sustainable development and generates opportunities for the enhancement of other social and environmental domains.

Technological Innovation: The term "technological innovation" [7] denotes a concept that has evolved within the healthcare sector. The purpose is to tackle social issues such as poverty, education, and health via organizational reforms. The World Health Organization (WHO) defines health innovation as the introduction of new technologies or the enhancement of existing health policies, methods, infrastructure, items, technologies, services, and treatment methods to improve the efficacy, effectiveness, reliability, sustainability, security, and affordability of healthcare [57]. Furthermore, it includes progress in domains like research, patient satisfaction, education, and access to healthcare services [6]. The primary aim of health innovation is to enhance the efficiency of the healthcare system to meet the needs of both the public and individuals about healthcare. Innovations in healthcare should theoretically provide scalable solutions and enhancements in health policy, systems, products, technology, services, and delivery methods. These developments are expected to improve treatment, diagnosis, education, outreach, prevention, research excellence, shipment, and healthcare access.

Importance of adopting new technologies: Digital solutions in healthcare [5], including artificial intelligence-based diagnostic algorithms, imaging, and clinical data, demonstrate the ability to merge traditional methodologies. Health care facilities have rapidly adopted digital solutions and advanced technical instruments in response to the COVID-19 pandemic. During a pandemic, digital technology may mitigate or overcome challenges, hence improving healthcare delivery. These systems include applications for patient monitoring and remote triage in emergency services. Conversely, a considerable proportion of these solutions may be integrated in the future, hence enhancing the development and execution of novel digital care models.

Mobile application software, email services, wearable technologies, chatbots, AI-driven diagnostic tools, voice-interface systems, and mobile sensors exemplify contemporary digital solutions. The delivery of remote healthcare services and assistance to patients has proven effective via telemedicine and remote consultation [33]. The rapid proliferation of COVID-19 has provided a strong rationale for the comprehensive adoption of digital transformation within the healthcare sector. Simulations suggest that some countries will likely see several waves of illness and renewed lockdowns, underscoring the need for ongoing investment in digital transformation within the healthcare sector.

Healthcare Training: Traditional procedures have not been systematically developed or scientifically validated, despite the need for training healthcare staff as a crucial element of disaster preparedness [38]. A recent confluence has occurred between the expanding fields of disaster preparedness and medical education, resulting in data about effective healthcare worker training methodologies. This convergence has transpired due to increased scrutiny and the proactive measures undertaken by institutions and governments.

Healthcare training [44] administrators increasingly rely on strategic training programs to develop and sustain the requisite competencies inside their organizations. These initiatives facilitate continuous development and training, allowing employees to adapt to evolving job requirements and use organization-specific training resources in a fiscally sensible manner. The need for effective and uniform training throughout an extensive healthcare network that serves primary care is not denied [63]. The training necessary to meet educational requirements at every level, including hospitals, auxiliary institutions, community health centers, and home care services. The training required management that is economical and aligned with strategic company goals. The objectives included personnel development, cost control, revenue augmentation, computer system advancement and integration, community health enhancement, and growth in both services and market reach.

2.3 Insight of Sustainability, Technological Innovation and Training in Healthcare of EKHUFT and ASP (Cosenza) from 2015 to 2022

Every public healthcare delivery system faces complex challenges, including rising demands and services from growing population, limited funding, and increasing healthcare cost. The East Kent Trust operates under the centralized healthcare system of National Health Services (NHS) UK. The mission of NHS East Kent is *"improving health and well-being,"* and the vision of the trust is *"great healthcare from great people"* <https://www.ekhuft.nhs.uk/about-us/mission-vision-and-values/>. On the other hand, Servizio Sanitario Nazionale (SSN) Italy's mission is to provide universal coverage of medical assistance for all citizens and legal foreign residents https://www.salute.gov.it/portale/ministro/p4_2.html. Both health care systems are unique in nature and structure, providing the medical facilities to their populations. No doubt value creation in healthcare indicates the reduction of cost while improving the outcomes of the services. However, NHS East Kent pays significant attention to sustainability, technological innovation, and training to achieve operational excellence and financial stability. Porter, in his book *"Redefining health care: creating value-based competition on results"* [61] illustrates that healthcare value is created through the incorporation of operational, financial, and clinical improvements. The annual report and accounts consistently highlight sustainability initiatives like transitioning to renewable energy sources, reducing energy consumption, and optimizing waste management.

Considering the strong standing of the hospital sector, it is essential to highlight the importance of financial sustainability in hospitals as a critical determinant of healthcare supply security. During the last COVID-19 [25] pandemic, hospitals were pivotal in the health system's response. Consequently, the need to provide support for the financial sustainability of hospitals has intensified. This section adds literature from both EKHUFT and ASP Cosenza performance and annual reports (2015-22), which are available on their official websites along with other available sources.

Contributions towards Sustainability:

In 2015, the NHS East Kent Foundation Trust prioritized fundamental sustainability activities in accordance with NHS England's overarching objectives for reducing carbon emissions and fostering environmental accountability. The Trust performed energy audits and evaluations to identify inefficien-

cies in energy use, establishing a foundation for infrastructure enhancements. Furthermore, the Trust took steps towards waste management initiatives to implement fundamental recycling systems aimed at minimizing clinical and non-clinical waste, emphasizing segregation and proper disposal. EKHUFT upgraded an older system to reduce 15% energy consumption and made a 10% reduction in recycling initiatives. That year, Trust started green procurement techniques, seeking collaborations with providers committed to sustainable practices. Conversely, ASP Cosenza's first energy conservation initiatives concentrated on lighting enhancements, targeting a 10% decrease in energy use inside major hospital buildings. Basic waste segregation standards were implemented, and workers were educated to differentiate between biomedical and non-biomedical trash. Initial evaluations of water use were conducted, focusing on sustainable conservation techniques.

Trust's initiatives in 2016 focused on operational sustainability, demonstrating significant advancements in environmental responsibility. Trust commenced the enhancement of energy-efficient lighting in its buildings, resulting in immediate energy savings by covering 60% LED lighting. The Trust advanced its carbon emission reduction initiatives by partnering with NHS England on pilot projects aimed at minimizing carbon footprints and clinical waste through the implementation of waste-to-energy technologies in healthcare delivery. EKHUFT increased their effort in renewable energy integration from 20% renewable means. Furthermore, the waste segregation system was enhanced by a rise of 18% to boost recycling rates, while ASP Cosenza expanded its sustainability initiatives. The installation of energy-efficient HVAC systems decreased total energy usage by 15%, while waste volume was reduced by 12% via enhanced collection and disposal methods. The ASP Cosenza hospitals implemented a transition to environmentally sustainable medical supplies and consumables. These quantitative enhancements demonstrated the concrete advantages of these initiatives.

The 2017 report highlighted refurbished older properties, including enhanced insulation and ventilation systems, and established collaborations for solar panel installations, advancing the Trust's renewable energy objectives and covering 25% of their hospitals. This year, the Trust implemented water-conserving technology in hospital plumbing systems; additionally, 8% water reduction was noticed by investing in water-saving technologies. These integrated methodologies include resource conservation and environmental sustainability. ASP Cosenza enhanced its emphasis on comprehensive energy audits, identifying inefficiencies to guide next initiatives. Initial solar panel installations were tested in certain places, signifying a transition to renewable energy. Additionally, optimized waste disposal protocols decreased operating waste by 18%. The NHS East Kent 2018 report included extensive strategies

to monitor and reduce carbon emissions across all hospital activities to meet NHS-wide environmental objectives. By the adoption of green energy policies, 30% of carbon emissions were reduced in the year. Along with that, 35% of energy needs fulfilled due to the expansion of solar energy projects. Sustainability activities were advanced at ASP Cosenza; solar panels were placed in key buildings, decreasing dependence on conventional energy sources by 20%. The hospital's ongoing efforts resulted in a 15% decrease in biomedical waste.

The 2019 report emphasized the Trust's escalating dedication to sustainability via operational and strategic initiatives, including enhanced recycling rates and enforcement of more stringent segregation standards for clinical and non-clinical waste by 25%. In the same year, 40% of hospital energy needs were met by the installation of solar panels. In 2019, ASP Cosenza executed many significant environmental initiatives, such as expanding solar energy systems to fulfill 25% of the hospital's energy requirements. The hospitals documented a 20% decrease in biological waste, resulting from enhanced segregation and disposal protocols, while technologies to monitor and regulate water use were tested, yielding a 12% reduction in water wastage. The worldwide pandemic substantially impacted environmental measures in 2020. Trust enhanced HVAC systems to optimize airflow and decrease 45% energy consumption, which proved essential during COVID-19 operations. Waste processing facilities were improved and showed a 30% reduction. Consequently, the trust requires innovation-indisposal solutions and expenditures in waste management. The Trust's initiatives demonstrate resilience and adaption in implementing new ways to address COVID-19 problems. In 2020, environmental initiatives at ASP Cosenza escalated, with solar panel installations fulfilling 35% of overall energy demands. The trust established an electric vehicle fleet for intra-campus mobility, reducing carbon emissions by 18%. A policy change at ASP Cosenza hospitals aimed at acquiring environmentally sustainable medical supplies was implemented, therefore decreasing plastic waste.

During the year 2021, the Trust exhibited a revitalized commitment to attaining NHS-wide Net Zero Carbon objectives by augmenting investments in energy transition initiatives, such as enhancing reliance on renewable energy sources and diminishing dependency on conventional energy infrastructures. However, 50% solar energy coverage was reached in the year of total electricity needs. The Trust concentrated on electric car infrastructure by establishing charging stations for employees and tourists, therefore advocating for sustainable mobility. All five NHS East Kent hospitals improved their water systems, which led to a 15% reduction in water usage to cut-down waste and enhance recycling for non-potable uses. The sustainability activities at ASP

Cosenza concentrated on expanding efforts, resulting in solar energy use rising to account for 50% of the hospital's total energy consumption. Enhanced monitoring systems facilitated a 15% reduction in water consumption relative to 2020, with biomedical waste reduction initiatives that led to a 25% drop in total waste production.

By 2022, the Trust had advanced its sustainability practices and obtained certifications for energy-efficient infrastructure, showcasing compliance with green building standards, minimizing overall waste through improved segregation and recycling methods, and prioritizing procurement from environmentally responsible vendors, thereby reducing carbon footprints. The Trust also reached 55% reliance on renewable energy sources, which is itself a big success. ASP Cosenza achieved substantial advancements and has strategic objectives to attain carbon neutrality by 2030. Solar panel installations now fulfill 60% of energy needs, with intentions to eliminate conventional energy sources. Innovative approaches for the sterilization and re-utilization of certain medical instruments were tested.

Contribution in Technological innovation:

In 2015, the Trust initiated small-scale technological upgrades to improve operational efficiency; digital record-keeping was initiated to reduce paperwork and enhance data accessibility. Investment were made in advanced imaging technologies, reflecting the growing need for accurate and faster diagnostic capabilities. Technological advancements in ASP Cosenza were limited but foundational, like the transition from paper-based to digital record began, aiming to improve administrative efficiency. Telecardiology services were introduced in rural healthcare settings, offering specialized care access to underserved populations, and basic IT infrastructure improvements enabled better communication between facilities.

The emphasis on digital transformation reflected the commitment in the Trust's 2016 annual report to leveraging technology for improved healthcare delivery. Trust expanded EHR usage, facilitating real-time patient data sharing among departments and piloted telemedicine platforms to improve access for remote patients, especially in outpatient care. ASP Cosenza marked significant advancement in digital healthcare this year. The integration of RIS-PACS in radiology improved diagnostic efficiency and cross-facility data sharing. Remote monitoring services for chronic patients were launched, enabling timely medical interventions. Cloud-based data management systems were deployed to enhance data accessibility and security.

In the year 2017, the Trust began implementing AI-based tools for clinical diagnosis support systems (CDSS) and treatment planning. Furthermore, the Trust procured state-of-the-art laboratory equipment to reduce diagnostic turnaround times. Investments in these areas reflected the Trust's strat-

egy to incorporate cutting-edge technology for superior clinical outcomes. Technological innovation gained momentum in ASP Cosenza in a way that automated scheduling systems for outpatient services were introduced. Enhanced telemonitoring tools allowed real-time patient tracking. Early trials of artificial intelligence (AI) for imaging diagnostics were conducted.

The Trust prioritized technology to address both administrative and clinical challenges in 2018, emphasizing innovation in care delivery. The early trials were started of AI tools in patient monitoring and diagnostics. Information technology systems were upgraded as well to improve operational efficiency. Solar panels were installed in ASP Cosenza in major facilities, reducing reliance on traditional energy sources by 20% and continued efforts led to a 15% reduction in biomedical waste.

In 2019, technological innovation became a focal point in NHS East Kent's annual report, with an emphasis on modernization and enhanced patient outcomes. Thus, the Trust introduced digital tools to streamline patient journeys, reducing wait times and improving appointment scheduling. Hospitals focused more on ensuring seamless communication between departments using integrated IT systems, enabling real-time data sharing. In the same year, the Trust piloted wearable technology for remote monitoring of chronic conditions, paving the way for scalable remote care solutions. These advancements emphasized the Trust's push toward digital transformation to meet growing patient needs and enhanced care quality. The focus on technological advancements in ASP Cosenza included enhanced telemonitoring services for chronic disease management, benefiting rural communities. Implementation of AI algorithms in imaging diagnostics significantly reduced report turnaround times. A shift to encrypted cloud storage systems enhanced data security and compliance with national standards.

In 2020, the pandemic accelerated the adoption of technological solutions through telemedicine expansion by introducing and scaling teleconsultation platforms to ensure continuity of care during lockdowns. The trust also provided enhanced remote patient monitoring solutions for COVID-19 and other chronic conditions using digital health tools. The Trust piloted AI-based triage systems in emergency departments to manage patient influx efficiently. This initiative marked a transformative year for the Trust, leveraging technology to navigate unprecedented challenges. ASP Cosenza focused on pandemic resilience as teleconsultation services were scaled up during COVID-19, with a 200% increase in usage compared to 2019. A centralized portal for remote appointment scheduling and test result access was launched. Mobile apps for monitoring patient vitals remotely became integral to chronic care management.

In 2021, the East Kent Trust report emphasized technological advancements

aimed at recovery and resilience; it implemented technologies for coordinated care across facilities, ensured comprehensive patient management, deployed secure communication platforms for inter-departmental coordination, and employed advanced analytics to enhance resource allocation during pandemic recovery phases. ASP Cosenza's technology adoption focused on enhancing efficiency via the comprehensive integration of electronic health records (EHR) across departments to provide improved accessibility to patient data. The use of AI-assisted imaging was extended to more institutions, reducing diagnosis times by 30%. Automated drug distribution systems decreased mistakes and improved pharmacy operations.

In 2022, the technical environment emphasized the continuation of advancements by enhancing AI applications in imaging and diagnostics, decreasing time-to-diagnosis for essential diseases, broadening telehealth services for regular care, and using insights gained from the pandemic. The Trust invests on comprehensive cybersecurity technologies to safeguard sensitive patient data despite rising digitalization. The same year signified ASP Cosenza's enhanced technology integration, as predictive analytics tools were used for patient care planning, resulting in decreased hospital readmission rates. Robotics-assisted surgical systems were used in certain departments, improving accuracy in intricate operations. Sophisticated patient-oriented mobile applications provide prescription reminders and post-discharge assistance.

Contribution in Training:

In 2015, Trust's training initiatives concentrated on enhancing clinical abilities for nurses and younger physicians, prioritizing practical training in specific fields. Mandatory health and safety awareness courses were implemented throughout all five East Kent Trust hospitals to guarantee adherence to workplace safety regulations. These initiatives aimed to build a resilient workforce capable of adapting to operational demands while maintaining quality care delivery. Training efforts in ASP Cosenza focused on staff adaptability by conducting basic sessions on using EHRs and telemedicine tools. Training was provided to ensure compliance with new segregation protocols, and limited training for clinical staff was conducted to enhance fundamental patient care practices.

In the year 2016, the Trust's Key training programs were dedicated to emergency preparedness as the Trust conducted simulation exercises for disaster response scenarios and expanded opportunities for specialized training in critical care and surgical techniques. Moreover, the importance of a well-trained workforce in enhancing hospital preparedness and patient care outcomes. Training programs were aligned with technological rollouts in ASP Cosenza like radiology staff training sessions on RIS-PACS system operations were conducted. Telemedicine tool usage training modules were introduced for

rural healthcare workers. Basic workshops on data protection protocols were conducted.

In 2017, training programs expanded in the Trust and encouraged collaborative training sessions among physicians, nurses, and allied health professionals. Trust also introduced programs for grooming clinical leaders to navigate complex healthcare systems. In ASP Cosenza, radiology staff participated in AI diagnostic tool workshops. Training sessions emphasized resource conservation and eco-friendly practices. Specialized clinical skills programs enhance emergency care and patient management were implemented.

Key training of the Trust in 2018 highlights digital skills training that focuses on equipping staff with the skills needed to utilize new IT systems effectively, encourage staff participation in research projects, and foster a culture of inquiry and evidence-based practices. In ASP Cosenza hospitals, clinical staff were trained in interpreting AI-generated diagnostic reports and patient care teams were educated on digital health monitoring tools.

The Trust's training programs in 2019 prioritized workforce readiness for technological advancements and evolving patient demands: delivered targeted training for staff on new digital systems, ensuring smooth implementation and adoption, expanded the use of simulation labs for clinical training, particularly in emergency response scenarios and conducted workshops on eco-friendly practices for hospital staff, aligning operational behaviors with sustainability goals. These programs equipped the workforce to adjust to technology advancements while promoting environmental responsibility. Healthcare personnel at ASP Cosenza underwent specific training to use and understand AI diagnostic instruments and telemedicine platforms. Personnel received training on sustainable practices, including energy saving and waste reduction measures.

In 2020, Trust's training campaign focused on the immediate and long-term effects of the pandemic, including extensive staff training on infection prevention, personal protective equipment use, and emergency response methods. The Trust offered IT training for administrative personnel adapting to remote work settings. Additionally, initiated mental health and resilience training to mitigate the psychological impact of the epidemic on healthcare professionals. These initiatives guaranteed workforce preparedness while protecting employee welfare during a crisis. Training tailored to the pandemic issues faced by ASP Cosenza, including extensive virtual workshops, was implemented to educate personnel in telemedicine operations. Training activities included infection control, personal protective equipment (PPE) use, and emergency procedures, using newly implemented digital technologies and patient portals released during the year.

The 2021 trust training sought to leverage insights gained during the pan-

demic while addressing future workforce requirements, emphasizing the upskilling of mid-level managers to navigate crisis situations and operational intricacies, and perpetuating staff education on environmentally sustainable practices, thereby incorporating sustainability into routine operations. The radiology and diagnostics personnel of ASP Cosenza hospitals had extensive training in artificial intelligence technologies. Sessions highlighted environmentally sustainable activities and adherence to green regulations. Initiatives focused on stress management and team cooperation during the epidemic.

In 2022, training concentrated on the Trust to improve worker flexibility and excellence, including specialized instruction on using AI technologies in healthcare operations. Continuous emphasis on psychological resilience training to tackle persistent staff difficulties. Trust implemented initiatives for top personnel to advocate sustainability throughout their teams. Training programs at ASP Cosenza demonstrated significant technology integration: Surgeons and operating room personnel received specific training for robotic-assisted surgery. Personnel were instructed on the use of predictive instruments for patient care. Consistent training facilitated continuous skill development in developing technologies.

This detailed analysis captures the progressive evolution of both NHS East Kent and ASP Cosenza's sustainability, technological innovation, and training initiatives over eight years. Each year reflects a strategic alignment with broader healthcare goals.

2.4 Financial ratios as an indicator of Value Creation

The evaluation of the financial stability and operational effectiveness of healthcare organizations is facilitated by financial ratio analysis, which is crucial for informed decision-making and value acquisition. Key financial ratios, including profitability ratios (such as Return on Assets and Return on Equity), liquidity ratios (like the current and quick ratios), efficiency ratios, and solvency ratios, provide critical insights into a company's ability to generate revenue, manage cash flow efficiently, utilize assets effectively, and sustain financial stability. Through the measurement of these ratios, healthcare institutions may identify areas for improvement, assess their performance relative to competitors, and enhance their overall financial outcomes. A comprehensive understanding of financial metrics not only facilitates the achievement of financial objectives but also attracts investors and creditors, therefore enhancing the long-term growth and sustainability of healthcare organizations.

Financial analysis is the technique of assessing a company's financial health by the information included in its financial statements. John N. Myres defines "financial analysis" as the examination of the interrelationships among diverse financial elements within a business, as revealed by a singular set of declarations, and the analysis of the patterns of these elements as illustrated in a sequence of account statements [68]. This procedure involves the analysis of key financial ratios, comparison of data across several firms, and assessment of trends in critical financial data. The word "financial performance" refers to the degree to which a firm has been successful in attaining its financial objectives and is used to measure the overall financial health of the organization over a period of time [67]. Additionally, it may be used to compare firms that are similar within the same industry, as well as to compare industries or sectors in total with each other.

The analysis of financial statements [20] is a crucial tool for assessing a firm's economic and financial status, enabling informed decision-making. It should be coupled with other factors, including the legislative framework, market conditions, business quality, and corporate productivity. A variety of financial indicators are essential for assessing the financial and economic status of healthcare institutions. The indicators involve financial revenue, economic profitability, liquidity, short-term reliability, operational cash flow, capitalization, debt, and debt sustainability [75]. It is essential to possess a comprehensive understanding of the financial records of healthcare organizations to make educated decisions [20]. The efficacy of a corporation may also be evaluated in comparison to its industry counterparts using financial ratios [11]. Investors often have a positive view of companies with elevated profitability ratios, since these ratios signify robust financial health and effective management practices [30]. Management may enhance performance by identifying areas for improvement and implementing strategies when they possess a better grasp of profitability trends over time.

The liquidity and profitability ratios are critical aspects to consider when analyzing the company's financial performance. Liquidity ratios are an assessment of a business's capacity to satisfy its short-term commitments. These ratios serve as a measure of the company's efficacy in managing its cash flow. To assess a company's short-term financial health, many popular ratios may be used. Examples of these ratios are the current ratio and the quick ratio. A robust liquidity position is essential for a corporation as it mitigates the company's financial risk exposure. This is because it assures that a firm can satisfy its immediate financial obligations without the need for further funding from other sources. Profitability measurements assess a company's capacity to earn profits relative to its revenue, assets, and equity [80], [83]. Return on assets (ROA) and return on equity (ROE) are two

instances of ratios that belong to this category. When a corporation has a high degree of profitability, it not only indicates that the operations of the business are successful, but it also makes the company more appealing to creditors and investors. In recent years, there has been an increased emphasis on the relationship between liquidity and profitability. A multitude of independent research has shown the intricate relationship between these two groups of characteristics. A low degree of profitability may arise from an excess of liquidity, indicating underutilized resources. During adverse economic circumstances, companies that prioritize profitability risk jeopardizing their liquidity, perhaps leading to a financial catastrophe.

The efficient use of a company's assets enhances its financial performance, therefore resulting in increased sales and profits. When a corporation excessively utilizes its assets, it simulates efficiency and effectiveness in asset management, minimizing costs and eventually enhancing revenues and wealth for the company's proprietors [3]. Satisfied financial performance may be achieved via various restructuring tactics. These tactics include the alteration of share capital and the depreciation of impaired assets. The development of goods and services necessitates the use of fixed assets, including items such as commodities and services. The situation substantially affects the existing assets, indicators, and organizational structures. The growth of firms is stable when economic conditions remain relatively steady [76], [9].

When it comes to providing high-quality healthcare services to the general public, the financial viability of NHS trusts [40] is of the utmost importance. Using yearly balance sheets and statements of financial condition taken from the unabridged versions of the annual reports of the ten NHSTs that are members of the Shelford group, an evaluation of the financial status of each organization was carried out in [52]. Each trust's financial condition was evaluated using accrual-based accounting procedures, which is crucial because of its direct association with clinical activity levels, fixed asset treatment, and provisions for long-term obligations such as private financing initiative arrangements. The evaluation was carried out in order to determine the trust's overall financial health. By doing this evaluation, one may get a better understanding of the financial stability of NHS trusts as well as their capacity to provide high-quality healthcare services.

Financial status of EKHUFT, UK and ASP Cosenza, Italy (2015-22):

The financial state of EKHUFT during 2015-16 was challenging. The trust received total income of £531.5 million with the culminated deficit of £35.2 million, which highlighted the substantial pressure to maintain financial sustainability in their hospitals, whereas ASP Cosenza in the year 2015 had an annual budget of approximately €531 million and faced financial strain with

a total deficit of approximately €95 million due to the growing expenses in addressing healthcare needs and inefficiencies in resource utilization. The trust raised their total income to £559 million in the year 2016-17 and ended up with a deficit of £24.3 million, showing some improvement in liquidity and gradual stability in financial performance, while ASP Cosenza noted some stability during 2016 with an annual budget of €560 million. The region implemented strategies to narrow the deficit to €61.2 million, which showed that the efforts were made in long-term efficiency and optimization of resource allocation. The year 2017 was the turning point for ASP Cosenza, with a total budget of €580 million and a €25.6 million deficit, emphasizing a reduction in regional inefficiencies.

In the year 2018-19, significant investments in infrastructure and enhanced service delivery were marked. The total Trust income was around £600 million. However, the annual budget of ASP Cosenza in 2018 was €600 million with an approximately €20 million deficit. It was observed that technology and infrastructure were obstacles. KHUFT received approximately £700 million in the year 2019-20 with a £10.2 million deficit that reflected persistent fiscal pressure. In contrast, ASP Cosenza annual budget 2019 was €620 million, with a decrease in deficit of €19.3 million that showed to incorporate more facilities in the hospitals. The COVID-19 pandemic came with new challenges; the Trust increased its total income to £805 million during 2020-21 and concluded to reduce a deficit of £4.2 million, which means the Trust managed to sustain key operations under difficult circumstances. Moreover, the financial year 2020 was devoted to controlling the COVID-19 pandemic effect in ASP Cosenza. The annual budget was €650 million, which led to high healthcare demands, with the deficit rising to €23.6 million. In the financial year 2021-22, the Trust raised a total income of £859.3 million and ended up with a deficit of £8.8 million, while in 2021, ASP Cosenza's annual budget was €670 million to manage pandemic-related issues together with other health problems, whereas the deficit was €21.3 million. During 2022, the total annual budget was €690 million, showing the recovery year from the pandemic and focusing more on operational efficiency. In the same year, the deficit was €20.2 million, enhancing technological integration in the region.

Although both healthcare delivery systems have different financial structures, total income annual budgets, policies, and yearwise objectives, both focus on improving on-going and long-term health challenges. Overall, during the 8-year period, EKHUFT navigated continued financial challenges, yet incremental improvement in liquidity, efficiency, and strategic investments showed Trust's commitment to enhance healthcare delivery. However, ASP Cosenza faced regional inequalities and a lower annual budget to provide healthcare

services to their population.

No doubt, financial ratios are a fundamental tool to measure and analysis the organization's performance and financial health for decision making. Their interpretation however varies significantly between the public sector and private companies due to respective structural and operational differences. While in private companies, ratios such as ROA and ROE provide crucial insight into a organization's ability to generate profit, their application by the public sector needs to be interpreted critically [46].

In the case of ASP Cosenza, the basis of revenues is determined pursuant to a secure per capita financing system (c.d. "finanziamento a quota capitaria") in place of revenues derived from incomes resulting from production or selling operations. The contrast essentially redefines how to analyze financial performance. Whereas for private companies there is a larger service provision relating to revenue growth, for Italian ASL/ASP bodies higher service provision tends to relate to higher costs without matching revenue growth. This unusual fiscal structure demands a new structure of evaluation of financial sustainability based on cost effectiveness, budgetary compliance, and resource use effectiveness rather than traditional profitability metrics.

Hence, most crucial financial metrics for ASP Cosenza would be cost per service delivered, expenditure-to-revenue ratio, liquidity ratios, and operational efficiency measures. Reliance on fixed bases of revenues also accentuates the importance of controlling expenditure, optimum utilization of resources, and being financially viable through budgeting. Future research could also look into other financial metrics of performance that better capture value creation in public healthcare organizations [73].

Moreover, unlike private companies whose performance is gauged using profitability indicators, ASP Cosenza's performance must be gauged using indicators that reflect its capability to provide healthcare services efficiently under the constraints of its fixed budget. Indicators such as bed occupancy rates, cost per patient treated, and financial distress ratios can better reveal the operational performance. The inclusion of these alternative financial metrics strengthens the analytical model used within this research and ensures that value creation is assessed in a proper manner across the public healthcare context.

2.5 Theoretical Framework of the Study

The present study purposes to investigate the role of hospital's performance and financial accounts to add value in healthcare delivery systems. This

case study of East Kent Hospitals University NHS Foundation Trust, UK, and Provincial Health Authority Cosenza, Italy, provides holistic insights. Therefore, to explain the relationship of variables, it is important to build a theoretical foundation for a study. There are many theories that develop strong support for the study; thus, for the present study, the theory that forms the theoretical framework is stakeholder theory.

Stakeholder Theory:

The idea asserts that institutions must reconcile the interests of many stakeholders such as patients, healthcare professionals, governments, and society while pursuing financial and operational sustainability. Stakeholder Theory, proposed by R. Edward Freeman in 1984, posits that an organization's success is contingent not only upon increasing shareholder value but also on fulfilling the wants and expectations of all its stakeholders. Stakeholders are persons or groups that may influence or are influenced by the organization's aims and performance [31].

Stakeholder theory succinctly embodies the dual emphasis on hospital performance, as activities in sustainability, technological innovation, and training demonstrate the organization's accountability to its social and environmental stakeholders. The financial measurements illustrate the organization's fiscal responsibility to economic stakeholders, donors, taxpayers, and creditors. The fundamental tenet of the idea is that active involvement guarantees the alignment of business goals with stakeholder expectations. Value creation is multifaceted and encompasses financial performance, environmental sustainability, innovation, and workforce development. The contentment of stakeholders strongly impacts organizational sustainability and enduring performance. Stakeholder theory underscores the need of reconciling conflicting interest, such as cost management (financial stakeholders) and quality enhancement (patient and staff). Organizations possess an ethical duty to operate in manners that advantage stakeholders, guaranteeing openness, equity, and accountability.

The healthcare industry fundamentally functions under a multi-stakeholder framework. Stakeholder Theory is especially effective in elucidating how public healthcare organizations such as NHS East Kent and ASP Cosenza generate value, since these entities must reconcile economic efficiency with public welfare. Sustainability activities, like carbon footprint reduction, energy efficiency, and waste management, correspond with notion by tackling the environmental issues faced by communities and governments. These initiatives bolster social trust and adherence to regulatory requirements, generating enduring benefit for public stakeholders. Investment in technology such as telemedicine, electronic health records, and AI diagnostic tools enhances patient outcomes, meets provider requirements for efficient systems,

and fulfills governmental aspirations for modernized healthcare.

The theory elucidates how these innovations provide value for both service users (patients) and service providers (healthcare professionals). Workforce development initiatives demonstrate the organization's commitment to employee stakeholders. Training efforts enhance the skills and resilience of healthcare workers, so improving service quality, decreasing turnover, and generating value for both patients and staff. The financial measures of profitability, liquidity, and efficiency guarantee the organization's accountability to economic stakeholders, including taxpayers, creditors and funding agencies. Consequently, accurate financial reporting cultivates confidence, facilitating ongoing financing and operational stability. This approach encompasses the many aspects of value creations by concurrently addressing financial, environmental, and social elements. It underscores public responsibility, fits with the aim of public healthcare systems to address varied societal interests, and elucidates how companies reconcile financial stability with social duties, which is essential for healthcare systems managing resource limitations. Undoubtedly, reconciling the varied requirements of stakeholders may be difficult. This research carefully categorizes and evaluates efforts aligned with stakeholder interests. Assessing and quantifying value among stakeholders is inherently subjective.

The study addresses this by using financial ratios and performance measures as measurable indicators to add value. Stakeholder Theory provides a comprehensive framework for examining the significance of performance and financial reporting in value creation within healthcare systems. This study illustrates how NHS East Kent and ASP Cosenza match their objectives with stakeholder expectations with an emphasis on sustainability, technological innovation, and training, for generating both real and intangible value. This theory undergirds the analytical method while also bolstering the ethical and social aspects of the study.

Importance of sustainability, innovation technology and training in overall hospital performance for value creation:

The competitive dynamics of the healthcare business highlight the need for assessing customer satisfaction and guaranteeing its preservation [56, 37, 77]. To maintain the profitability and sustainability of the healthcare sector, it is essential for healthcare personnel to guarantee patient satisfaction with the services provided. Healthcare practitioners must comprehend patient needs and worries, as well as solutions to meet wants and resolve difficulties to enhance patient happiness.

The use of new technology in the healthcare sector is crucial for enhancing customization of services and improving patient outcomes with training. Successful integration of innovations [24] into daily operations is more likely

when co-creation happens between healthcare practitioners and service users. This collaborative approach promotes transparency and synchronizes various healthcare channels to focus on delivering user-centric services. Prioritizing health outcomes, enhancing system transparency, and establishing new incentive frameworks that foster value generation may significantly enhance hospital performance. The complete patient experience may be enhanced by the use of modern technologies, which play a vital role in the change of healthcare delivery.

Equipping customers with healthcare training [84] is crucial for enhancing their understanding of medical insurance plans and their capacity to make informed selections about these sometimes complex products, which may be daunting for purchasers. A recent study indicates that individuals with insufficient healthcare literacy struggle to navigate complicated goods, leading to confusion over their rights and an increase in complaints. This underlines the necessity for healthcare professionals and medical insurance to participate in educational activities that enable consumers to make decisions that are educated and aligned with their healthcare needs.

The delivery of patient-centered therapy is a fundamental aim of the healthcare system [38]; nevertheless, surveys reveal that this goal has not been fully realized. To foster an environment conducive to patient-centered care, it is essential to implement strategic measures that address existing challenges. These strategies are not only theoretical recommendations; they are tangible efforts that prioritize the well-being and preferences of patients, thereby enhancing the quality and efficacy of healthcare services. In summary, education and training within the healthcare sector are essential instruments for value creation, the improvement of consumer literacy, and the effective integration of patient-centered care principles into healthcare delivery.

Contribution of sustainability, technological innovation, and training to long-term healthcare performance:

Healthcare organizations (HCOs) face so many hurdles that must be overcome to attain sustainability [17]. Initially, while advancements have been achieved in assessing social and environmental impacts, the predominant reliance on cost accounting methods hinders a comprehensive evaluation of sustainability performance.

Furthermore, the methodologies used for assessing social and environmental performance are mostly utilized for internal reporting purposes. These strategies exclude engagement with external stakeholders, limiting the potential for substantive dialogue and collaboration. Due to the emphasis institutions put on cost management, economic assessments are prioritized above sustainability metrics, complicating the integration of sustainability performance measurement into organizational frameworks. Additionally, it emphasizes that

the impact of sustainability evaluations on managerial actions and strategic optimization remains little understood, hence underscoring the need for frameworks that facilitate collaborative assessments between hospitals and stakeholders. Given the study's constraints [66], including a restricted sample size and specific sampling methods, it is evident that more research is necessary to validate the findings and explore the many perspectives of stakeholders. The primary issues are the need to shift focus from financial metrics to a more comprehensive view of sustainability, enhanced stakeholder engagement, and the development of robust assessment frameworks. These represent but a subset of the challenges.

There are substantial gaps in the existing landscape of healthcare innovation technology, which calls for further research and development to be carried out. It is of the utmost importance to conduct exhaustive research in order to outline the needs for execution and the criteria for success for healthcare innovation policy initiatives. For the purpose of determining the genuine effect of inventions, conventional criteria, such as the number of patents and spending in research and development [50], are inadequate. An approach that is more nuanced is necessary instead, with the primary emphasis being on the adoption of innovations and the consequences that they have on patients and healthcare systems. Additionally, there is a request for the introduction of sophisticated measures that evaluate system-level capability across several dimensions. Additionally, there is a call for the construction of different drivers that assist the translation of innovations into concrete advantages for patients, healthcare services, and the economy as a whole.

The innovation value of the healthcare industry is crucial for designing effective innovation [24] systems. Given that expenditures in health care often exceed performance improvements, there is an urgent need to augment both social and economic advantages. Identifying value in the industry is crucial to achieving this objective, and aligning perspectives across all stakeholders involved in innovation is as key. In the healthcare sector, this may include doing further research on understanding, evaluating, and providing incentives for value.

The healthcare business has a substantial training [79] shortfall, highlighting the need for innovative strategies to restructure training programs. These programs are often seen as essential for capacity development. These initiatives may lack enduring advantages for health promotion and public health outcomes, even when they align with the institution's aims. True capacity development transcends mere training, especially in environments facing challenges such as the depletion of intellectual capital, low staff morale, and insufficient performance incentives.

2.6 Standardized framework to compare healthcare systems based on value creation

When it comes to comparing healthcare systems, the framework [37] has been offered places an emphasis on the generation of value via interconnected components that are reflective of the complexity of healthcare economies. Users are guided through the process of understanding how different aspects impact the generation of value by concentrating on the most important input components, strategic actions, and desired outputs. The purpose of the tool is to encourage long-term value creation and to propel continuous development by using information systems to maximize organizational effectiveness. On the other hand, it is conceptual, and in order for it to be effectively used, users need to have a thorough grasp of the healthcare context. However, despite the fact that it makes the process of creating value more straightforward, the framework recognizes the complex factors that are involved and advises that iterative modifications could be required. Not only does it not make any predictions about the results or quantify the significance of each notion, but it also stays generic and does not address all of the complexity that is involved in the production of value within the healthcare system. Continuous development of the framework is necessary in order to ensure that it continues to be relevant in healthcare environments that are always changing.

Summary

This chapter aided comprehensive literature for the present study. The chapter highlighted the importance of sustainability, technological innovation, and training towards value creation along with financial stability in the healthcare system. The study also gives both NHS East Kent Foundation Trust, UK, and Provincial Health Authority Cosenza, Italy's performance and financial insight over an 8-year period from 2015 to 2022. In addition, the stakeholder theory was applied to support the study. The next chapter discusses the methodology of the study.

Chapter 3

Methodology

Overview

This chapter mainly focused on investigating the performance and financial reports of public hospitals in NHS East Kent, UK, and Provisional Health Authority Cosenza, Italy, over the 8-year period (2015-2022), with an emphasis on the basic domains of sustainability, technological innovation, and training. These domains are increasingly perceived as vital for the prolonged practicality and efficiency of healthcare institutions, fulfilling the crucial demands for operational productivity, financial sustainability, and great service conveyance in public health settings. The conceptual model supporting this study demonstrates the mechanisms by which specific variables drive value creation in hospitals. The model is based on the premise that improvement in a hospital's performance and financial stability can transform the impact on the critical aspects of healthcare delivery. In particular, the model suggests that designated improvements in sustainability, adaptation of new technologies, and a highly prepared and skilled workforce empower hospitals to work on their financial steadiness, operational resilience, and service quality. These improvements can lead to enhanced value not only for the institution but also for the extensive public by meeting public needs for efficient, environmentally sound, and technologically advanced healthcare services. The present chapter is divided into sections and subsections. The first section illustrates the philosophical stance of the study. The second section highlights the research design, including the data identification and verification process adopted for the study. The section also gives the data analysis techniques that were applied to evaluate performance reports and measure the financial health of NHS East Kent, UK, and ASP Cosenza, Italy. In the last section, a chapter summary is provided.

3.1 Philosophy Stance of the Study

For any research, philosophical underpinning is of utmost importance. It reflects the stance that the researcher takes in conducting the research and guides the appropriate approach, strategy, and technique of data collection and analysis. This section highlights and provides the justification for the selected paradigm of the study.

Positivism:

The positivist philosophy is considered a form of progression empiricism, relates to the natural sciences, and reflects the philosophical stance of natural scientists. Positivism explains that the social world exists objectively and externally rather than subjectively and internally. It focuses on the facts that are collected through primary or secondary data and experimentations and measured empirically through quantitative methods and statistical analysis [49].

3.2 Research Design

Research design forms the foundation of any sound research work as it facilitates various facets of research. The present study is considered a descriptive and content analysis study because of the data collection method. A descriptive study is used for the complete uniqueness of data or analyzing circumstances. The data is attained through performance and financial reports of both NHS East Kent, UK, and ASP Cosenza, Italy; thus, it is a case study. The conceptual model illustrates the study's foundational structure, where performance evaluation and financial health are the central catalysts for value creation in hospitals. Here, value creation is defined as the improvement of healthcare quality, operational efficiency, and financial stability, accomplished by prioritizing three interrelated ways: sustainability, technological innovation, and training with a specific focus area, speculated to affect value creation in distinctive yet interrelated ways.

3.2.1 Research Sample

There are 5 hospitals in each healthcare system. A total of 10 hospitals are representatives of East Kent Hospitals NHS Foundation Trust, UK, and Provisional Health Authority Cosenza, Italy, and their performance and financial reports can reveal their institutional status, which affects the entire health delivery system. The study area of UK and Italy are shown in Figure 3.1 and 3.2 respectively. Eight-year period (2015-2022) data is collected from their

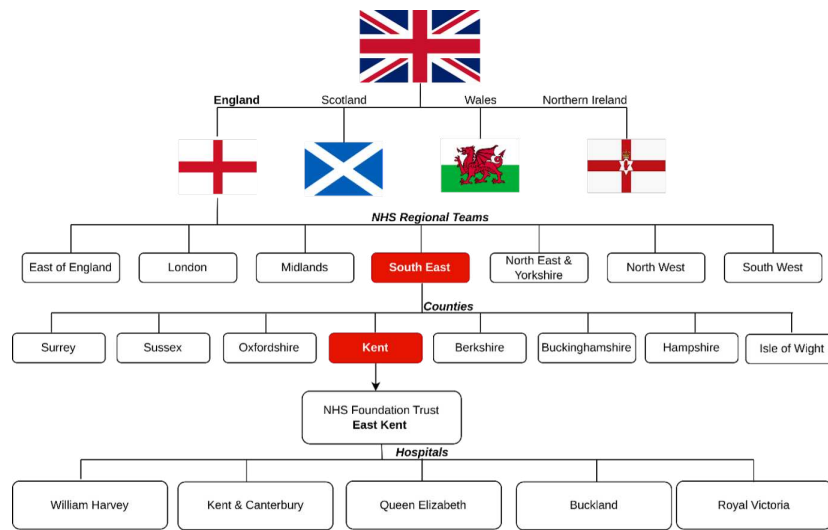


Figure 3.1: Study Area of UK.

websites, which is available for the readers and researchers. Microsoft Excel and DocFetcher software are used to analyze the data. Under the umbrella of these systems, the following hospitals are listed in East Kent Hospitals University NHS Foundation Trust:

1. William Harvey Hospital
2. Kent and Canterbury Hospital
3. Queen Elizabeth The Queen Mother Hospital
4. Buckland Hospital
5. Royal Victoria Hospital

While the hospitals listed in Hospitals in Provisional Health Authority Cosenza are as follows:

1. Castrovillari Hospital (Ospedale di Castrovillari)
2. Spoke Cetraro-Paola
3. Spoke Rossano-Corigliano
4. Beato Angelico Hospital of Acri (Presidio Ospedaliero Beato Angelico di Acri)
5. Civil Hospital of San Giovanni in Fiore (Ospedale San Giovanni in Fiore)

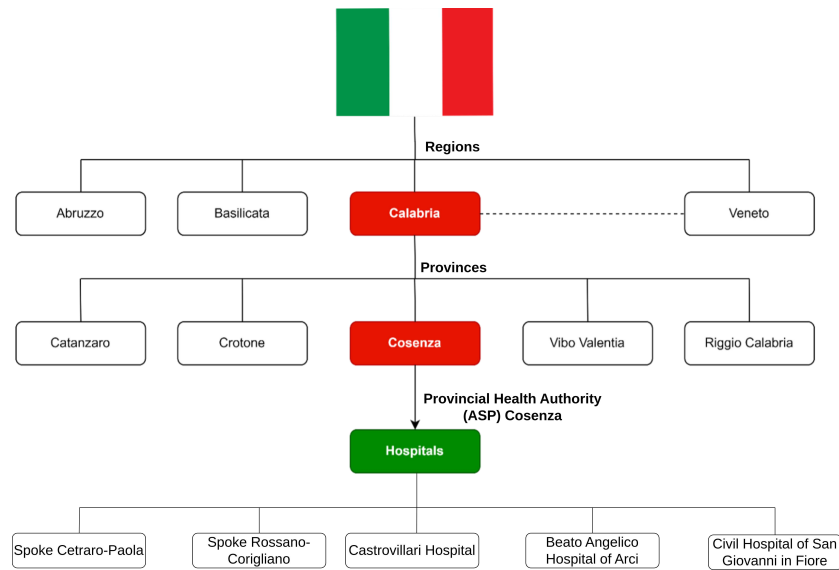


Figure 3.2: Study Area of Italy.

3.2.2 Data Source

The primary data sources for this study are comprised of yearly performance reports and financial statements from East Kent Hospitals University NHS Foundation Trust and Provincial Health Authority (ASP) Cosenza. These documents are publicly accessible from their official websites and offer a reliable base for evaluating financial and operational metrics across two health-care frameworks.

3.2.3 Data Collection Method

The research combines both qualitative thematic areas and quantitative financial metrics in this data collection method. With the incorporation of keyword analysis along with financial ratios, the study underpins both the evolving thematic priorities and the quantifiable financial outcomes. A longitudinal comparative approach is incorporated in this research to explain the importance of value creation in the healthcare system by focusing on two different healthcare frameworks: East Kent Hospitals University NHS Foundation Trust (England, UK) and Provisional Health Authority Cosenza (Italy). Secondary data was used and collected from their websites: <https://www.ekhuft.nhs.uk/> and <https://www.asp.cosenza.it/>. Performance and financial reports are used over an eight-year period from 2015 to 2022 to provide a long-term analysis and a rationale for the cross-sectional asso-

ciation between healthcare frameworks with unique governance, regulatory, and financial policies.

3.2.4 Data Identification and Verification Process

In the performance reports of NHS East Kent, UK, and ASP Cosenza, the keyword trend is analyzed. But, before analysing keyword trends, the data is prepared by identifying keywords and sub-keywords related to sustainability, technological innovation, and training: [22]. By utilizing DocFetcher software, keywords like "sustainability," "technological innovation," and "training" are extracted from performance reports of both NHS East Kent, UK, and ASP Cosenza, Italy, over the 8-year (2015-2022) period. These keywords were selected because they are vital to the study. For instance, under "sustainability," sub-keywords, for example, "carbon emissions" and "waste reduction," are included. The extricated keywords and sub-keywords are then coordinated into an organized dataset, where every keyword's frequency is counted each year for both the UK and Italy. This organized dataset structures the establishment for the analytical methods. Additionally, in the annual accounts, each report is carefully explored to guarantee data precision and consistency. Cross-referencing is done between various areas of the reports to check figures, for example, comparing income figures in the income statement with associated things in the notes to accounts. This practice lessens errors and aids in the consistent trend examination over the period, enabling the data to accurately report each institution's financial health. Fundamentally, this process enables comparability across various hospitals, years, and healthcare frameworks, giving a reliable base for analysing performance and financial influences.

3.2.5 Research Model of the Study

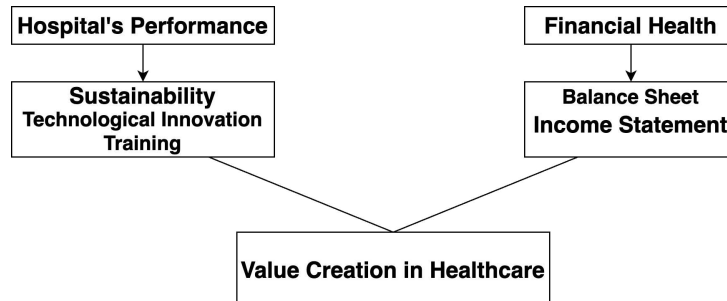


Figure 3.3: Study Model.

3.2.6 Data Analysis Techniques

For the assessment of both quantitative and qualitative aspects of value creation, this methodological framework combines keyword trend analysis and financial ratio analysis. The quantitative evaluation is supported by the keyword trend analysis with the tracking of thematic alterations over the long haul in sustainability, technological innovation, and training. By interpreting the occurrence and advancement of explicit keywords in performance reports, this study uncovers strategic priorities and thematic emphasis on key areas within the healthcare framework. This qualitative aspect highlights the changing focus of the healthcare administrations, giving a thematic framework for analysing the financial pointers and understanding the more extensive institutional objectives associated with value creation. Furthermore, financial ratio analysis [81] is utilized to analyse financial indicators, which depict every institution's ability to generate financial value. These ratios give standardized measures of financial health, enabling direct comparison of investment impacts on financial outcomes.

3.2.6.1 Keyword Trend Analysis

Keyword trend is observed by applying the following techniques: year-over-year change, longitudinal trend analysis, and sub-keyword comparison.

Year-Over-Year Change Analysis: The year-over-year change analysis examines the change in keyword frequency over time. This strategy is important for identifying huge changes in the thematic priorities, highlighting years where certain themes turned out to be pretty prominent. For instance, an increase in the recurrence of "digital transformation" may reflect more focus on technological innovation, potentially influenced by outer factors, for example, strategy changes or innovative progressions in the healthcare area. The year-over-year change for every keyword is determined as the distinction in recurrence counts between successive years. This calculation is performed independently for NHS East Kent (UK) and ASP Cosenza (Italy), allowing for a comparative analysis.

Longitudinal Trend Analysis: The longitudinal trend analysis gives a profound perspective on keyword frequency over the complete eight-year time span. This approach allows the recognition of sustained trends and examples, giving detailed information about the themes of the healthcare frameworks over time. Thus, the total counts of each keyword across all years are plotted to establish steady trends and rapid alterations in thematic emphasis. For example, a constant upsurge in keywords related to "training" could emphasise improving the workforce, while alterations in "sustainability" keywords

could reflect a changing focus on sustainability initiatives over time.

Sub-keyword Comparison: The sub-keyword comparison analysis further demonstrates the developing themes by comparing the total counts of sub-keywords linked with each primary keyword across both healthcare frameworks. It delivers a broad overview of how various components of sustainability, technological innovation, and training play a significant role in healthcare settings. Sub-keywords are ranked under broader topics, i.e., "sustainability" comprises "carbon emission" and "waste reduction." The total repetition of each sub-keyword across all years is calculated for both UK and Italian healthcare systems, which helps in providing a measure of focus. This analysis explicates that aspects of a theme are highlighted in each healthcare framework and emphasises contrasts in strategic focus.

3.2.6.2 Financial Performance Analysis

To measure the financial health of NHS East Kent Foundation Trust, UK, and ASP Cosenza, Italy, over eight years (2015-2022), financial ratios are calculated. The Statement of Financial Position (balance sheets) document gives data of overall resources, liabilities, and value, alongside current resources and current liabilities. These metrics are fundamental for calculating liquidity and solvency proportions, which indicate every emergency hospital's ability to meet present-moment and long-haul compulsions. On the other hand, the Statement of Comprehensive Income (Income Statement) includes information of absolute revenue, operating income, operating costs, and total compensation (or deficit). These figures are integral to profitability and productivity examinations, as they mirror every medical hospital's financial performance within a given monetary year.

Variables for measuring Financial Ratios

According to the study [81], the key financial ratios are measured by calculating profitability, liquidity, solvency (leverage), and efficiency (activity). These ratios help to evaluate the financial stability of the organization [16].

Profitability Ratios:

Profitability ratios aid in the assessment of a hospital's capability to produce revenue in comparison with its expenses. This represents how well the hospital is utilizing its assets for value creation. Net profit margin (NPM) reveals the adequacy of investments in generating excess revenue, an indicator of financial health and sustainability. The formulas to calculate the indicators of profitability, such as Return of Assests (ROA), Operating Performance Margin (OPM), and Net Ptofit Margin (NPM) are as follows:

$$ROA = \frac{\text{Net Income}}{\text{Total Assest}} \quad (3.1)$$

$$OPM = \frac{\text{Operating Income}}{\text{Revenue}} \quad (3.2)$$

$$NPM = \frac{\text{Net Income}}{\text{Revenue}} \quad (3.3)$$

Liquidity Ratios:

Liquidity ratios measure a hospital's ability to fulfil its obligation over the short haul, assessing the effect of sustainability on financial adaptability. This ratio evaluates the financial effect of sustainability and operational efficiency calculated on short-term financial strength. The indicators of liquidity ratio are examined through the given formulas:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} \quad (3.4)$$

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory} - \text{Prepaid Expenses}}{\text{Current Liabilities}} \quad (3.5)$$

$$\text{Cash Ratio} = \frac{\text{Cash and Cash Equivalents}}{\text{Current Liabilities}} \quad (3.6)$$

Efficiency Ratios:

Efficiency ratios examine how assets are utilized efficiently to create income, focusing on operational efficiency. This ratio gives insights into the operational effects of innovative technologies. Thus, the formula is:

$$\text{Asset Turnover Ratio} = \frac{\text{Net Revenue}}{\text{Average Total Assets}} \quad (3.7)$$

Solvency Ratios:

Solvency ratios evaluate the financial stability of a hospital over the long haul. The ratio demonstrates the financial risk related to debt-financed sustainability and innovation investments. Here is the formula:

$$\text{Debit and Asset Ratio} = \frac{\text{Total Libailities}}{\text{Total Asssets}} \quad (3.8)$$

This comparative aspect of this methodology aids in examining the differences and commonalities regarding the utilization of investments in two healthcare frameworks. Despite receiving public funding, these systems are functional under different structural frameworks. A national policy frame-

work and a unified governance model sustain NHS East Kent, a division of the centralized National Health Service (NHS) in England. In contrast, ASP Cosenza is operational under Italy's regionally decentralized healthcare infrastructure, where healthcare policies and funding decisions vary by region. This structural contrast enables an evaluation of how changes in policy settings influence strategies and outcomes, giving in-depth elaboration of the contextual factors that impact value.

Chapter Summary

This chapter has provided a comprehensive methodological framework by the combination of both qualitative keyword trend analysis and quantitative financial analysis to analyse the demands of both healthcare frameworks. Collectively, these methodological constituents give a comprehensive and nuanced framework to assess value creation in public healthcare infrastructure. With the cross-sectional and longitudinal keyword analyses over time, a multi-faceted understanding of how sustainability, technological innovation, and training, along with financial ratios, influence the qualitative, financial, and operational outcomes. This assimilated methodology not only supports a comprehensive analysis of value creation but also enriches the understanding of the strategic drivers that affect healthcare institutions' capability to deliver sustainable, efficient, and high-quality services. The qualitative aspect highlights the changing focus of the healthcare administrations, giving a thematic framework for analysing the financial pointers and understanding the more extensive institutional objectives associated with value creation. Furthermore, financial ratio analysis is utilized to analyse particular financial indicators, like profitability, liquidity, efficiency, and solvency, which depict every institution's ability to generate financial value. These ratios give standardized measures of financial health, enabling direct comparison of investment impacts on financial outcomes. The next chapter will elaborate on the findings, giving information regarding the financial indicators and progressing themes and their implications for healthcare systems.

Chapter 4

Result and Discussion

Overview

This chapter demonstrates the potential outcomes of the study by combining qualitative and quantitative results from keyword trend analysis and financial ratio analysis. The main aim is to comprehend the trend that appears over time in the performance reports, which determines the thematic progression in the areas of sustainability, technological innovation, and training along with the financial condition of the public hospitals of East Kent NHS Foundation Trust (EKHUFT), UK, and Provincial Health Authority (ASP) Cosenza, Italy. This evaluation gives key findings into the strategic and thematic emphasis of each healthcare framework by the selection of primary keywords, sub-keywords, and terms from the performance reports from the yearly accounts throughout the eight-year period (2015–2022). The findings are divided into three main categories: year-over-year change analysis, longitudinal trend analysis, and sub-keyword comparison.

The financial data from both healthcare delivery systems were taken from their separate annual reports and accounts. Key parameters that give an accurate representation of each healthcare system's operational and monetary performance are represented in the figures. The financial strength, effectiveness, and sustainability of any healthcare system can be better understood by undertaking the measures that form the basis for financial ratio analyses. This chapter unveils the contrasting examination by highlighting how the two healthcare frameworks show operational effectiveness and financial health in distinct ways. In the following results, the blue bar shows East Kent Hospitals University NHS Foundation Trust (EKHUFT) outcomes, presenting as UK, and the orange bar indicates the Provincial Health Authority Cosenza (ASP) score, which donates as Italy.

4.1 Keyword Analysis Results

The keyword analysis is mainly directed at the different themes of sustainability, technological innovation, and training by utilizing the following analytical methods:

4.1.1 Year-over-Year Change Analysis

The year-over-year evaluation gives a depiction of the evolution of thematic priority and variations by quantifying the alterations in keyword frequency between succeeding years.

Trend in Sustainability:

The results show that during the year 2015-16, approximately -15 counts of

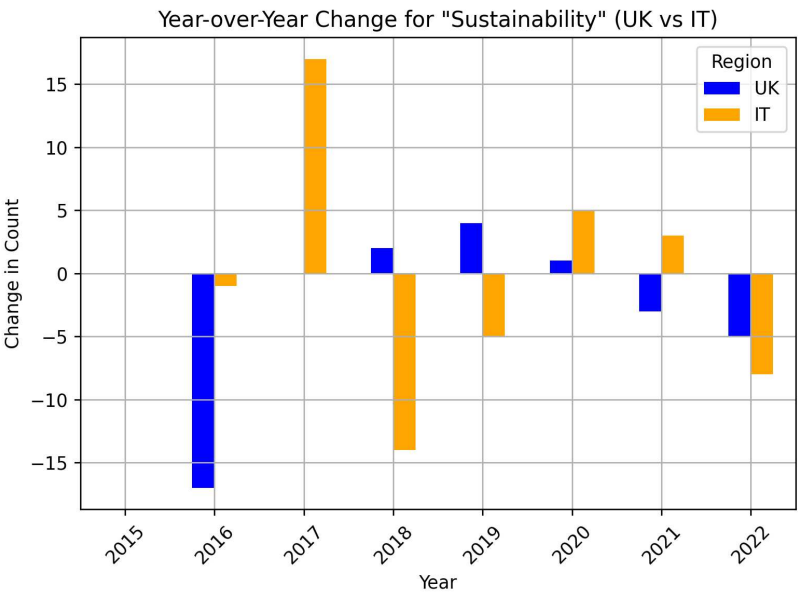


Figure 4.1: Year-over-Year Trends of Sustainability.

decline have been seen on the term "sustainability" in the EKHUFT, which represents that sustainability-related themes were not the focused area in the region, whereas ASP Cosenza donated a minor decrease of around -1 count, indicating the efforts towards sustainability initiatives. While the UK in 2016-17 maintained its position, showing a bit of change, Italy experienced a

notable increase of approximately +15 counts, indicating a noteworthy rise in attention to sustainability. This implies a potential shift in regional policies that emphasize sustainability projects in Italy may change. During 2017-18, UK faced a minor increase of about +3 counts, demonstrating a modest comeback and suggesting a gradual return in conversation about sustainability. Italy, however, saw a little decline of -5 counts, showing a reserve of the prior year's gain, due to changing needs.

The UK remained stable in the year 2018-19, with no noticeable changes from the previous year. Italy continued its downward trend with a drop of about -3 counts, suggesting a consistent but minor emphasis on sustainability topics. It is observed that both regions put more efforts on sustainability during the COVID-19 period in 2019-20. UK represent a slight positive change of +4 counts, whereas Italy denotes a less significant increase of +5 counts. This trend may result in more awareness and understanding towards sustainability as a global recovery plan.

Moreover, during the year 2020-21, the UK recorded a drop of about -5 counts, reflecting a diminished focus on sustainability, probably due to the pandemic challenges. On the other hand, Italy witnessed continuous growth even in the COVID time, highlighting the persistent dedication and showing +6 count to sustainability-related themes. Finally, in the post-recovery COVID period 2021-2022, both regions reduce their efforts approximately -10 counts, indicating that sustainability becomes less of a priority.

Trend in Technological Innovation

Year-over-year trends in technological innovation results disclose that in the year 2015-16, both the UK and Italy show a slight decline. The UK noticed -2 counts while Italy recorded -3 counts, implying less emphasis on technology-related initiatives. During the year 2016-17, the UK exhibited a minor decrease of about -3 counts. However, Italy displayed no major change, indicating a constant trend in the innovation theme. Slight growth shows in the UK over the year 2017-18 about +2 counts, highlighting the focus on introducing more technologically related projects, while Italy reveals a significant gain of +10 counts, showing investing in technology. Furthermore, the UK saw a modest increase of about +2 counts in the year 2018-19; on the other hand, Italy experienced a drastic downfall of about -50 counts, showing the region's priorities and negligence to upgrade and adopt new technologies. In the COVID-19 period (2019-20), the UK remained stable with almost no change, while Italy showed no prominent focus in the technological innovation area. The UK highlighted a minor decrease in 2020-21 due to a pandemic peak of about -3 count, showing the reduced focus on technological innovation themes. However, Italy exhibited a -3 count, reflecting fewer efforts in that area. Lastly, both regions faced no major change in the years

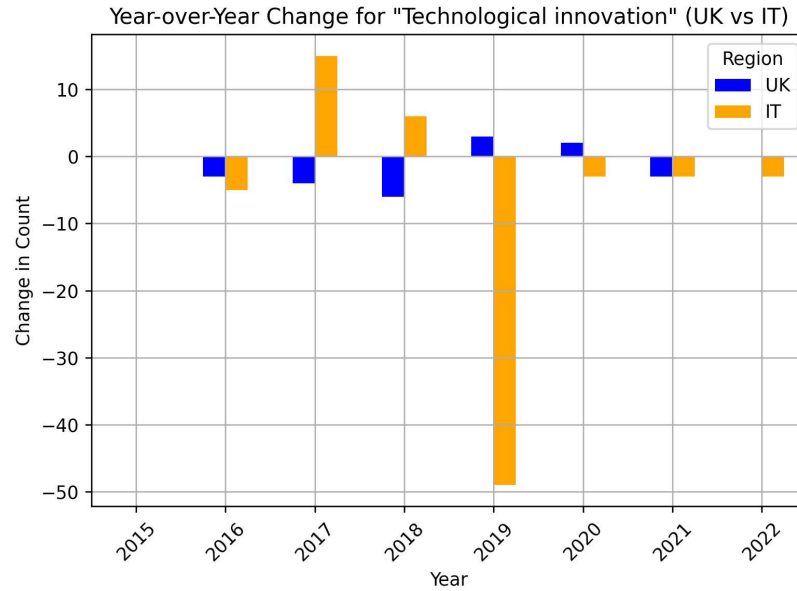


Figure 4.2: Year-over-Year Trends of Technological Innovation.

2021–22, indicating that technological innovation is not the focal point for the organizations.

Trend in Training

The results of training highlight that in the year 2015-16, the UK shows stability with no prominent change, whereas Italy indicates a minor reduction of about -2 counts, denoting a lower attention. UK and Italy faced a small increase during the year 2016-17 with +2 and +3 counts, suggesting a rise in training, respectively. The UK shows a small positive change during 2017-18 of about +4 counts, while Italy presents the significant efforts towards health professional trainings in the same year of about +50 counts. In the year 2018-19, a sharp reduction of about -20 counts was highlighted in the UK. However, Italy demonstrated a drastic change of about -125 counts, showing that the region is not paying attention to health training.

Furthermore, the UK revealed no change during the COVID phase (2019-20). In contrast, Italy continued its stability with no recovery from the previous year, indicating that the region faces skilled workforce challenges. The UK displayed a minor reduction of about -3 counts in 2020-21 due to the logistic challenges, while Italy refocused their attention with +5 counts, showing a slight recovery to upskill their employees. Lastly, the UK got some stability in 2021-2022 with no prominent change in post-pandemic period, whereas Italy revealed a minor decline with -5 counts, representing a less focused

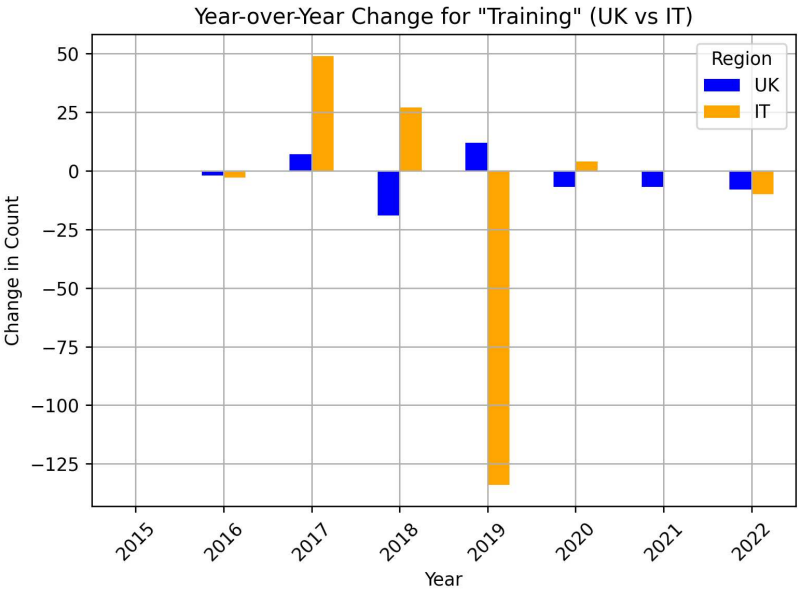


Figure 4.3: Year-over-Year Trends of Training.

healthcare training. Nevertheless, the year-over-year analysis reveals the evolving priorities of both regions in sustainability, technological innovation, and training domains. Both the UK and Italy show significant differences in their priorities throughout the years 2015 to 2022. During the COVID-19 pandemic, the UK reduced its effort in sustainability areas broadly yet only focused on immediate pandemic responses to handle the crisis more efficiently, while Italy maintained the status during the pandemic period, indicating the long-term commitment. However, in context to technological innovation, both regions remained stable and did not change their focus but reduced their attentions to deal with the COVID-19 crisis. Additionally, in the "Training" theme, the UK experienced a persistent decline, which shows the region faces challenges in continuing the healthcare professionals training. On the other hand, a major fluctuation has been seen specifically in Italy, highlighting the targeted efforts to train the healthcare workers. Overall, these findings underline the need for adoptive strategies and to prioritize spending in sustainability, technological innovation, and training areas to gain long-term stability.

4.1.2 Longitudinal Analysis

The longitudinal trend analysis monitors the effectiveness of keywords over an 8-year period by tracking their frequency matrices. Keyword ranking is important to identify the pattern in the long term.

Frequency matrices for Sustainability

In 2015, the UK has shown a consistent level in the "sustainability" fre-

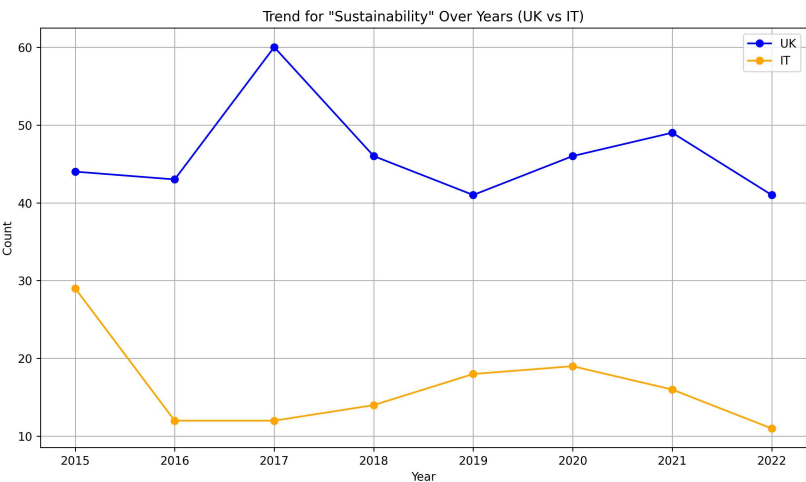


Figure 4.4: Longitudinal Analysis results for Sustainability.

quency of around 45 counts, which reflect the UK’s initiatives to promote sustainability-related themes, including the year 2016. The same frequency has been noticed with a minor change. Moreover, the prominat variation has been highlighted with an increase of 60 counts, demostirating the organiza-tional emphasis in the year 2017. During 2017, the rise in theme gradually decreased over the succeeding years by 50 counts, with the following year around 40 counts in 2018 representing the lower interest in sustainability ini-tiatives. The UK has marked significant growth in the COVID-19 pandemic of about 45 counts increase in 2020; it recognized the importance and made broader strategies. The trend was stable in 2021 but faced an increase re-duction in 2022 with a drop of 35 counts, suggesting that the region shifted their priorities to other issues.

In contrast to the UK, the trend in Italy reveals more volatility. During the year 2015, the frequency of sustainability was 30 counts; however, it high-lighted a major change with a drop of 10 counts in 2016, indicating that region was not emphasizing the sustainability themes. Furthermore, the reduction was also continued into 2017 with a slight improvement. Italy gradually started recovery of about 12 counts in 2018 and following the slow rise in

frequency with 20 counts in 2019. However, Italy showed some improvement during the year 2020, with an upward trend of around 25 counts and 28 counts in 2021. Nevertheless, the frequency dropped in 2022 by about 10 counts, demonstrating the significant deprioritization in sustainability-related areas. This comparison highlighted that the UK persistently maintained the focus on sustainability, reflecting the institutional commitments to adapt sustainability approaches. On the other hand, Italy highlighted more fluctuations to incorporate sustainability strategies in the region. In short, both regions need more attention to increase the efforts to imply policies to achieve long-term sustainable goals.

Frequency matrices for Technological Innovation

The issue of technological innovation in the UK seems to have received little

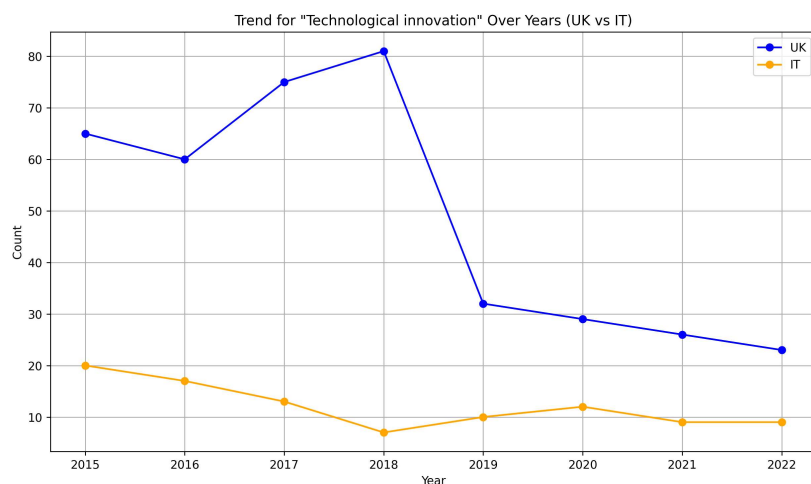


Figure 4.5: Longitudinal Analysis results for Technological Innovation.

attention, with the specific term first appearing 65 times in 2015. The emphasis was significantly diminished in 2016, with the count falling to about 60, indicating a little reduction. In 2017, the frequency of the term surged to about 70 occurrences, signifying the start of a discernible upward trend. This upward trend persisted throughout 2018, culminating in a peak of 80 incidents. During this time, there was a significant elevation in the emphasis on technological innovation, maybe associated with specific goals or advances. A notable decline in frequency occurred post-2018, seen by a reduction to about 40 in 2019. This decline signifies a significant departure from the trajectory of technological progress. From 2019 to 2021, during the COVID-19 pandemic, the recorded decline stabilized. The focus on the issue diminished but remained steady, with counts averaging about 40 over this period. The

occurrence of the chosen term dropped markedly to around 35 instances in 2022. Following the pandemic, there seems to be a consistent decline in resources designated for the research and development of new technologies. It is evident from the available data that Italy has been undergoing a consistent and gradual decline over an extended period. In the year 2015, a modest level of initial interest was evidenced by the occurrence of the keyword, which was documented approximately twenty times. Conversely, there was a noticeable and gradual decline in interest during the subsequent years, as evidenced by the diminishing number of counts, which fell to approximately 15 in the year 2016 and then experienced a further reduction to around 10 in the year 2017. In the year 2018, the frequency of occurrences reached its nadir as the reported counts remained at approximately eight. This suggests that there was a diminished emphasis on the pursuit of technological advancement throughout that particular time period. In the year 2019, a modest resurgence was observed, which was notably characterized by a discernible increase in the frequency of the keyword, culminating in approximately ten occurrences. During the initial stages of the COVID-19 pandemic in the year 2020, the process of healing unfolded, leading to a return of the numbers to their prior level of approximately 12. Nevertheless, this stability was not sustained, as evidenced by a subsequent decline in frequency observed in 2021, which continued to persist at a diminished level of approximately 10 counts throughout the year 2022. The reduced frequency persisted continuously until the year 2022. Throughout the duration of the eight-year period, the observed trend indicates that there has been a persistent undervaluation of technological advancement.

The study reveals a considerable divergence in the approaches to technical innovation between the two regions. A significant surge of attention towards the UK transpired in the first phase, culminating in 2018. Subsequently, there was a significant decline, followed by stabilization at reduced levels throughout the pandemic and beyond. This tendency indicates that institutions prioritize technological innovation at the beginning. However, priorities seem to shift either due to external influences or constraints in available resources. In contrast, Italy saw a prolonged decline, with few occurrences of recovery. This pattern illustrates the challenges of maintaining or prioritizing technological innovation. Technical innovation does not appear to have been a main focus during the COVID-19 epidemic. This may be due to resources being reallocated to meet critical crisis management needs.

The results highlight the need for continual efforts to retain technical innovation as a priority, especially during times of crisis and throughout the subsequent period of recovery. There has been a large decrease after 2018, which raises severe questions about the long-term viability of the programs.

This is despite the fact that the United Kingdom initially made a strong commitment and investment in innovation. Considering Italy's continual decline, it is very probable that there are underlying structural or systemic hurdles that impede the progression of technological innovation. This condition highlights the need for addressing these challenges in order to create resilience and development in this essential industry.

Frequency matrices for Training

The result shows that in the year 2015, the UK highlighted 125 counts

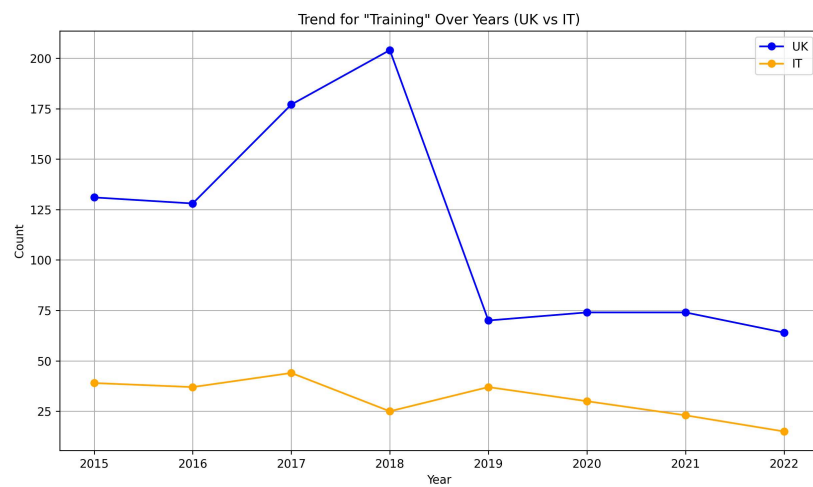


Figure 4.6: Longitudinal Analysis results for Training.

on training-based themes, reflecting the considerable institutional focus on healthcare training. In the year 2016, the count was the same with no major change. Moreover, a frequency increased with approximately 150 counts in the year 2017 with a noticeable change and constant growth with 200 counts in 2018. This year indicated the highest growth in training, demonstrating the institutional emphasis on training initiatives. Conversely, after the peak, the UK represented a drastic reduction in 2019, dropping the frequency of about 50 counts, suggesting the organization diverted on a training theme. During the years 2019 to 2021, the frequencies were stable, with 50 counts showing that the focus was not maintained as much. Furthermore, the frequency reduced a bit more in the post-pandemic period of 2022, around 40 counts, indicating the sustained neglect in training of healthcare professionals.

On the other hand, Italy began with 15 counts on training frequency, displaying a modest focus on training-related initiatives. In the year 2016, the focus of the region remained the same with no major change. The frequency

was increased in 2017 with about 55 counts, but a gradual decrease was observed with a slight reduction around 40 in 2018. This trend was constant in the year 2019 and touched the lowest point of around 35 counts. However, between 2021 and 2022, Italy noticed a stable decline with the same count as for 2019 of 35 counts, while in 2022, there was more reduction of about 25 counts, demonstrating a significant decrease in health training efforts.

This comparison between the UK and Italy depicts the diverse trend in their training priorities. The findings further show that in the UK, training was emphasized in most of the years, but with time when the other challenges rose, training became a secondary domain, whereas Italy is facing structural challenges, including limited resources and less spending, with an emphasis on taking more serious initiatives to train healthcare professionals, particularly to deal with unpredictable natural crises like the COVID-19 pandemic, and making the strategies to address the other challenges.

4.1.3 Sub-keyword Analysis

Subkeyword analysis examines the particular subcategories of sustainability, technological innovation, and training within each of the two healthcare systems' thematic areas.

Sub-keyword Comparison for "Sustainability"

In both regions, the sub-keyword that appears most frequently is "Waste Management". Notably, the UK has a total count that is significantly higher, exceeding 100, while Italy's count is around 70. This disparity underscores a more pronounced institutional focus on waste management practices within the healthcare structure of the UK. In a similar vein, the UK stands out in the area of "Sustainability", boasting over 90 mentions. In contrast, Italy has around 60 mentions. This disparity highlights the fact that sustainability is a more significant theme within the strategic conversation of the UK.

Additionally, other significant sub-keywords, including "Green Transition" and "Waste Reduction", reveal elevated counts in the UK in contrast to Italy. This observation underscores a more extensive and varied emphasis on environmental initiatives present within the UK healthcare system. For example, the term "Green Transition" appears around 75 times in the UK, whereas in Italy, it is mentioned about 50 times. Similarly, "Waste Reduction" exhibits a comparable pattern, revealing a significant disparity in the frequency of mentions, again favoring the UK.

Sub-keywords like "Climate Change," "Greenhouse Gas Emissions", and "Energy Projects" show an identical trend, indicating greater importance in the UK compared to Italy. For example, the term "Climate Change" is

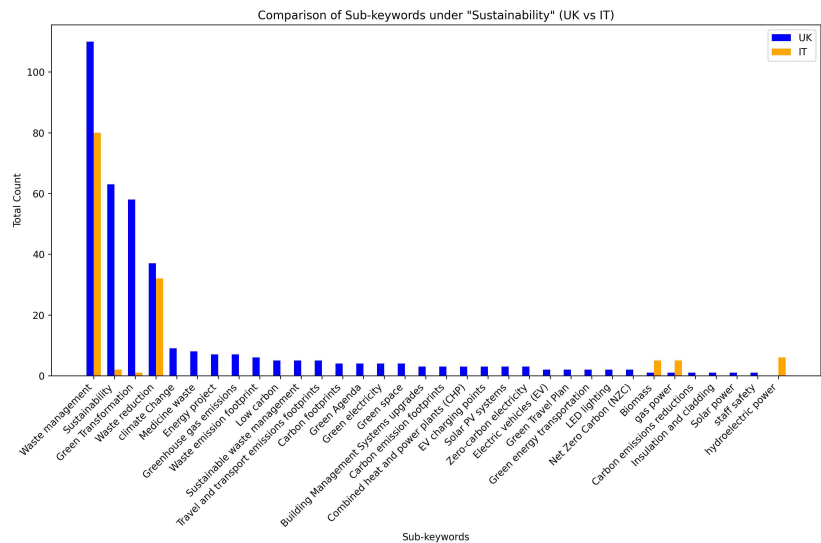


Figure 4.7: Sustainability Sub-keyword Comparison.

referenced approximately 50 times within the context of the UK, whereas it is mentioned fewer than 30 times in Italy. This indicates that issues related to climate are relatively more significant in the healthcare policy of the UK. In a similar vein, the term "Greenhouse Gas Emissions" appears approximately 40 times within the UK context, whereas in Italy, it is referenced fewer than 25 times, thereby underscoring this observation.

It is noteworthy that specific sub-keywords, such as "Net Zero Carbon (NZC)", "Hydroelectric Power", and "Biomass", receive references that are either singular or carry greater emphasis within the context of Italy. For example, the term "Hydroelectric Power" appears solely in the context of Italy. In contrast, "Net Zero Carbon" is referenced infrequently in both regions, although it is somewhat more common in the UK. Findings reveal disparities that are regional in nature regarding strategic priorities. Italy demonstrates an emphasis on renewable energy sources, particularly hydroelectric power. In contrast, the UK prioritizes comprehensive measures for waste and emissions control.

Moreover, the presence of sub-keywords like "Carbon Emissions Reduction" and "Green Energy Transportation" is notably low in both regions. This suggests that these subjects might be in their early stages of development or perhaps lack significant strategic relevance within the context of healthcare frameworks.

Key contrasts in the prioritization and operationalization of sustainability components by the UK and Italy are highlighted in the analysis. A more

comprehensive focus on diverse sustainability measures is demonstrated by the UK, as indicated by higher counts across the majority of sub-keywords. It especially highlights those pertaining to waste management, emissions, and green initiatives. A systemic and multifaceted approach to sustainability within healthcare settings in the UK is suggested by this. In contrast, Italy, despite exhibiting lower total figures, emphasizes particular sectors such as renewable energy sources (for instance, hydroelectric power) that correspond with its overarching environmental strategies.

Regional variations in policy focus and resource allocation are also reflected in the disparities of sub-keyword frequencies. The strong emphasis on “Waste Management” and “Waste Reduction” in the UK indicates a dedication to tackling both operational efficiencies and environmental consequences associated with healthcare delivery systems. Conversely, the focus of Italy on niche sectors such as hydroelectric power highlights its commitment to utilizing energy solutions tailored to specific regions.

The significance of customizing sustainability strategies to fit regional contexts is highlighted by these findings, all the while maintaining coherence with global environmental objectives. The broader focus of the UK could potentially act as a model for comprehensive frameworks in sustainability, whereas Italy’s targeted strategy underscores the importance of utilizing localized strengths in the realm of renewable energy. The global discourse on sustainability in healthcare is uniquely enriched by both approaches.

Sub-keyword Comparison for “Technological Innovation”

A comparative analysis of sub-keywords related to “Technological Innovation” is illustrated in the graph, focusing on two distinct regions: The Provincial Health Authority Cosenza (ASP Cosenza) in Italy and the East Kent Hospitals NHS Foundation Trust (EKHFT) in the UK. The orange bars represent the total counts of sub-keywords in Italy, while the blue bars indicate the total counts in the UK. An analysis of the unique components defining technological innovation in healthcare systems reveals thematic priorities that differ between the two regions.

The term “Website” is the most frequently utilized in both regions. Approximately 40 mentions are reported by Italy, while the UK records more than 120. The significant disparity observed indicates a strong commitment within the UK healthcare system to the utilization of web-based platforms and online resources. Furthermore, “Care Record” and “Clinical Record” rank among the most frequently utilized sub-keywords; nonetheless, their usage is significantly higher in the UK, with approximately 90 and 60 occurrences, respectively, compared to Italy, where they appear around 30 and 20 times, respectively. The data indicates that the UK prioritizes the digitization and management of patient records to a greater extent than Italy.

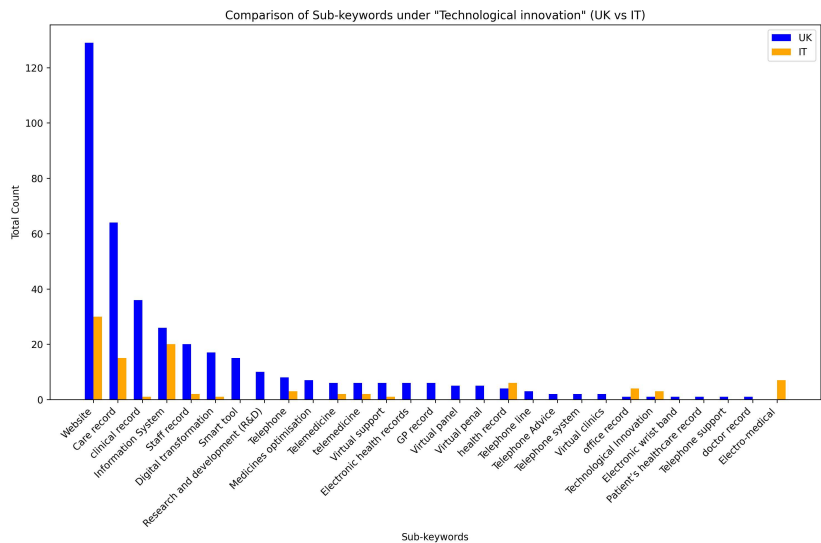


Figure 4.8: Technological Sub-keyword Comparison.

In the UK, other significant sub-keywords, including "Information System" and "Staff Record," appear with greater frequency. For example, the term "Information System" appears approximately 50 times in the UK, whereas in Italy, it is utilized fewer than 20 times. The UK seems to be prioritizing the implementation of technological systems for the management of health-care data. The term "Staff Record" serves as a significant indicator of the relative importance of digital workforce management tools in the two countries, appearing approximately 45 times in the UK compared to fewer than 15 occurrences in Italy.

The sub-keyword "Digital Transformation" reveals a distinct disparity between the United Kingdom and Italy, with the former being referenced more than 40 times, in contrast to approximately 15 mentions for the latter. The UK's commitment to initiatives focused on digital innovation in healthcare is exemplified by this discrepancy. The occurrences of sub-keywords such as "Research and Development (R&D)" and "Smart Tools" are notably elevated, highlighting the integration of smart devices and the investment in technological innovation within the UK healthcare system.

Conversely, the two regions exhibit minor differences in the frequency of particular sub-keywords such as "Electronic Health Records", "Virtual Support", and "Telemedicine". The emphasis on "Telemedicine" reveals a relatively balanced distribution, with the UK marginally surpassing Italy, recording approximately 15 mentions compared to Italy's 10. While the United Kingdom typically leads in technological innovation, it seems that certain

elements, including telemedicine, are gaining equal significance in Italy. The COVID-19 pandemic may have influenced this trend through global healthcare developments.

What is noteworthy is that, in contrast to the UK, Italy features specific references to certain sub-keywords such as "Electro-medical" and "Doctor Record", which are either absent or utilized to a lesser extent. This suggests that Italy may focus on particular domains of technological advancement that align with its regional healthcare priorities and requirements. According to the findings, the United Kingdom places a significantly higher priority on technological innovation than Italy does across the board for all of the sub-keywords. As a result of significant investments in digital transformation, web-based tools, and patient record management, the healthcare system in the United Kingdom exhibits a more sophisticated and effective combination, including the implementation of digital technologies. Despite this, Italy's lower figures in the majority of sub-keywords suggest either a slower rate of adoption or a reduction in the amount of financial support for technological innovation. However, despite these differences, it is highly likely that the global healthcare challenges brought about by the COVID-19 pandemic have brought about some convergence in both fields, particularly in the areas of telemedicine and virtual support solutions. The distinct focus that Italy places on specialized industries such as electro-medical technologies is an example of how region-specific strategies can be utilized to capitalize on local strengths or effectively address specific healthcare issues.

The significance of these findings lies in the fact that they highlight the importance of developing personalized strategies to encourage innovation in healthcare technology. The targeted strategy that Italy employs emphasizes the significance of catering to particular regional requirements, whereas the comprehensive approach that the United Kingdom takes is an example of digital transformation that is all-encompassing. Both of these strategies serve to improve healthcare delivery while also bringing it in line with the latest technological advancements around the world.

Sub-keyword Comparison for "Training"

A comparative analysis is presented in the graph, focusing on sub-keywords linked to "Training". This analysis spans two regions: East Kent Hospitals NHS Foundation Trust (EKHFT), located in the UK, and the Provincial Health Authority Cosenza (ASP Cosenza), situated in Italy. The total frequency counts of sub-keywords in the UK are depicted by the blue bars; conversely, the orange bars illustrate those of Italy. This analysis uncovers the prioritization and operationalization of training-related themes across the two healthcare systems while also emphasizing the regional disparities in focus.

In both regions, the sub-keyword “Redevelopment Training” stands out

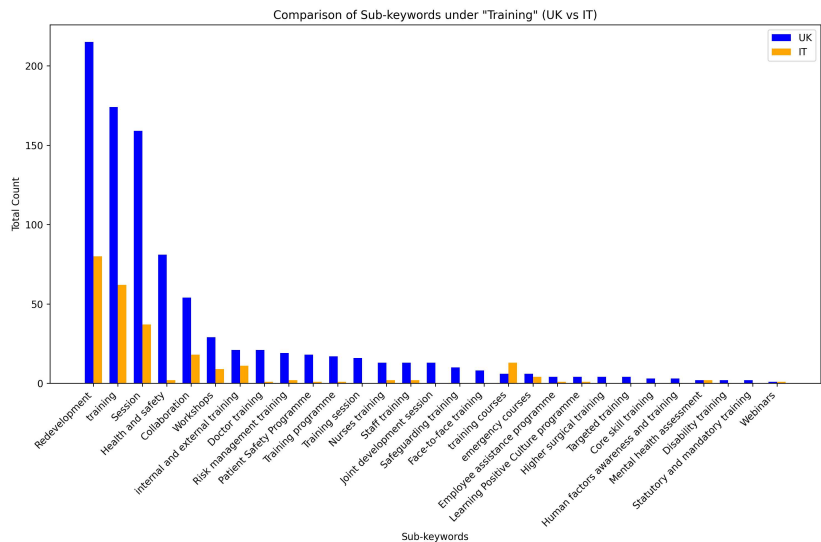


Figure 4.9: Training Sub-keyword Comparison.

significantly; the UK boasts over 200 mentions, while Italy has around 120 mentions. The notable gap suggests an increased focus on redevelopment efforts in the UK healthcare system. This likely points to broader workforce restructuring or modernization endeavors. In a similar vein, the term “Training Sessions” emerges as another sub-keyword with high frequency; the UK records around 180 mentions, while Italy shows only 90. The implication of this development is that a greater emphasis is placed by the UK healthcare system on training sessions that are both structured and recurrent. In the UK, sub-keywords like “Health and Safety” and “Collaboration Workshops” exhibit greater prominence, with counts nearing 150 and 110, respectively. In contrast, Italy shows only 80 and 60 mentions. The focus of the UK is reflected in these results, emphasizing the creation of a safe working environment while fostering collaborative practices among healthcare professionals. Moreover, trends are evident in sub-keywords such as “Internal and External Training” alongside “Risk Management Training”, where notably, the UK showcases frequencies that surpass those of Italy extensively. For example, the phrase “Internal and External Training” appears approximately 100 times in the UK, while in Italy, it is noted only 50 times. This disparity highlights the UK’s dedication to improving internal capabilities as well as fostering external partnerships. Conversely, Italy exhibits a more concentrated emphasis on specific niches, including “Emergency Courses” and “Learning Positive Culture Programmes”.

The frequency of these initiatives stands out as comparatively higher than that for various sub-keywords within the region. For example, in Italy, the term “Emergency Courses” appears approximately 20 times, whereas in the UK, it is mentioned fewer than 10 times. This indicates an emphasis in Italy on training programs that are specifically tailored to address the unique objectives or limitations of different regions.

A moderate variation in focus are reflected in sub-keywords such as “Patient Safety Training”, “Training Programmes”, and “Staff Training” across both regions, with the UK typically exhibiting higher counts. For example, the term “Patient Safety Training” is noted around 80 times in the UK, whereas in Italy, it is mentioned only 40 times. This suggests that the UK demonstrates more robust institutional initiatives aimed at enhancing the quality of patient care via training. Nevertheless, a notable observation arises: both regions display diminished frequencies concerning specialized sub-keywords like “Core Skill Training”, “Mental Health Assessment”, and “Human Factors Awareness Training”. This indicates that these domains may be regarded as lower in priority or represent themes that are still in the process of emergence. Unique variations emerge when comparing the priorities of training-related themes within the healthcare systems of the UK and Italy. In the UK, a broader and highly comprehensive focus on training initiatives is demonstrated; this is evidenced by consistently elevated counts throughout most sub-keywords. This emphasis probably indicates a robust training framework designed to tackle multiple facets of workforce development, safety, and collaboration. Conversely, Italy adopts a more concentrated strategy, placing significant emphasis on specific programs like emergency response training and initiatives aimed at fostering a positive culture. This may indicate a response to localized needs or limitations in resources.

In the UK, a notable emphasis exists on redevelopment. This focus, alongside structured training sessions, indicates a proactive approach. Such measures aim at modernizing the workforce and enhancing skills. Italy’s emphasis on specialized domains, particularly emergency courses, underscores its commitment to tackling distinct regional issues. Improving healthcare delivery is a goal shared by both strategies; however, they prioritize and scope their approaches differently.

The significance of customizing training strategies to fit regional contexts is highlighted by these findings, all the while maintaining alignment with overarching organizational objectives. The comprehensive strategy of the UK could potentially serve as a model for constructing robust training systems. In contrast, Italy’s targeted efforts underscore the importance of addressing immediate and region-specific needs. In the future, the integration of emerging themes, including mental health training and awareness of human

factors, could prove beneficial for both regions. This approach aims to foster a more comprehensive strategy for workforce development.

4.2 Financial Ratio Analysis

This section examines the thorough financial analysis of NHS East Kent (UK) and ASP Cosenza (Italy) from 2015 to 2022. The study employs financial statistics to assess profitability, liquidity, solvency, leverage, and efficiency (activity). These measures provide essential insights into the fiscal well-being of the two public healthcare entities. Moreover, descriptive statistics provide a detailed comprehension of temporal trends and fluctuations, resulting in a comparison study that emphasizes the strengths and shortcomings of each organization. The discourse intends to provide a comprehensive scholarly assessment, bolstered with intricate tables.

NHS East Kent Financial Ratios (2015-2022): In 2015, NHS East Kent has considerable profitability issues, shown by a Return on Assets (ROA) of -10.18% and a Net Profit Margin (NPM) of -6.61%, indicating operational deficits and inefficiencies in asset use. Notwithstanding this, the firm maintained an exceptional Operating Profits Margin (OPM) of 100%, indicating that operational revenue equaled expenditures. The Liquidity Ratios showed modest strength, with a Current Ratio of 0.6144 and a Quick Ratio of 0.4326, both falling short of the optimal benchmark although still suggesting considerable capacity to cover short-term liabilities. The Cash Ratio of 0.0684 indicated restricted immediate cash availability. The Debt to Asset Ratio was 0.8398, indicating considerable dependence on liabilities. The Asset Turnover Ratio (ATR) of 1.539 signifies effective asset usage for revenue generation.

In 2016, profitability had a little enhancement, with ROA rising to -6.94% and NPM advancing to -4.30%. The Liquidity Ratios improved, with the Current Ratio increasing to 0.714 and the Quick Ratio to 0.531, indicating enhanced short-term financial management. The Cash Ratio increased to 0.071, but solvency measures, including the Debt to Asset Ratio, remained elevated to 0.800. Operational efficiency remained robust, with the ATR increasing to 1.616, indicating enhanced revenue generation.

By 2017, NHS East Kent exhibited enhanced profitability, with ROA at -5.41% and NPM at -3.36%. Liquidity measures somewhat declined relative to 2016 but remained steady, with the Current Ratio at 0.693 and the Quick Ratio at 0.493. The Cash Ratio rose at 0.107, indicating somewhat improved cash availability. The Debt to Asset Ratio stayed constant at 0.801, while

Table 4.1: Financial Ratio of NHS East Kent

Year	ROA	OPM	NPM	CrR	QR	CR	DAR	ATR
2015	-0.10	1.00	-0.07	0.61	0.43	0.07	0.84	1.54
2016	-0.07	1.00	-0.04	0.71	0.53	0.07	0.80	1.62
2017	-0.05	1.00	-0.03	0.69	0.49	0.11	0.80	1.61
2018	-0.12	1.00	-0.07	0.71	0.48	0.13	0.84	1.66
2019	-0.12	1.00	-0.07	0.77	0.53	0.14	0.82	1.66
2020	0.00	1.00	0.00	0.88	0.65	0.18	0.80	1.63
2021	-0.02	1.00	-0.01	0.95	0.72	0.22	0.81	1.96
2022	-0.09	1.00	-0.04	0.94	0.70	0.26	0.76	2.07

the ATR was steady at 1.614.

In 2019, NHS East Kent saw further profitability issues, with ROA decreasing to -12.16% and NPM declining to -7.33%. Liquidity had a little enhancement, with the Current Ratio at 0.769, the Quick Ratio at 0.533, and the Cash Ratio increasing slightly to 0.141. Solvency exhibited marginal improvement, as the Debt to Asset Ratio declined to 0.816. The ATR stabilized at 1.658, indicating sustained operating efficiency.

The COVID-19 era (2020-2022) had varied tendencies. In 2020, NHS East Kent attained a breakeven status, with a Return on Assets and Net Profit Margin (NPM) of 0%. Liquidity measures shown substantial improvement, with the Current Ratio at 0.882, and the Quick Ratio at 0.653, and the Cash Ratio at 0.176. The Debt to Asset Ratio fell to 0.800, while the ATR marginally reduced to 1.625. In 2021, profitability continued to be negative but showed improvement relative to pre-COVID years, with a ROA of -2.13% and an NPM of -1.09%. Liquidity measures reached their zenith, with the Current Ratio at 0.946 and the Quick Ratio at 0.717. The ATR increased to 1.956, indicating superior operating efficiency. In 2022, profitability measures deteriorated somewhat, with ROA at -8.7% and NPM at -4.2%. Liquidity measures were robust, with the Current Ratio at 0.939 and the Quick Ratio at 0.704. The ATR attained 2.068, the peak during the study period, demonstrating exceptional operating efficiency.

ASP Cosenza Financial Ratios (2015-2022): In 2015, ASP Cosenza had limited profitability, with a Return on Assets of 0.079% and a Net Profit Margin (NPM) of 3.59%. The OPM of 71.77% indicated robust operating efficiency. Nonetheless, liquidity was a considerable issue, shown by a Cur-

Table 4.2: Table of ASP Cosenza Financial Ratio

Year	ROA	OPM	NPM	CrR	QR	CR	DAR	ATR
2015	0.00	0.72	0.04	0.25	0.17	0.01	0.70	1.00
2016	0.00	0.87	0.03	0.27	0.20	0.01	0.67	1.00
2017	0.00	0.84	0.04	0.26	0.18	0.01	0.67	1.00
2018	0.00	0.85	0.04	0.27	0.18	0.01	0.69	1.00
2019	0.00	0.88	0.04	0.27	0.19	0.01	0.70	1.00
2020	0.00	1.00	0.00	0.88	0.65	0.18	0.80	1.63
2021	-0.02	1.00	-0.01	0.95	0.72	0.22	0.81	1.96
2022	-0.09	1.00	-0.04	0.94	0.70	0.26	0.76	2.07

rent Ratio of 0.2543 and a Quick Ratio of 0.1725, both far under optimal thresholds. The Cash Ratio was markedly low at 0.0056, indicating a deficiency of immediate cash. Solvency indicators were a concern, as the Debt to Asset Ratio was at 0.7048. The ATR of 1.0 indicated steady albeit mediocre operating efficiency.

In 2016, Profitability indicators decreased little, with ROA decreasing to 0.06% and NPM reducing to 2.97%. Liquidity measures saw more improvement, with the Current Ratio rising to 0.268 and the Quick Ratio elevating to 0.1966. The Cash Ratio persisted at a low level of 0.0068. The Debt to Asset Ratio marginally declined to 0.6730, whilst the ATR stayed constant at 1.0.

By 2017, the Return on Assets and Net Profit Margin (NPM) had a modest recovery, with values of 0.075% and 3.81% respectively. Liquidity measures were unchanged, with the Current Ratio at 0.259 and the Quick Ratio at 0.1831. The Cash Ratio increased little to 0.0072. Solvency shown little improvement, as the Debt to Asset Ratio declined to 0.6719. Operational efficiency, shown by the ATR, remained constant at 1.0.

In 2018 and 2019, profitability was consistent, with a Return on Assets of 0.08% and a Net Profit Margin (NPM) of 4.0%. Liquidity measures saw modest enhancements, with the Current Ratio rising to 0.27 in 2019 and the Quick Ratio elevating to 0.185. The Cash Ratio increased little to 0.009, whilst the Debt to Asset Ratio escalated to 0.7. The ATR remained stable at 1.0.

During the COVID-19 era (2020-2022), ASP Cosenza's financial performance exhibited divergent tendencies. In 2020, ROA and NPM declined to 0%, indicating problems imposed by the pandemic. Liquidity increased markedly, with the Current Ratio reaching 0.882 and the Quick Ratio increasing to 0.653. The ATR rose to 1.625, indicating enhanced operating efficiency. In 2021, profitability declined, with a Return on Assets of -2.13% and a Net

Table 4.3: Comparison Table of financial ratio between both healthcare system

Metric	ASP Cosenza	EKHUFT UK
ROA	-0.01	-0.07
OPM	0.89	1.00
NPM	0.02	-0.04
Current Ratio	0.51	0.78
Quick Ratio	0.37	0.57
Cash Ratio	0.09	0.15
Debt to Asset Ratio	0.72	0.81
Asset Turnover Ratio	1.33	1.72

Profit Margin (NPM) of -1.09%. Liquidity measures have improved, with the Current Ratio attaining 0.946 and the Quick Ratio at 0.717. By 2022, profitability deteriorated markedly, with a Return on Assets (ROA) of -8.7% and a Net Profit Margin (NPM) of -4.2%. Liquidity indicators saw a little dip but continued to exceed pre-COVID levels, while the ATR reached a top of 2.068, indicating exceptional operating efficiency. The comparison study, as shown in Table 5, demonstrates cost differences between NHS East Kent and ASP Cosenza. NHS East Kent surpassed ASP Cosenza in liquidity and operational efficiency, with markedly superior averages in Current Ratio, Quick Ratio, and Asset Turnover Ratio (ATR). In contrast, ASP Cosenza had superior profitability indicators, with positive averages for ROA and NPM, but these benefits waned throughout the COVID-19 period. Throughout the pandemic, both organizations enhanced their liquidity levels, seen by increasing Current Ratios and Quick Ratios. NHS East Kent maintained a more robust liquidity profile for the whole time. Regarding operational efficiency, both businesses used their assets successfully, with the ATR reaching a high of 2.068 in 2022 for both entities. Notwithstanding these enhancements, elevated Debt to Asset Ratios for both entities underscore the need to diminish reliance on liabilities.

NHS East Kent should concentrate on mitigating its ongoing operating deficits by streamlining expenditures and investigating other income sources. ASP Cosenza must confront its significant liquidity issues by enhancing cash flow management and diversifying financing sources. Both businesses must prioritize initiatives to reduce debt reliance, bolster operational resilience and plan for future risks. Investments in digital infrastructure, cost-efficient technology, and enhanced financial management methods are crucial for guaranteeing long-term viability.

Table 4.4: Table represents the descriptive statistics of EKHUFT UK

Metric	Mean	Max	Min	STD
ROA	-0.07	0.00	-0.12	0.04
OPM	1.00	1.00	1.00	0.00
NPM	-0.04	0.00	-0.07	0.03
Current Ratio	0.78	0.95	0.61	0.12
Quick Ratio	0.57	0.72	0.43	0.11
Cash Ratio	0.15	0.26	0.07	0.07
Debt to Asset Ratio	0.81	0.84	0.76	0.03
Asset Turnover Ratio	1.72	2.07	1.54	0.19

Descriptive Statistics for NHS East Kent: The descriptive statistics for NHS East Kent provide a detailed overview of the organization's financial performance from 2015 to 2022. The Return on Assets indicates ongoing operating losses, averaging -7.1%. The standard deviation of 0.044 indicates modest variability, suggesting that the deficits were fairly stable from year to year. NHS East Kent's Operating Profit Margins (OPM) continuously maintained at 1.0 across all years, demonstrating that operational funds reliably equaled costs. The Net Profit Margins (NPM), average -4.2%, indicate persistent financial deficits. The standard deviation of 0.032 indicates that these losses were consistent throughout time, with no notable fluctuations or enhancements.

The Liquidity Ratios indicate a comparatively robust position comparing to ASP Cosenza. The Current Ratio averaged 0.784, peaking at 0.946 in 2021, indicating the organization's capacity to meet short-term responsibilities. A standard deviation of 0.122 indicates moderate unpredictability, accompanied by consistent advancements throughout the years. The Quick Ratio had a same pattern, with an average of 0.568 and a peak of 0.717. The Cash Ratio, albeit comparatively low at an average of 0.068, exhibited considerable variability (standard deviation of 0.058), underscoring swings in cash balances.

The Debt to Asset Ratio averaged 0.805, indicating a significant dependence on liabilities. A standard deviation of 0.034 indicates little change, indicating that the organization's debt levels stayed persistently elevated. The Asset Turnover Ratio (ATR) for NHS East Kent averaged 1.658, peaking at 2.068 in 2022, indicating remarkable operational efficiency. The standard deviation of 0.188 underscores annual variability in asset use, presumably affected by fluctuations in operating finance and income sources.

Table 4.5: Table represents the descriptive statistics of ASP Cosenza

Metric	Mean	Max	Min	STD
ROA	-0.01	0.00	-0.09	0.03
OPM	0.89	1.00	0.72	0.10
NPM	0.02	0.04	-0.04	0.03
Current Ratio	0.51	0.95	0.25	0.34
Quick Ratio	0.37	0.72	0.17	0.26
Cash Ratio	0.09	0.26	0.01	0.11
Debt to Asset Ratio	0.72	0.81	0.67	0.05
Asset Turnover Ratio	1.33	2.07	1.00	0.47

Descriptive Statistics for ASP Cosenza: The descriptive data for ASP Cosenza indicates a distinct financial profile in contrast to NHS East Kent. The Return on Assets averaged -1.3%, indicating little profitability in certain years, although demonstrating poor performance overall. A standard deviation of 0.030 indicates considerable unpredictability, reflecting inconsistent asset returns. The Operating Profit Margins (OPM) averaged 0.894, indicating strong operational efficiency. The standard deviation of 0.114 signifies more variability than NHS East Kent, indicating sporadic difficulties in sustaining operational regularity.

The Net Profit Margins (NPM) for ASP Cosenza averaged 1.6%, indicating moderate profitability over the analyzed period. The standard deviation of 0.028 indicates unpredictability, with sporadic financial losses during difficult times. The Liquidity Ratios, however, provide a troubling scenario. The average Current Ratios was at 0.511, well below the optimal benchmark of 1.0, indicating ongoing challenges in fulfilling short-term liabilities. The standard deviation of 0.236 indicates considerable annual variability, especially during the COVID-19 era. The Quick Ratio, with an average of 0.374, and the Cash Ratio, averaging 0.005, highlight liquidity difficulties, with standard deviations of 0.194 and 0.083, respectively, indicating considerable unpredictability. The Debt to Asset Ratio averaged 0.705, little lower than NHS East Kent, however still suggestive of significant dependence on liabilities. The standard deviation of 0.049 indicates considerable fluctuation in debt levels over time. The Asset Turnover Ratio ATR, averaging 1.0, indicates consistent albeit unexceptional asset efficiency. The standard deviation of 0.415 indicates more variability relative to NHS East Kent, with sporadic enhancements seen throughout the pandemic years.

The descriptive data reveal a considerable disparity between NHS East Kent and ASP Cosenza. NHS East Kent had persistent operating losses, reflected

in its average ROA of -7.1% and NPM of -4.2%, in contrast to ASP Cosenza's moderate profitability, with an average ROA of -1.3% and NPM of 1.6%. NHS East Kent's Operating Profit Margin (OPM) of 1.0, with no variability, surpassed ASP Cosenza's average OPM of 0.894, which had more volatility. These discrepancies illustrate NHS East Kent's consistent operational financing frameworks and ASP Cosenza's intermittent operational difficulties.

NHS East Kent had superior liquidity, with higher averages in all measures (Current Ratio, Quick Ratio, and Cash Ratio) relative to ASP Cosenza. NHS East Kent's Current Ratio of 0.784 significantly surpassed ASP Cosenza's 0.511, indicating superior handling of short-term liabilities. NHS East Kent's Cash Ratio of 0.068 surpassed ASP Cosenza's 0.005, indicating superior immediate liquidity.

Regarding solvency, both entities had significant dependence on liabilities, with Debt to Asset Ratios average 0.805 for NHS East Kent and 0.705 for ASP Cosenza. NHS East Kent's stable solvency position (less fluctuation) indicates superior financial stability relative to ASP Cosenza. NHS East Kent demonstrated superior operational efficiency, with an average Asset Turnover Ratio (ATR) of 1.658, in contrast to ASP Cosenza's 1.0. This demonstrates NHS East Kent's exceptional capacity to use assets for income creation.

The descriptive statistics indicate that NHS East Kent has a more robust liquidity position and enhanced operational efficiency, as seen by elevated averages and reduced variability in liquidity and efficiency indices. ASP Cosenza, albeit sometimes profitable, has ongoing cash issues and variable financial performance.

NHS East Kent should concentrate on rectifying its operational deficiencies and reducing its dependence on liabilities. Cost optimization measures and income diversification are crucial for enhancing long-term sustainability. ASP Cosenza must prioritize enhancing liquidity management and minimizing fluctuations in operational performance. Investments in technology and operational optimization may enable both businesses to attain financial stability and resilience against future crises.

Summary

This chapter depicted a comprehensive examination of the keyword trend analysis and financial health of NHS East Kent and ASP during the period from 2015–2022. The outcomes elaborate the contribution of sustainability, technological innovation, and training in order to shape value creation in local healthcare frameworks. The result based on two case studies of NHS East

Kent and ASP Cosenza highlights that the main focus of EKHUFT was on the optimization of resources and operative investments while ASP Cosenza has emphasized cost management and stability in their systems.

The financial comparison demonstrates the unique financial attributes of ASP Cosenza and NHS East Kent. ASP Cosenza's superior profitability indicators, including Return on Assets (ROA) and Net Profit Margins (NPM), are counterbalanced by significant liquidity issues and dependence on liabilities. NHS East Kent's effective liquidity management and operational efficiency, shown by elevated Current Ratio, Quick Ratio, and Asset Turnover Ratio, are coupled with ongoing profitability shortfalls.

This chapter evaluates the qualitative and quantitative data, indicating the fundamental themes and illustrating contrasting results. The contrasting analysis displays both shared issues and distinct policies in order to provide valuable insights for policymakers and hospital governance. The outcome unveils the value of strategic arrangement between operational focuses and financial management, representing the improvement in efficacy, service delivery, and financial stability.

Chapter 5

Conclusion and Recommendation

5.1 Conclusion

An extensive examination of the operational and financial structures of two healthcare systems: the East Kent Hospitals NHS Foundation Trust (EKHUFT) in the UK and the Provincial Health Authority Cosenza (ASP Cosenza) in Italy has been analyzed in this research, spanning an eight-year duration from 2015 to 2022, that analyzes the fundamental priorities of sustainability, technological innovation, and training, to achieve operational efficiency, financial sustainability, and superior service delivery having an essential requirement. Research employed a stringent methodological framework, integrating keyword analysis, longitudinal trend assessment, and financial ratio analysis to assess the operational emphasis and governance priorities of the two systems. It was revealed that a more structured and consistent approach for addressing long-term healthcare goals was exhibited by EKHUFT. A substantial focus on sustainability and technological innovation was analyzed by the system with well-integrated strategies and adequate resource allocation as a support. As a strong preference, training initiatives emerged, reflecting EKHUFT's emphasis on workforce development and resilience. The efficacy of a system that corresponds its governance and operational methods with expanding healthcare needs is highlighted by its accomplishments, maintaining flexibility and resilience when faced with challenges like the COVID-19 pandemic.

Conversely, systemic challenges hindered ASP Cosenza from reaching comparable levels of progress. Incompatible execution of strategy, limited resources, and workforce gaps posed challenges for the system, especially in the areas

of technological innovation and training. Significant efforts were made by ASP Cosenza to address restricted requirements, despite these drawbacks. This is evidenced by its concentration on niche areas, including training for emergency responses and hydroelectric energy initiatives within sustainability. Although these efforts are not as extensive as those seen in EKHUFT, they demonstrate the system's dedication to enhancing healthcare delivery within a resource-limited setting.

By offering practical insights into the structures that motivate value creation in healthcare systems, the research additionally adds the broader discourse on healthcare management. The study emphasizes how tactical investments in sustainability, innovation, and employee training can enhance operational effectiveness, reliability of finance, and service quality with the identification of the interplay throughout these domains. This research employs a model of comparison that serves as a valuable template for analyzing healthcare systems in various regions, showcasing its ability to produce meaningful insights that can guide policy and practice.

This study highlights the significance of integrated and adaptive strategies in healthcare governance, stressing that the capacity of systems to manage immediate challenges while maintaining ongoing investments in essential thematic areas is crucial for long-term success. With the validation efficiency of EKHUFT's strategies, finding further illustrate the potential for ASP Cosenza to achieve similar outcomes within improved resource management and specific measurements.

5.1.1 Limitations

The present research, while contributing significantly, faced several limitations that constrained both the scope and depth of the analysis. Data availability was the primary limitation, especially concerning ASP Cosenza. Gaps in the longitudinal analysis arose due to the lack of performance and financial reports for certain years, necessitating the use of extrapolated trends to fill these voids. This approach, although offering approximate insights, constrained the precision of the findings.

A further significant constraint was the timely access to information. It was common for annual reports and performance metrics to be uploaded late on public platforms, especially in the case of ASP Cosenza. The restriction of access to real-time data due to this delay hindered a more evolving comprehension of strategic periods, particularly during crises such as the COVID-19 pandemic.

Significant challenges were also posed by data quality, especially regarding the reports from ASP Cosenza, a considerable number of which were uploaded

in the form of scanned image files. The requirement over labor-intensive data extraction processes due to these non-searchable formats has constrained the application of sophisticated analytical methods and heightened the risk of human error in entering the data. Although the data for EKHUFT was more readily available, the analysis was complicated by inconsistencies in report formats throughout the eight-year period.

Additionally, the research encountered difficulties in tackling regional variability. The close comparison of certain outcomes was constrained by variations in governance structures, health care regulations, and resource allocation strategies between the UK and Italy. The trends observed and the thematic priorities identified may have been influenced by the inherent differences, despite the consideration of contextual factors.

The dependence on secondary data limited the capacity to integrate qualitative observations from health care providers or managers. A greater awareness of the decision-making processes underlying the thematic priorities established in the reports could have been achieved through interviews or surveys. This study identifies a number of potential limitations on the interpretation and generalizability of the findings. Additionally, the comparative value creation approach to studying value creation in healthcare is influenced by the scope and selection of financial and performance metrics. A subsequent study would be able to extend this framework by incorporating additional drivers of value creation, i.e., patients' accessibility to care, proximity of the service, and waiting times. These factors are especially applicable in the context of healthcare effectiveness and service delivery efficiency.

Moreover, the UK and Italian value-based planning environments differ significantly in terms of maturity. The Italian health system has only begun to work on public value objectives through strategic documents. It is highly possible that such documents are primarily written for legitimization purposes rather than for the genuine production of substance value. Long-term performance evaluation of these strategic plans and how they influence actual healthcare outcomes is necessary for future studies.

Furthermore, Italian public value planning institutional maturity remains in a developmental stage. In contrast to the UK, with its long-established frameworks that have been effective for years, Italy's recent introduction of strategic documents raises questions about whether they will help produce actual healthcare value improvements. There is a risk that such documents are merely compliance tools rather than functional blueprints toward health care improvement.

Finally, the Italian case study is grounded on a region under a financial recovery plan, including interventions aimed at the restoration of financial balance and appropriate provision of Essential Levels of Assistance (LEA).

Since there are seven other Italian regions that have the same financial recovery plans, future research can conduct sensitivity analysis in different contexts to assess the generalizability of the results and understand how financial constraints influence value creation strategies in various healthcare settings. The identified limitations underscore the need for enhancements in forthcoming research, especially regarding data accessibility, quality, and the integration of context.

5.1.2 Recommendations

Several recommendations can be derived from the results and limitations of this research for guiding future investigations and healthcare governance initiatives. For healthcare organizations, prioritizing the enhancement of data accessibility and quality is essential from the outset. Timely and uniformed uploading of performance and financial records would enable more thorough analyses. It is essential for organizations to allocate resources towards digital platforms that facilitate the uploading of machine-readable documents, thereby minimizing obstacles to data extraction and analysis.

An additional vital recommendation is the development and execution of advanced analytical tools. The collection and analysis of data from non-standardized or scanned files can be automated through the use of artificial intelligence (AI) and machine learning methods. The effectiveness and precision of longitudinal and comparative research would be enhanced by such tools, facilitating researchers to obtain additional insights into healthcare governance.

Incorporating additional healthcare systems into the investigation's scope would further enhance the comparative structure established in the present investigation. Researchers can identify universal standard procedures by examining a broader range of systems, while accounting for the variations in governance and resource distribution across regions. Additionally, investigating "emerging themes" such as digital health integration, telemedicine, artificial intelligence, and workforce sustainability is crucial for future research, given their increasing impact on the healthcare landscape.

It is crucial for researchers, policymakers, and healthcare administrators to collaborate in order to ensure that research results are translated into practical initiatives for policy. Through the promotion of dialogue and the establishment of partnerships, future research has the potential to align its goals with the challenges faced in the real world, thereby guaranteeing that its outcomes significantly enhance healthcare governance and service delivery.

5.1.3 Implications

It is crucial for researchers, policymakers, and healthcare administrators to collaborate in order to ensure that research results are translated into practical initiatives for policy. Through the promotion of dialogue and the establishment of partnerships, future research has the potential to align its goals with the challenges faced in the real world, thereby guaranteeing that its outcomes significantly enhance healthcare governance and service delivery. Considerable effects on policymakers, healthcare managers, and various stakeholders within the healthcare sector are held by the findings of this research. This study offers an outline for tackling persistent obstacles and attaining long-term objectives in healthcare delivery by emphasizing significant gaps and advancements in sustainability, technological innovation, and training. The focus on sustainability highlights for policymakers the necessity of making significant investments in waste management, lowering emissions, and energy-efficient procedures. Not only do these initiatives align with global environmental objectives, but they additionally improve the operational effectiveness of healthcare systems. The significance of technological integration is underscored by the findings, which emphasize the contributions of digital tools, electronic health records, and telemedicine to enhancing patient outcomes and optimizing operations. For the effective implementation of these technologies, especially in resource-limited systems like ASP Cosenza, it is crucial that policymakers allocate sufficient funding and resources.

Highlighting workforce development, the research underscores how crucial training and professional growth are for building adaptable healthcare systems. Programs for continuous education, especially in emerging fields like mental health, digital health, and crisis management, play a crucial role in equipping healthcare professionals to address developing difficulties. For the development and implementation of training structures to tackle skill gaps while fostering professional growth and adaptability, collaboration between policymakers and administrators is crucial.

This research ultimately provides significant insights for healthcare governance, highlighting the necessity of strategies tailored to specific contexts. While the extensive focus on sustainability, innovation, and training by EKHUFT serves as a model for holistic healthcare governance, the targeted initiatives of ASP Cosenza highlight the significance of leveraging local strengths to address specific challenges. Other healthcare systems can be guided by these lessons in their navigation of the complex interplay among resource constraints, governance priorities, and operational demands.

It is possible for stakeholders in the healthcare industry to encourage the construction of strong, resilient, and sustainable systems that cater to the

requirements of various populations while adhering to global best practices if they address these consequences. With the help of this study, a basic framework has been established with the intention of improving hospital governance. This framework emphasizes the critical significance of integrated strategies in order to achieve sustained success. This chapter provides a thorough consolidation of the findings, discusses limitations, and presents recommendations and implications, serving as a comprehensive guide for future research and policy development in healthcare governance.

Addressing these implications enables healthcare stakeholders to cultivate the development of systems that are robust, resilient, and sustainable, thereby meeting the needs of diverse populations and aligning with global best practices. This research establishes a fundamental framework aimed at enhancing healthcare governance, highlighting the essential importance of integrated strategies for attaining sustained success.

This chapter provides a comprehensive guide for future research and policy development in healthcare governance by consolidating the findings, addressing limitations, and outlining recommendations and implications.

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Bibliography

- [1] Assessment of Medical Waste Management Practices: A Case Study in Gopalganj Sadar, Bangladesh. *European Journal of Medical and Health Sciences*, pages 62–71, June 2021.
- [2] R. Adams, S. Jeanrenaud, J. Bessant, D. Denyer, and P. Overy. Sustainability-oriented innovation: A systematic review. *International Journal of Management Reviews*, 18(2):180–205, 2016.
- [3] B. Agarwal, R. S. Gautam, P. Jain, S. Rastogi, V. M. Bhimavarapu, and S. Singh. Impact of environmental, social, and governance activities on the financial performance of indian health care sector firms: Using competition as a moderator. *Journal of Risk and Financial Management*, 16(2):109, 2023.
- [4] O. A. AlJaberi, M. Hussain, and P. R. Drake. A framework for measuring sustainability in healthcare systems. *International Journal of Healthcare Management*, 13(4):276–285, Oct. 2020.
- [5] D. Alrahbi, M. Khan, and M. Hussain. Exploring the motivators of technology adoption in healthcare. *International Journal of Healthcare Management*, 14(1):50–63, Jan. 2021.
- [6] R. Alviani, B. Purwandari, I. Eitiveni, and M. Purwaningsih. Factors affecting adoption of telemedicine for virtual healthcare services in indonesia. *J. Inf. Syst. Eng. Bus. Intell*, 9(1):4769, 2023.
- [7] P. Apell and H. Eriksson. Artificial intelligence (AI) healthcare technology innovations: the current state and challenges from a life science industry perspective. *Technology Analysis & Strategic Management*, 35(2):179–193, Feb. 2023.
- [8] D. Balla, H. Belani, J. Berdun, A. Boumpaki, G. Crooks, A. Kelepouris, K. Merimaa, J. Borej, J. Hulek, A. Matkun, et al. Building sustainable

- digital health services in europe: lessons learned from the covid-19 pandemic. 2020.
- [9] L. Batrancea. The Influence of Liquidity and Solvency on Performance within the Healthcare Industry: Evidence from Publicly Listed Companies. *Mathematics*, 9(18):2231, Sept. 2021.
- [10] G. Biancini et al. Improvement of environmental and energetic performance of waste treatment facilities. 2024.
- [11] F. Blaga, B. A. Dumitrescu, I. Duca, I. Leonida, and D. Poleac. Analyzing the Determinants of Banking Profitability in European Commercial Banks: Do COVID-19 Economic Support Measures Matter? *Sustainability*, 16(16):7004, Aug. 2024.
- [12] I. Böbel and A. Martis. Value creation in health care: The case of the princesse grace hospital (chpg) monaco. 2009.
- [13] K. Borges De Oliveira, E. F. Dos Santos, A. F. Neto, V. H. De Mello Santos, and O. J. De Oliveira. Guidelines for efficient and sustainable energy management in hospital buildings. *Journal of Cleaner Production*, 329:129644, Dec. 2021.
- [14] L. Buzzetti. Geography in italy. *Belgeo. Revue belge de géographie*, (1):119–134, 2004.
- [15] A. M. Callegaro, C. S. T. Caten, R. L. Z. Tanure, A. S. Buss, M. E. S. Echeveste, and C. F. Jung. Managing requirements for the development of a novel elbow rehabilitation device. *Technological Forecasting and Social Change*, 113:404–411, Dec. 2016.
- [16] M. Çanakçıoğlu. An assessment of the financial performance of hospital services sub-sector in turkey by ratio analysis method. In *Health 4.0 and Medical Supply Chain*, pages 21–34. Springer, 2023.
- [17] C. Cavicchi. Healthcare sustainability and the role of intellectual capital: Evidence from an Italian Regional Health Service. *Journal of Intellectual Capital*, 18(3):544–563, July 2017.
- [18] T. Chatterjee and N. Chatterjee. Does innovation make nations more healthy? evidence from developing and developed countries. *Journal of the Knowledge Economy*, 13(4):3296–3325, 2022.

- [19] J. M. Chisholm, R. Zamani, A. M. Negm, N. Said, M. M. Abdel daiem, M. Dibaj, and M. Akrami. Sustainable waste management of medical waste in african developing countries: A narrative review. *Waste Management & Research*, 39(9):1149–1163, 2021.
- [20] J. Creixans and N. Arimany-Serrat. Influential variables in the profitability of hospital companies. *Intangible Capital*, 14(1):171, Feb. 2018.
- [21] M. Cripps and H. Scarbrough. Making digital health “solutions” sustainable in healthcare systems: a practitioner perspective. *Frontiers in digital health*, 4:727421, 2022.
- [22] T. Dehdarirad, A. Villarroya, and M. Barrios. Research trends in gender differences in higher education and science: a co-word analysis. *Scien-tometrics*, 101:273–290, 2014.
- [23] A. A. Del Savio, L. Z. Carrasco, E. C. Nakamatsu, K. G. Velarde, W. Martinez-Alonso, and M. Fischer. Applying project-based learning (pbl) for teaching virtual design construction (vdc). *International Journal of Engineering Pedagogy*, 13(2), 2023.
- [24] C. Dias and A. Escoval. Improvement of Hospital Performance Through Innovation: Toward the Value of Hospital Care. *The Health Care Manager*, 32(3):268–279, July 2013.
- [25] K. Dubas-Jakóbczyk, C. Ndayishimiye, P. Szetela, and C. Sowada. Hospitals’ financial performance across European countries: a scoping review protocol. *BMJ Open*, 14(1):e077880, Jan. 2024.
- [26] J. Enticott, S. Braaf, A. Johnson, A. Jones, and H. J. Teede. Leaders’ perspectives on learning health systems: a qualitative study. *BMC Health Services Research*, 20(1):1087, Dec. 2020.
- [27] D. Erickson, D. O’Dell, L. Jiang, V. Oncescu, A. Gumus, S. Lee, M. Mancuso, and S. Mehta. Smartphone technology can be transformative to the deployment of lab-on-chip diagnostics. *Lab on a Chip*, 14(17):3159–3164, 2014.
- [28] J. Evans, S. Leggat, and D. Samson. A practical framework for achieving value creation and capture in healthcare through process improvement. *Journal of Health Organization and Management*, 36(5):561–576, 2022.
- [29] M. Faggini, S. Cosimato, F. D. Nota, and G. Nota. Pursuing sustainability for healthcare through digital platforms. *Sustainability*, 11(1):165, 2018.

- [30] M. I. Florid and R. Raffis. Analysis of the impact of financial performance on stock prices and company value as moderation variables (case study on healthcare companies listed on the indonesia stock exchange). *Jurnal Apresiasi Ekonomi*, 11(3):738–749, 2023.
- [31] C. Fontaine, A. Haarman, and S. Schmid. The stakeholder theory. *Ed-lays education*, 1(4):1–33, 2006.
- [32] M. Fragão-Marques and T. Ozben. Digital transformation and sustainability in healthcare and clinical laboratories. *Clinical Chemistry and Laboratory Medicine (CCLM)*, 61(4):627–633, 2023.
- [33] A. S. George and A. H. George. Telemedicine: A new way to provide healthcare. *Partners Universal International Innovation Journal*, 1(3):98–129, 2023.
- [34] K. Ghosh, M. S. Dohan, H. Veldandi, and M. Garfield. Digital Transformation in Healthcare: Insights on Value Creation. *Journal of Computer Information Systems*, 63(2):449–459, Mar. 2023.
- [35] L. Giovanella. Basic health care or primary health care? *Cadernos de saude publica*, 34:e00029818, 2018.
- [36] P. Glauner, P. Plugmann, and G. Lerzynski. *Digitalization in healthcare*. Springer, 2021.
- [37] S. Hlongwane and S. S. Grobbelaar. A Practical Framework for Value Creation in Health Information Systems From an Ecosystem Perspective: Evaluated in the South African Context. *Frontiers in Psychology*, 13:637883, June 2022.
- [38] E. B. Hsu, T. L. Thomas, E. B. Bass, D. Whyne, G. D. Kelen, and G. B. Green. Healthcare worker competencies for disaster training. *BMC Medical Education*, 6(1):19, Dec. 2006.
- [39] K.-H. Huarng, T. H.-K. Yu, and C. fang Lee. Adoption model of healthcare wearable devices. *Technological Forecasting and Social Change*, 174:121286, 2022.
- [40] K. P. Hurst, R. Ramsden, C. Roach, and R. Colbran. Exploring the impact of recovery funding on the well-being and health workforce capability of rural practices during natural disasters and emergencies. *Australian Journal of Rural Health*, 32(1):90–102, Feb. 2024.

- [41] C. E. D. D. C. Infante, F. M. D. Mendonça, P. M. Purcidonio, and R. Valle. Triple bottom line analysis of oil and gas industry with multicriteria decision making. *Journal of Cleaner Production*, 52:289–300, Aug. 2013.
- [42] A. Kwame and P. M. Petrucka. Universal healthcare coverage, patients' rights, and nurse-patient communication: a critical review of the evidence. *BMC nursing*, 21(1):54, 2022.
- [43] L. Lasitsa. *Great Britain: geography, politics, culture*. Litres, 2016.
- [44] T. L. Legare. Defining training roles and responsibilities at partners healthcare system. *National Productivity Review*, 19(1):5–12, Dec. 1999.
- [45] L. Lennox, L. Maher, and J. Reed. Navigating the sustainability landscape: a systematic review of sustainability approaches in healthcare. *Implementation Science*, 13(1):27, Dec. 2018.
- [46] M. Lombardi, S. J. O'Connor, N. Carroll, J. M. Szychowski, D. Nancy Borkowski, et al. The relationship of debt ratio and financial performance for large not-for-profit health systems. *Journal of Health Care Finance*, 2021.
- [47] W.-C. Lu, I.-C. Tsai, K.-C. Wang, T.-A. Tang, K.-C. Li, Y.-C. Ke, and P.-T. Chen. Innovation resistance and resource allocation strategy of medical information digitalization. *Sustainability*, 13(14):7888, 2021.
- [48] Machado C.M.L., Scavarda A., Kipper L.M., Santa R., and Ferrer M.A. Sustainability at the healthcare organizations: an analysis of the impact on the environment, society, and economy. *Chemical Engineering Transactions*, 45:727–732, Oct. 2015.
- [49] J. Mahadevan. What connects positivism and interpretivism in cross-cultural management studies: genealogy as a method for re-ordering disciplinary knowledge. *International Journal of Cross Cultural Management*, 24(2):215–234, 2024.
- [50] S. Marjanovic, M. Altenhofer, L. Hocking, J. Chataway, and T. Ling. Innovating for improved healthcare: Sociotechnical and innovation systems perspectives and lessons from the NHS. *Science and Public Policy*, 47(2):283–297, Apr. 2020.
- [51] M. Menear, M.-A. Blanchette, O. Demers-Payette, and D. Roy. A framework for value-creating learning health systems. *Health research policy and systems*, 17:1–13, 2019.

- [52] R. Mofidi and C. Marrow. Effects of the NHS reforms on financial sustainability. *British Journal of Healthcare Management*, 22(11):561–571, Nov. 2016.
- [53] J. E. Moore, A. Mascarenhas, J. Bain, and S. E. Straus. Developing a comprehensive definition of sustainability. *Implementation Science*, 12:1–8, 2017.
- [54] F. Mortimer, J. Isherwood, M. Pearce, C. Kenward, and E. Vaux. Sustainability in quality improvement: measuring impact. *Future Healthcare Journal*, 5(2):94–97, 2018.
- [55] C. J. Murray and J. Frenk. Ranking 37th — Measuring the Performance of the U.S. Health Care System. *New England Journal of Medicine*, 362(2):98–99, Jan. 2010.
- [56] A. Murti, A. Deshpande, and N. Srivastava. Service Quality, Customer (Patient) Satisfaction and Behavioural Intention in Health Care Services: Exploring the Indian Perspective. *Journal of Health Management*, 15(1):29–44, Mar. 2013.
- [57] W. H. Organization. *Innovation for urban health: policy brief*. World Health Organization, 2024.
- [58] M. Pai. Awareness of bio-medical waste management among the health care workers in rural area. *Indian Journal of Basic and Applied Medical Research*, 4:351–357, 2015.
- [59] A. M. Pereira, R. M. Pereira, and P. G. Rodrigues. Health care investments and economic performance in portugal: An industry level analysis. *Journal of Economic Studies*, 46(6):1174–1200, 2019.
- [60] T. Petrova-Gotova, T. Zlatanova, R. Yaneva, and N. Popov. Analysis of investment healthcare areas. *Sci Technol*, 6(1):272–278, 2016.
- [61] M. Porter. *Redefining health care: creating value-based competition on results*. Harvard Business Press, 2006.
- [62] M. E. Porter. A Strategy for Health Care Reform — Toward a Value-Based System. *New England Journal of Medicine*, 361(2):109–112, July 2009.
- [63] A. K. Rowe, S. Y. Rowe, D. H. Peters, K. A. Holloway, and D. Ross-Degnan. The effectiveness of training strategies to improve healthcare

- provider practices in low-income and middle-income countries. *BMJ Global Health*, 6(1):e003229, 2021.
- [64] R. C. Sachdeva. Measuring the impact of new technology: An outcomes-based approach. *Critical care medicine*, 29(8):N190–N195, 2001.
- [65] R. Sarwal, U. Prasad, K. M. Gopal, S. Kalal, D. Kaur, A. Kumar, P. V. Regy, and J. Sharma. Investment opportunities in india’s healthcare sector. 2021.
- [66] R. W. Scapens. Doing Case Study Research. In *The Real Life Guide to Accounting Research*, pages 257–279. Elsevier, 2004.
- [67] P. Setia, M. Setia, R. Krishnan, and V. Sambamurthy. The effects of the assimilation and use of it applications on financial performance in healthcare organizations. *Journal of the Association for Information Systems*, 12(3):1, 2011.
- [68] D. N. K. Shah. FINANCIAL STATEMENT ANALYSIS THROUGH RATIO ANALYSIS OF SELECTED PHARMACEUTICAL COMPANIES. *GAP iNTERDISCIPLINARITIES - A GLOBAL JOURNAL OF INTERDISCIPLINARY STUDIES*, 3(4):321–331, Nov. 2020.
- [69] S. Sinclair, J. Kondejewski, P. Jaggi, A. L. Roze des Ordon, A. Kassam, K. A. Hayden, D. Harris, and T. F. Hack. What works for whom in compassion training programs offered to practicing healthcare providers: a realist review. *BMC medical education*, 21(1):455, 2021.
- [70] N. Singh, O. A. Ogunseitan, and Y. Tang. Medical waste: Current challenges and future opportunities for sustainable management. *Critical Reviews in Environmental Science and Technology*, 52(11):2000–2022, June 2022.
- [71] A. Sobrio and M. Keller. Networked healthcare integration through sustainable value creation. *Journal of Medical Marketing*, 7(2):102–113, 2007.
- [72] V. Stanford, S. Barna, D. Gupta, and F. Mortimer. Teaching skills for sustainable health care. *The Lancet Planetary Health*, 7(1):e64–e67, 2023.
- [73] K. M. Sugiarto and N. Z. Rizdiansyah. Assessment of pt siloam international hospitals tbk’s financial performance from a liquidity and solvency perspective 2021-2023. *Sustainable Business Accounting and Management Review*, 6(4):1–8, 2024.

- [74] M. Thompson. The environmental impacts of digital health. *Digital Health*, 7:20552076211033421, 2021.
- [75] R. B. Thomson. Competition among hospitals in the United States. *Health Policy*, 27(3):205–231, Mar. 1994.
- [76] O. T.I. and U. J.I. Effect of Financial Assets on Financial Performance of Pharmaceutical Firms in Nigeria. *African Journal of Accounting and Financial Research*, 5(3):58–88, Nov. 2022.
- [77] J. L. Tucker and S. R. Adams. Incorporating patients’ assessments of satisfaction and quality: an integrative model of patients’ evaluations of their care. *Managing Service Quality: An International Journal*, 11(4):272–287, Aug. 2001.
- [78] F. Vergunst, H. L. Berry, J. Rugkåsa, T. Burns, A. Molodynski, and D. L. Maughan. Applying the triple bottom line of sustainability to healthcare research—a feasibility study. *International Journal for Quality in Health Care*, 32(1):48–53, 2020.
- [79] S. Waisbord. When training is insufficient: reflections on capacity development in health promotion in Peru. *Health Promotion International*, 21(3):230–237, Apr. 2006.
- [80] X. Wan, F. Pan, C. Liu, J. Zhao, and C. Li. The Impact of Profitability Sustainability on Innovation in Dairy Companies: The Multiple Moderating Effects of Corporate Social Responsibility. *Sustainability*, 16(14):5935, July 2024.
- [81] X. Wang and J. Xu. Evaluating private hospital performance before and during covid-19 in china. *Medicine*, 103(21):e38327, 2024.
- [82] S. B. Wheeler, J. Spencer, and J. Rotter. Toward Value in Health Care: Perspectives, Priorities, and Policy. *North Carolina Medical Journal*, 79(1):62–65, Jan. 2018.
- [83] F. A. Wibowo, A. Satria, S. L. Gaol, and D. Indrawan. Financial Risk, Debt, and Efficiency in Indonesia’s Construction Industry: A Comparative Study of SOEs and Private Companies. *Journal of Risk and Financial Management*, 17(7):303, July 2024.
- [84] M. M. Willie. Strategies for Enhancing Training and Development in Healthcare Management. 2023.

- [85] J. Wise. Cop26: fifty countries commit to climate resilient and low carbon health systems, 2021.

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