

Global Healthcare Investments and Length of Hospital Stay

▼ Project Statement: This project aims to provide a comprehensive visualization of healthcare infrastructure investments and their impact on patient outcomes across different countries over time. The project will be presented through four interactive Tableau dashboards. The dashboard will explore trends in **Hospital Stay durations** and **Medical Infrastructure** investments, such as **MRI Units**, **CT Scanners**, and **Hospital Beds**, across different locations and time periods. The dashboard will also analyze relations between **Hospital Beds**, **MRI/CT units**, and **Hospital Stay** using scatter plots and bubble charts to understand the relationship between medical investments and patient outcomes.

▼ Tools Using

Tableau

▼ Research Questions

1. How are **Hospital Stay durations** different across different locations?
2. What are the trends in the growth of **MRI Units**, **CT Scanners**, and **Hospital Beds** over time?
3. Are there any noticeable patterns or shifts in healthcare investments that correlate with changes in **Hospital Stay durations**?
4. How has the **year-on-year percentage growth** of **MRI Units**, **CT Scanners**, and **Hospital Beds** varied across different locations?
5. Which locations have seen the highest and lowest growth in healthcare technology investments over the years?

Report

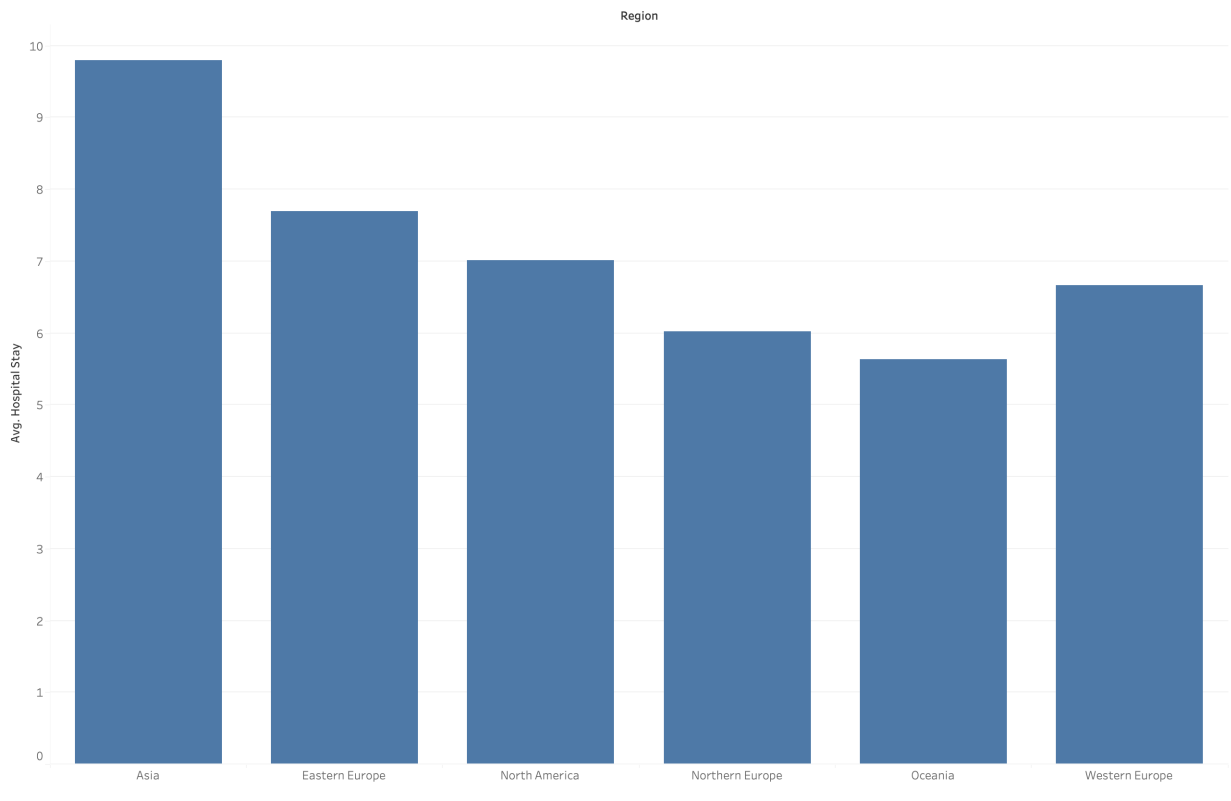
In this project, we categorized a total of 32 countries into 6 distinct regions: **Asia**, **Eastern Europe**, **Western Europe**, **Northern Europe**, **North America**, and **Oceania**. From the available data, we analyzed key healthcare metrics, including the average hospital stay, hospital beds, CT scanners, and MRI units per region.

The analysis revealed that the **overall average hospital stay** across all regions is approximately **7.14 days**. The **average number of hospital beds** per 1,000 people is **10.57**, the **average number of CT scanners** is **19.65**, and the **average number of MRI units** is **10.57**.

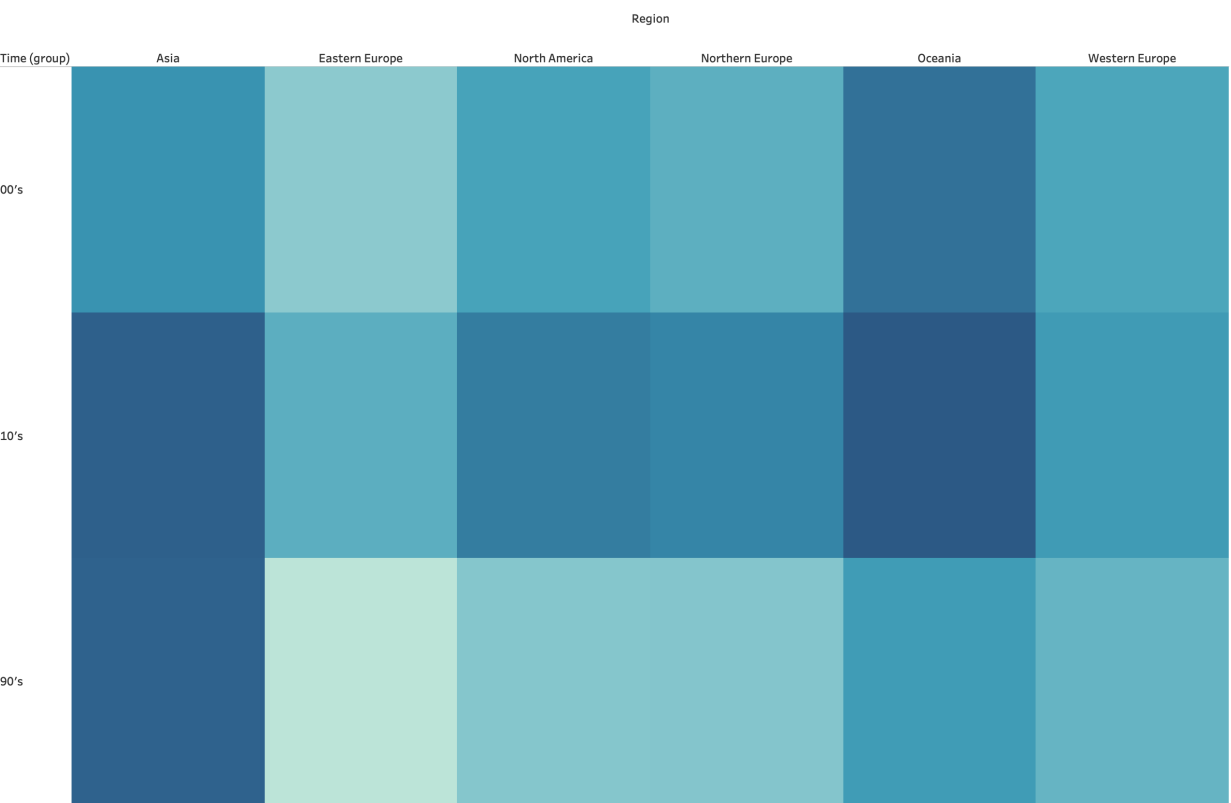
Among the regions, **Asia** stands out with the **longest average hospital stay**, while **Oceania** has the **shortest average hospital stay**. In terms of healthcare technology infrastructure, **Asia** is equipped with the highest number of both **CT scanners** and **MRI units**, surpassing other regions. This is a particularly intriguing finding, as despite having more advanced medical imaging facilities, countries in Asia tend to exhibit **longer hospital stays** on average compared to other regions.

This observation raises important questions and warrants further investigation into the factors driving longer hospital stays in Asia, despite the availability of advanced medical technology. Possible areas of research could include differences in healthcare systems, patient management practices, or the nature of illnesses and treatments in the region.

Average Hospital Stay over Time



AVG CT Accross Decade by Location

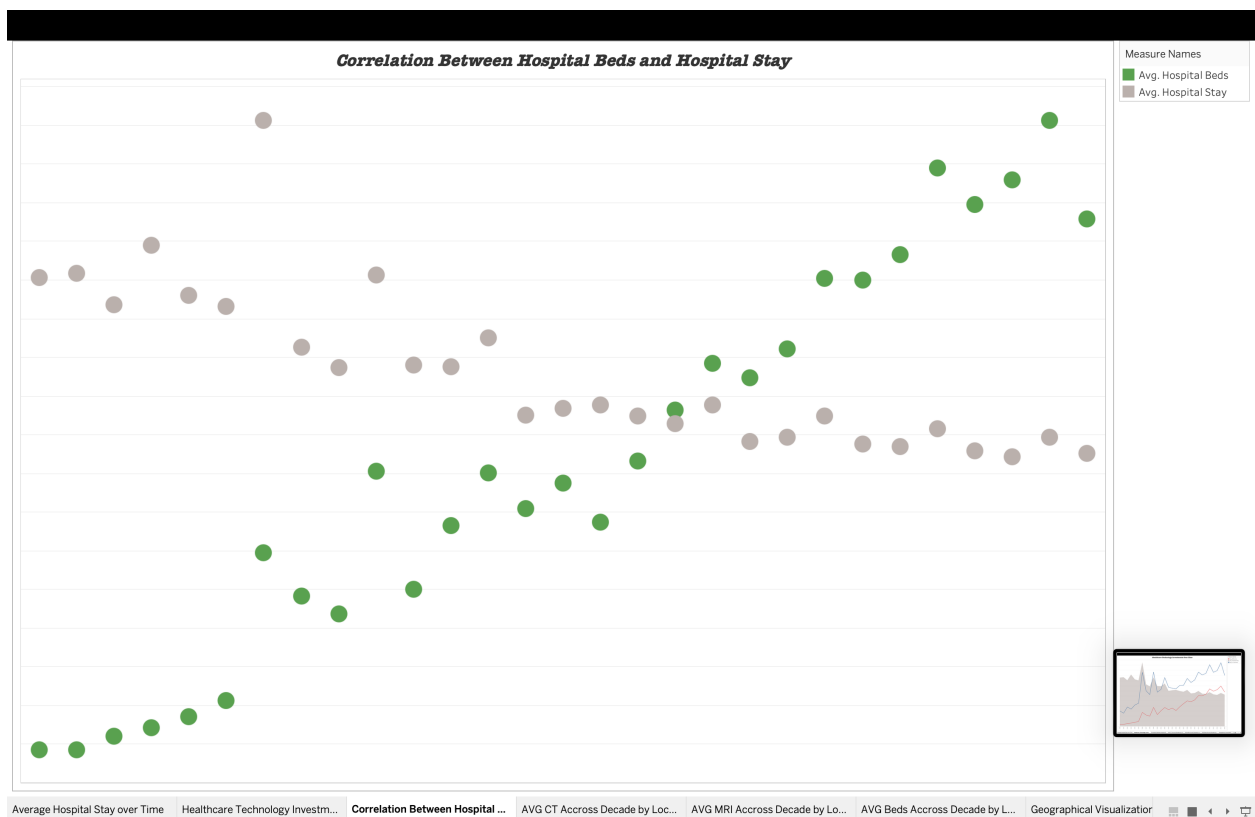
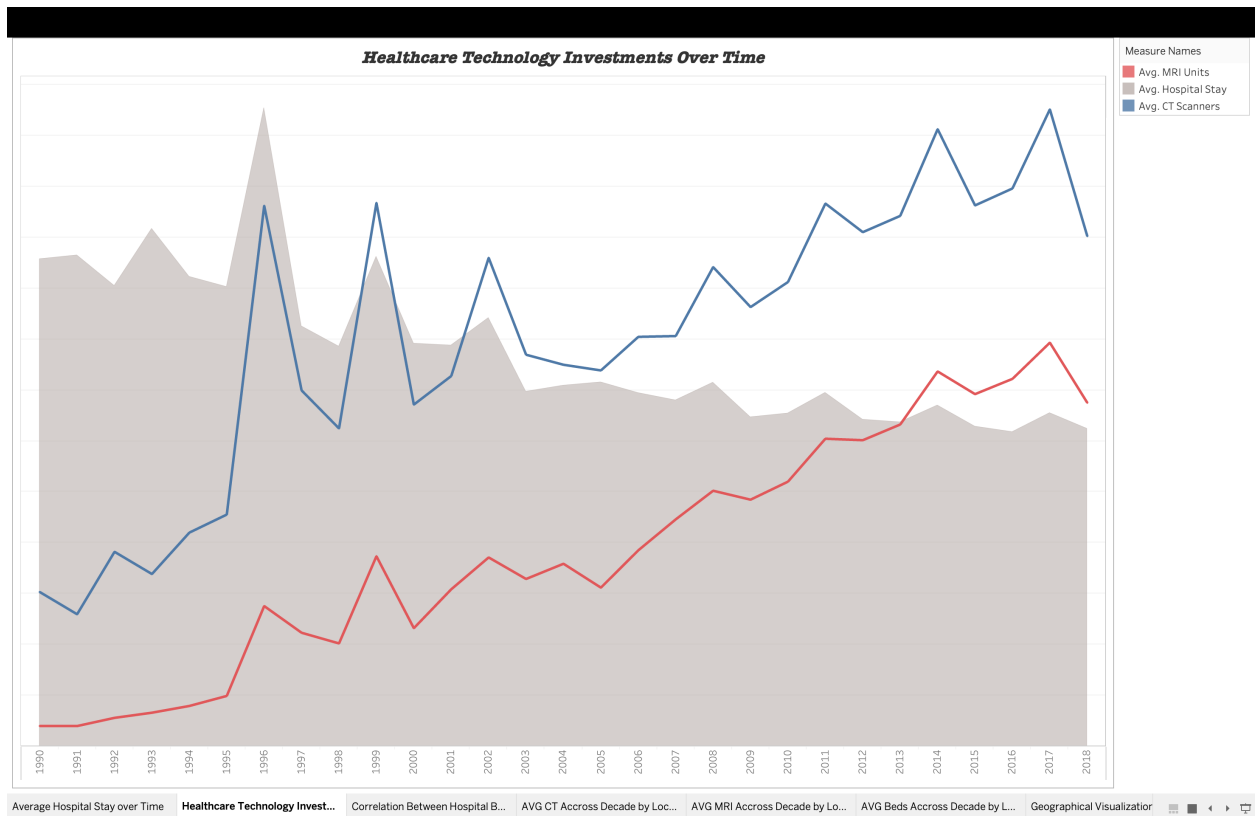




When examining healthcare technology investments over time, a clear trend emerges: as the number of **CT scanners**, **MRI units**, and **hospital beds** increases, the **average hospital stay** tends to decrease. While we cannot definitively conclude a **causal relationship** between these variables and hospital stay duration, this correlation suggests that advancements in medical technology and infrastructure may contribute to **more efficient patient care**.

With the increased availability of **diagnostic tools** such as CT scanners and MRI units, healthcare providers are likely able to **diagnose conditions more accurately and rapidly**, enabling quicker and more effective treatments. Similarly, a higher number of hospital beds may lead to better resource management, reducing the need for extended hospital stays due to overcrowding or lack of facilities.

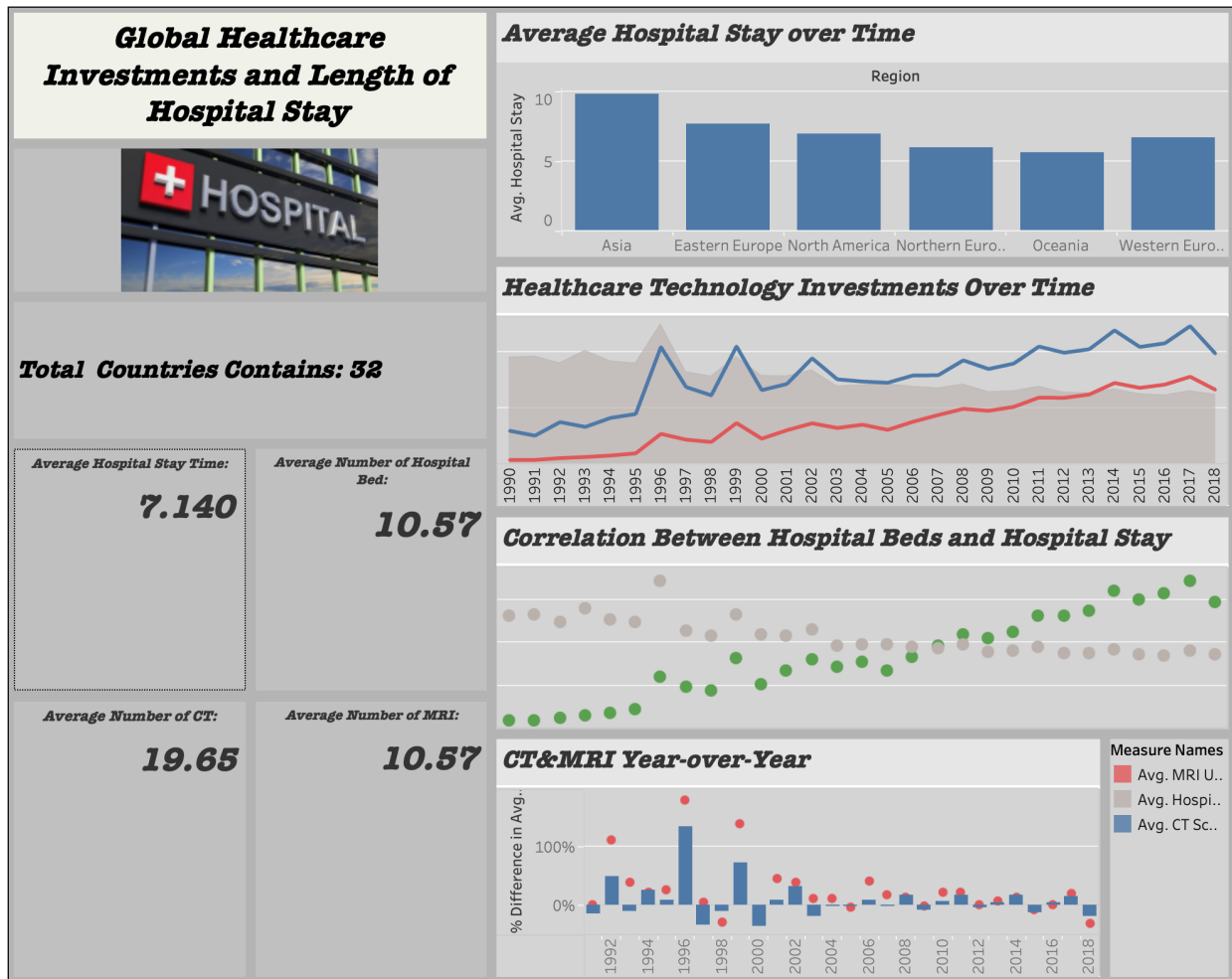
Although further investigation is required to establish causation, it is evident that as healthcare technology becomes more **advanced and accessible**, patients are more likely to receive **faster diagnoses and treatments**, potentially leading to **shorter recovery times** and **quicker discharge** from hospitals.



The final interactive dashboard provides a comprehensive visualization of how **healthcare technology investments** impact **hospital stay durations**, along with a detailed view of the **year-over-year growth** of these investments. By leveraging the **continent region filter**, users can dynamically explore how the availability of **CT scanners, MRI units, and hospital beds** has evolved over time and how these advancements correlate with changes in average hospital stay across different regions.

The dashboard allows the audience to dive deeper into the data, offering insights into the **regional disparities** in healthcare technology investments and their potential influence on **patient outcomes**. Users can analyze trends specific to each continent, comparing the pace of growth in medical infrastructure and observing how **investment in advanced technologies** corresponds to **shorter hospital stays**.

This interactive tool is designed to empower stakeholders by providing a clear, data-driven understanding of the relationship between **technological progress** and **healthcare efficiency**, making it easier to assess the impact of investment decisions across diverse geographic regions.



Conclusion

In conclusion, this project provides a detailed analysis of healthcare technology investments and their relationship to hospital stay durations across 32 countries, categorized into six regions: **Asia**, **Eastern Europe**, **Western Europe**, **Northern Europe**, **North America**, and **Oceania**. The data reveals key insights, such as Asia having the **longest average hospital stay** despite being equipped with the highest number of **CT scanners** and **MRI units**, and Oceania exhibiting the **shortest hospital stays**. This raises important questions about the factors driving healthcare efficiency beyond just technological availability.

The interactive dashboard developed in this project further explores these trends by allowing users to analyze **healthcare investments**—such as **CT scanners**, **MRI**

units, and **hospital beds**—and how they correlate with **hospital stay durations**. The **region filter** enables the audience to investigate changes specific to each continent, providing a nuanced understanding of the **year-over-year growth** in medical technology and its impact on patient outcomes. While no direct causation can be claimed, the analysis highlights a strong correlation between **technological advancements** and **shorter hospital stays**, suggesting that investments in healthcare infrastructure play a vital role in improving the efficiency of medical care.