

ASEAN Movement in Radiology

Computed tomography (CT) scanner imports in Vietnam (2023–2025): Market growth, technology structure, and manufacturer distribution in an ASEAN context

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Introduction

Computed tomography (CT) is indispensable in contemporary diagnostic imaging, enabling accurate assessment across emergency medicine, oncology, neurology, and cardiovascular care [1,2]. In ASEAN countries, the distribution and technological level of CT scanners represent key indicators of health system capacity [3-5]. Vietnam has experienced substantial healthcare growth over the past decade, yet systematic evidence describing CT procurement trends remains limited.

Materials and methods

This study utilized official national import data for CT scanners covering the period from 2023 to 2025. Data included manufacturer, slice category, year of import, and quantity. CT systems were grouped into four technology categories: low-end slice CT

(≤ 64 slices), Mid-end slice CT (128–160 slices), and High-end slice CT (256–640 slices), and specialized CT systems.

Descriptive analysis was performed to examine trends and market structure. Statistical analysis was performed using R software (version 4.3.2; R Foundation for Statistical Computing, Vienna, Austria). Slice categories were treated as categorical variables and summarized as frequencies and percentages by year and manufacturer. Differences in the distribution of slice categories across years (2023–2025) manufacturer were assessed using the chi-square test of independence.

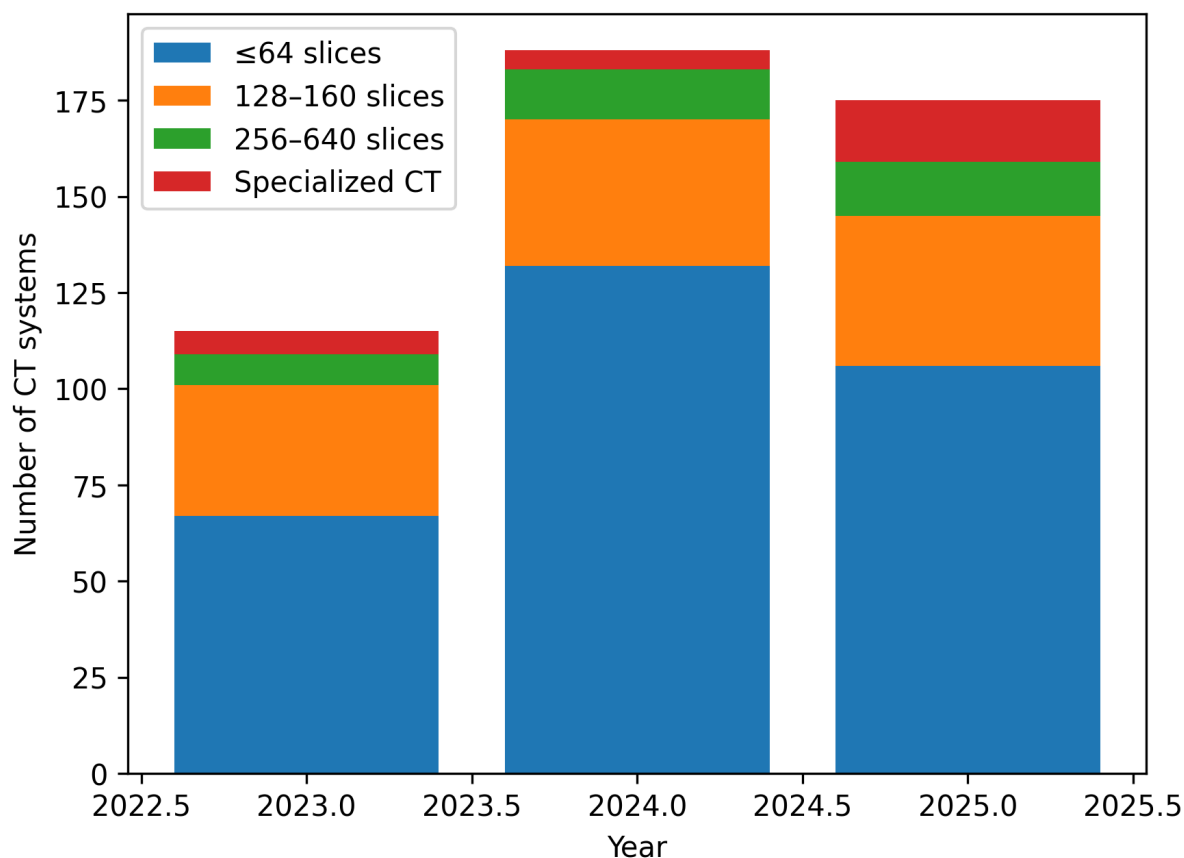
Given the exploratory and market-oriented nature of the analysis, statistical significance was defined at a two-sided p-value < 0.10 . P-values between 0.05 and 0.10 were interpreted as indicative of trends rather than definitive statistical differences. Exact p-values are reported where appropriate.

Results

A total of 438 CT devices were included in the analysis, comprising 115 machines in 2023, 188 in 2024, and 171 in 2025. Across all years, the CT system with ≤ 64 slices constituted the largest proportion (305/438; 69.6%), followed by Mid-end slice CT (111/438; 25.3%) and High-end slice CT system (35/438; 8.0%). Advanced acquisition techniques, including PCCT and Simulation CT, accounted for a smaller proportion of the dataset (5/438; 1.1% and 22/438; 5.0%, respectively).

Comparative analysis using the chi-square test showed no statistically significant difference in the overall distribution of slice categories across the three years ($\chi^2 = 13.08$, $df = 8$, $p = 0.109$). Although the overall comparison did not reach the predefined significance threshold, descriptive analysis revealed notable temporal patterns. Specifically, the number of CT systems with < 64 slices increased substantially from 2023 to 2024, followed by a moderate decline in 2025, while medium- and high-end slice CT demonstrated a gradual increase over time. In addition, PCCT and Simulation CT slices were more frequently represented in 2025, suggesting an emerging trend toward the adoption of advanced imaging techniques in the later study period.

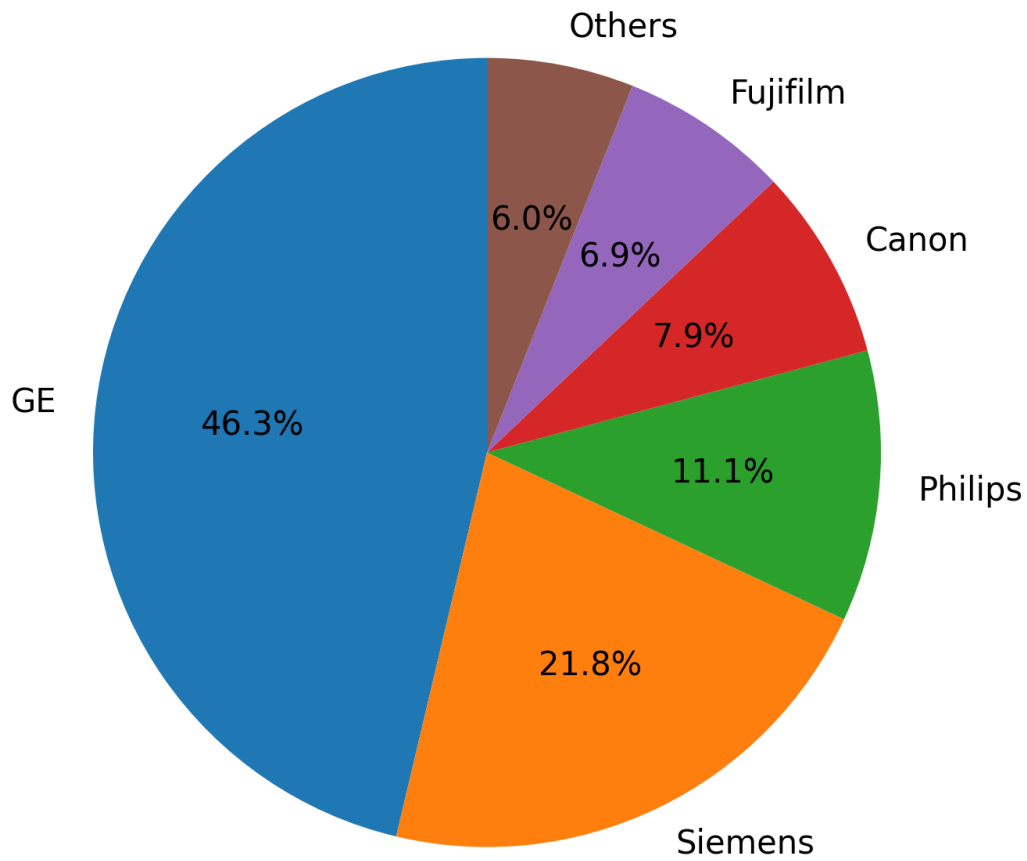
Overall, while the categorical distribution remained relatively stable across years, these findings indicate a temporal shift in data composition, characterized by increasing diversity in slice categories and imaging modalities.



Slice category	2023	2024	2025	Total
≤64 slices	67	132	106	305
128–160 slices	34	38	39	111
256–640 slices	8	13	14	35
PCCT*	1	0	4	5
Simulation CT	5	5	12	22
Total	115	188	171	438

*Photon-counting CT

Figure & Table 1. Annual CT scanner imports in Vietnam by slice category (2023–2025).



Manufacturer	Number of systems	Market share (%)
GE	100	46.3
Siemens	47	21.8
Philips	24	11.1
Canon	17	7.9
Fujifilm	15	6.9
Other manufacturers	13	6.0
Total	216	100.0

Figure & Table 2. *Market share of CT scanner manufacturers in Vietnam, 2025.*

A chi-square goodness-of-fit test demonstrated a statistically significant difference in market share among manufacturers ($\chi^2 = 124.56$, $df = 4$, $p < 0.001$). GE Healthcare accounted for 46.3% of the total market, substantially exceeding the shares of the remaining manufacturers, each of which held less than 22%.

Discussion

Vietnam's CT scanner market demonstrates a clear transition from rapid baseline capacity expansion toward technological upgrading, consistent with broader ASEAN health system trends. Early growth was driven by deployment of ≤ 64 -slice CT systems, while 2025 showed increased adoption of higher-slice and specialized CT technologies (Figure & Table 1).

In the early stages of market development, growth was principally driven by the deployment of ≤ 64 -slice CT systems, which offered a cost-effective solution to address urgent diagnostic needs, particularly in regional and provincial healthcare settings [6]. These systems facilitated broad access to cross-sectional imaging, aligning with public health priorities to expand basic diagnostic infrastructure in the context of rising demand for imaging services [7,8].

As market penetration of basic CT technology approached saturation, there was an observable shift in investment toward higher-slice systems and specialized CT modalities. This transition reflects several converging factors. First, the increasing prevalence of complex diseases—such as oncologic, cardiovascular [2], and interstitial lung pathologies—requires higher spatial and temporal resolution for accurate diagnosis, staging, and treatment planning, which multi-slice CT and advanced technologies can better provide [9]. Second, higher-slice CT equipment and advanced imaging capabilities, including photon-counting CT (PCCT) and simulation CT platforms, support enhanced workflows, improved image quality, and sophisticated analysis such as dose reduction and multiphase studies, making them attractive for tertiary care and private imaging centers [10,11].

Moreover, improvements in clinical expertise, information technology infrastructure, and healthcare policy frameworks have enabled more effective utilization of advanced imaging technology, reducing barriers to adoption and increasing demand for value-added services. The fact that advanced modalities such as PCCT [12] and Simulation CT are more prominent in 2025, data indicates a deepening of market maturity, where differentiation and quality of diagnostic output become central competitive factors rather than mere acquisition of additional basic units.

Overall, this pattern aligns with broader global trends in CT utilization and technology adoption, whereby emerging markets initially prioritize accessibility and basic capacity, and then progressively adopt sophisticated imaging solutions as clinical demand and economic capacity evolve [8,9]. Such transformation not only reflects technological progress but also underscores the increasing complexity of healthcare needs and expectations in Vietnam's evolving medical landscape.

GE Healthcare maintains market leadership through a broad portfolio and strong service infrastructure, contributing significantly to advanced cardiac and spectral CT adoption (Figure & Table 2). Siemens Healthineers dominates the premium segment with technological leadership in high-slice CT systems, though higher capital costs may moderate expansion. Philips remains competitive in mid-to-high segments, particularly in private hospitals. Canon Medical and Fujifilm demonstrate stable participation in mid-range and cost-sensitive segments. Smaller manufacturers collectively account for a minor but gradually increasing market share.

As an observational market-based analysis, this report primarily aims to provide a structured overview of CT technology diffusion in Vietnam. While it does not incorporate geographic or sectoral stratification, the findings offer a preliminary framework for understanding imaging capacity evolution in a rapidly developing ASEAN healthcare system. Future studies integrating regional distribution, public-private segmentation, and economic indicators would further strengthen health policy relevance.

Limitations

This study is based solely on national import data and does not include information on installation status, geographic distribution, public-private sector allocation, utilization rates, or clinical outcomes. Additionally, economic indicators were not incorporated into the current analysis. Future research integrating health system and economic data will be necessary to provide deeper policy-level insights.

Conclusion

CT scanner imports in Vietnam increased substantially between 2023 and 2025, with growing adoption of advanced and specialized technologies. These findings provide relevant evidence for imaging investment planning and policy development across ASEAN health systems.

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