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Exploring Untapped Potentials at the Asia-Pacific Digital Pathology Market

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The digital pathology market is set to grow from $74 million in 2022 to $125 million by 2027, says Aneesh Sathe, CEO and Co-Founder of Singapore's AI-powered digital pathology firm Qritive



The synergy of AI and digital pathology has opened a world of image-based possibilities that can transform disease diagnosis and optimise patient outcomes. HealthTech & Digital Pathology in combination are helping the MedTech arena to advance in routine diagnosis around detecting, quantifying, and characterising specific tissue structures and novel biomarkers for precision medicine and disease management. With the increase in AI adoption in digital pathology, Asia Pacific is foreseen as a promising market. Singapore-based firm, Qritive is one such clinical-grade system with constant efforts in enhancing histopathology diagnosis of cancer through AI-powered diagnostic solutions. **Aneesh Sathe, CEO and Co-Founder of Qritive** shared more insights with *Biospectrum Asia,* on the prospects of the 'Digital Pathology market' in Asia-Pacific which is streamlining pathologists' workflow.

- **How influential is the pandemic for building resilient Healthcare Systems in Singapore and Southeast Asia?**

The pandemic has underscored the importance of pathology in healthcare, the potential of new technologies, and the need for collaboration between key stakeholders.

Pathology's Unparalleled Role

When the pandemic struck, global healthcare systems grappled with manpower and resource constraints amidst a rising disease burden. Additionally, worldwide lockdowns and the public's fear of the pandemic contributed to a growing backlog of healthcare procedures.

Against this backdrop, pathology's role in healthcare rose to the forefront to mitigate the pandemic's impact. Working behind the scenes, pathologists are often under-valued as compared to front-facing healthcare professionals like oncologists. However, up to 70 percent of clinical decisions involve pathology, making pathologists a key enabler in clinical diagnosis, analysis, and patient care.

Their role was heavily demonstrated during COVID-19, when lung biopsies successfully highlighted signs of lung damage – a leading cause of death in most COVID-19 patients. This shows the importance of pathology in disease diagnosis and optimising survival outcomes for patients.

Potential of New Technologies

COVID-19 also accelerated digital transformation at an unprecedented rate. In 2021, the global digital healthcare industry attracted $57.2 billion in funds – an 80 per cent increase from 2020. Similarly, Asia's digital healthcare industry received $10.7 billion in the same year, a 62 per cent increase from 2020. The advent of telemedicine has also revolutionized patients' access to healthcare services, demonstrating the importance of digital adoption in transforming traditionally offline industries.

On the pathology front, the increased adoption of Artificial Intelligence (AI) and Machine Learning (ML) have been beneficial in minimizing subjectivities in patient diagnosis and improving workflow efficiency for pathologists. It has helped to simplify and automate time-consuming diagnostic tasks, allowing pathologists to focus their attention on patient care.

The digital pathology market is set to grow from $74 million in 2022 to $125 million by 2027, and we anticipate that pathologists will be increasingly exposed to digitally-driven solutions moving forward.

Collaboration Is Key

Lastly, the pandemic has also emphasized the importance of collaboration between key stakeholders in recovering, rebuilding, and strengthening our healthcare systems. These stakeholders include business organisations, hospitals, governments as well as private sector partnerships. At Qritive, we have spearheaded research initiatives by collaborating with Singapore's largest hospitals including Singapore General Hospital (SGH) and National University Hospital (NUH), to create high impact research that drives precision healthcare.

- **How crucial are pathologists in helping Asia battle the surging chronic disease burden?**

Pathologists play an integral role in disease diagnosis and patient care. Working in laboratories, they study diseased tissues – called biopsies – to diagnose conditions or monitor existing illnesses. For example, pathologists can analyse cancer tissues to determine its type and severity. This helps physicians to objectively diagnose a patient's condition and determine an appropriate treatment plan.

However, it's important to note that the industry is facing a global shortage of pathologists. In the United States, the number of pathologists dropped by 17.5 per cent from 2007 to 2017. This, coupled with the surge in health screenings and the increasing complexity of pathology analysis, puts immense pressure on the industry to meet current demands.

Delayed diagnosis could reduce the chances of survival for patients and worsen Asia's surging disease burden. As such, efforts to support pathologists' role is key, and one promising solution is the adoption of AI.

- **How do you describe the 'Power of HealthTech & Digital Pathology'?**

Healthtech has been a booming vertical in the last three years. In H1 2021, it was reported that investor appetite in the sector is increasingly bullish, with a record high of $1.1 billion invested during this period alone, compared to $800 million in H1 2020.

Similarly, in digital pathology, we believe there is untapped potential for growth. According to a report, the said market is projected to reach $17 billion by 2030, from $5 billion in 2019. Asia Pacific is also poised to grow at a fast pace in the market due to the rapid adoption of AI and ML, reaching $125 million by 2027.

Broadly defined as virtual microscopy where digital information is captured, managed, analysed, and interpreted from a glass slide, digital pathology is crucial in helping pathologists to facilitate remote diagnostic work, image analysis, clinical trial reviews, collaborations, and teleconsultation. The adoption of AI in digital pathology could help to automate time-consuming diagnostic tasks like counting mitoses and screening cancer types and simplify complex tasks such as triaging biopsies.

In fact, studies have shown that AI improves efficiency and accuracy. For example, the manual and laborious application of the Ki-67 proliferation index, which is traditionally employed by pathologists, can now be substituted with AI. This assists pathologists in scoring the degree of cancers efficiently and with high concordance and is crucial in the early diagnosis of rare cancers like Sarcomas. AI is also able to detect signs of high-risk colorectal cancer and can serve as an effective screening tool by outlining malignant glands.

Considering this, healthtech and digital pathology are essential in strengthening our healthcare systems, pushing them towards new boundaries. This is what we mean by the "power of healthtech and digital pathology".

- **How do you foresee the HealthTech & Digital Pathology market growth and prospects in APAC? What are the key areas likely to advance with industrial trends?**

We foresee that there will be an increase in AI adoption in the digital pathology market. As compared to other parts of the world, Asia Pacific will be a promising region in the global said market given its receptivity and rapid adoption of new technologies. The synergy of AI and digital pathology has opened a world of image-based possibilities that can transform disease diagnosis and optimize patient outcomes. It has helped to detect, quantify, and characterize specific tissue structures and novel biomarkers for precision medicine and disease management.

For instance, in the study of breast cancer, it was found that deep neural networks can generate scores that differentiate between low- and high- grade tumours and showcase the probability of survival for patients.This could be beneficial in enhancing the precision and capabilities of digital pathology moving forward.

However, this also means that financing is key in the development and integration of these AI solutions. Besides allocating a substantial budget in hiring highly skilled employees in the field of AI and pathology, more capital can also be invested in pathology labs to help them adopt and integrate the latest digital pathology systems and solutions. This shows that the input of capital into the digital pathology market is crucial and key stakeholders, including government and hospitals, may consider prioritizing or providing more investment in accelerating digital transformation.

By Hithaishi C Bhaskar