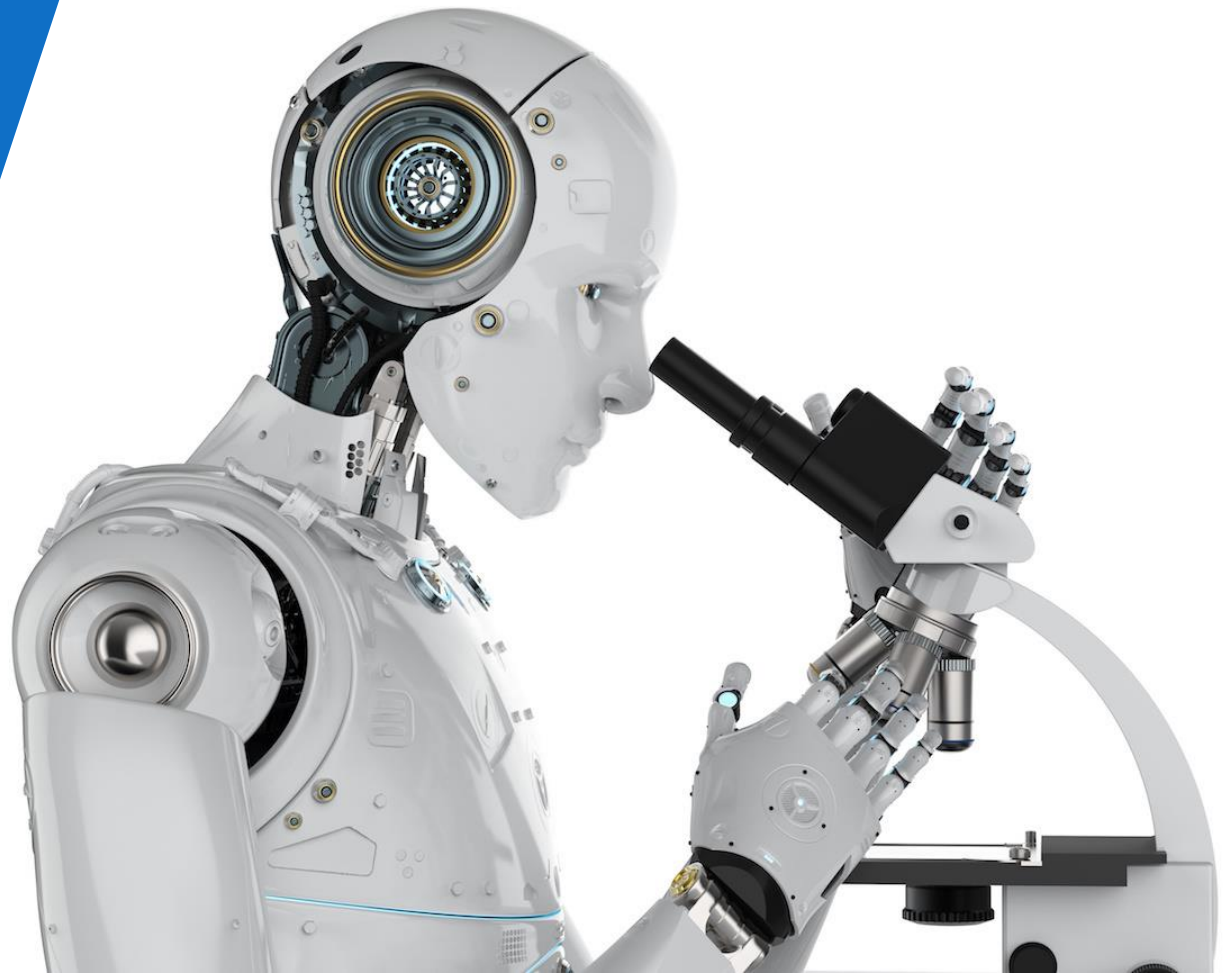
Digital Pathology Market



By Prateek Kumar Yadav

Executive Summary

Global Market

The top four countries with highest Digital Pathology market share are US, Germany, China, and India

Market Size Estimation

North America hold the highest Digital Pathology market followed by Europe due to the established players in the region. Digital Pathology is highly preferred by the Pharmaceuticals and Biotechnology companies

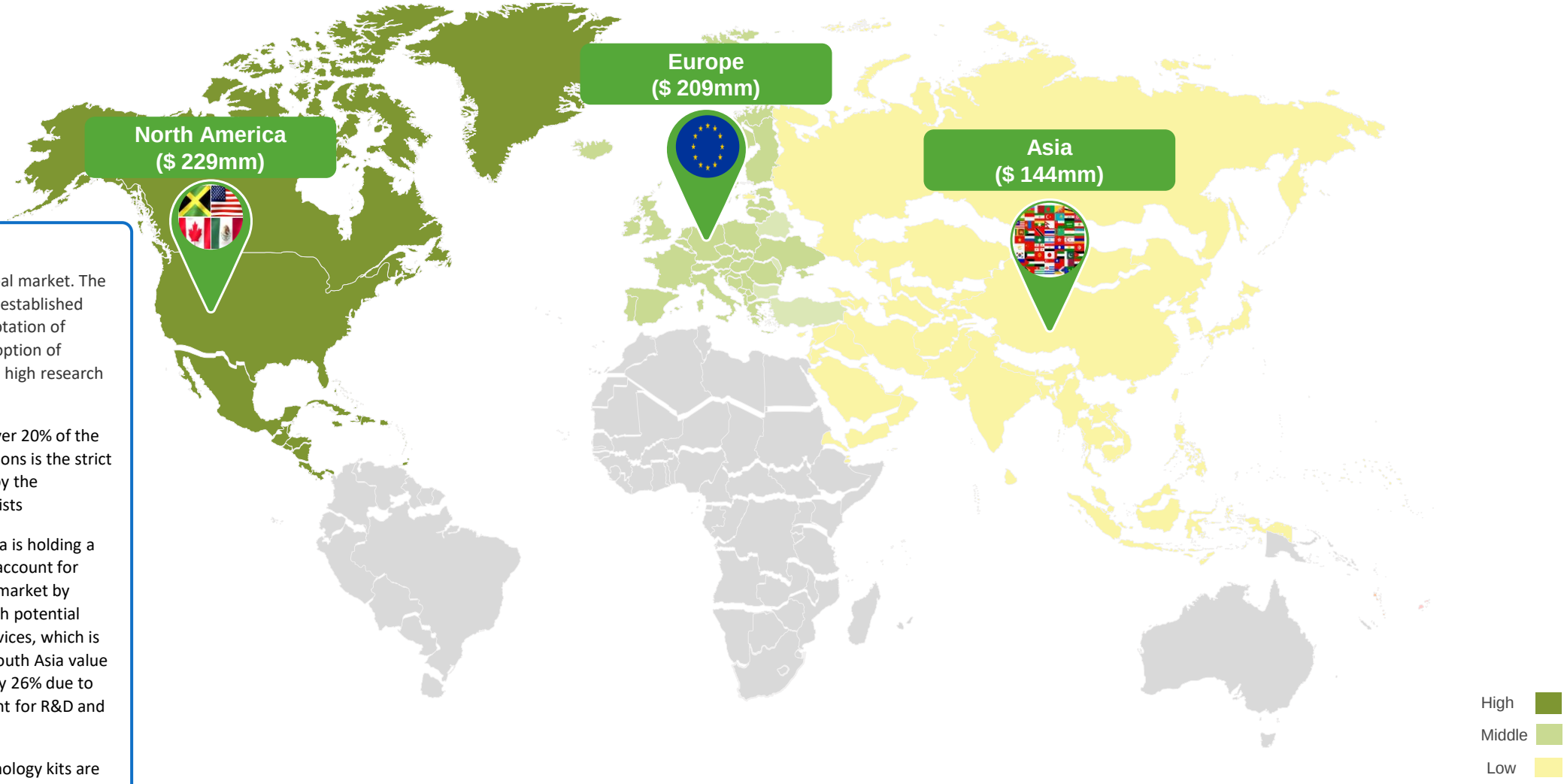
Market Dynamics and Key Players

Improved Efficiency and Remote Viewing are the key drivers. However, Lack of Budget and Skilled Personnel are the main inhibitors for adoption of Digital Pathology Software. The cumulative market share of the top players constitutes around 71% of the overall market

Competition and Recent Advancements

Inspirata and Visiopharm acquired Omnyx and LRI Imaging AB respectively. Digital Pathology with integrated Artificial Intelligence and analysis algorithms are preferred as it provides faster and accurate diagnosis.

THE TOP FOUR COUNTRIES WITH HIGHEST DIGITAL PATHOLOGY MARKET SHARE ARE US, GERMANY, CHINA, AND INDIA



Key Insights

- US holds a 36% share in the global market. The key reasons are the presence of established players in the region, rising adaptation of digital imaging methods and adoption of advanced technology along with high research and development sectors
- The German market holds for over 20% of the Europe market in 2021. Key reasons is the strict guidelines which are proposed by the Association of German Pathologists
- Digital pathology market in China is holding a 23.5% CAGR and is expected to account for more than 70% of the East Asia market by 2031. In addition, India has a high potential market for Digital Pathology services, which is expected to hold 70.0% of the South Asia value share in 2031 at a CAGR of nearly 26% due to the rising funds from government for R&D and low-cost labor
- The key exporters of Digital Pathology kits are countries such as the U.S., Japan, China, Germany, and India

Source: markets&markets, futuremarketinsights

MARKET SIZE ESTIMATION

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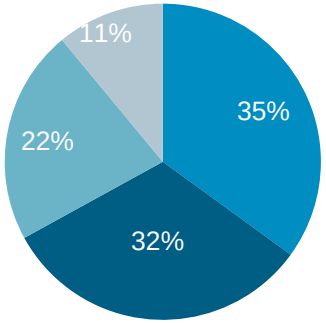
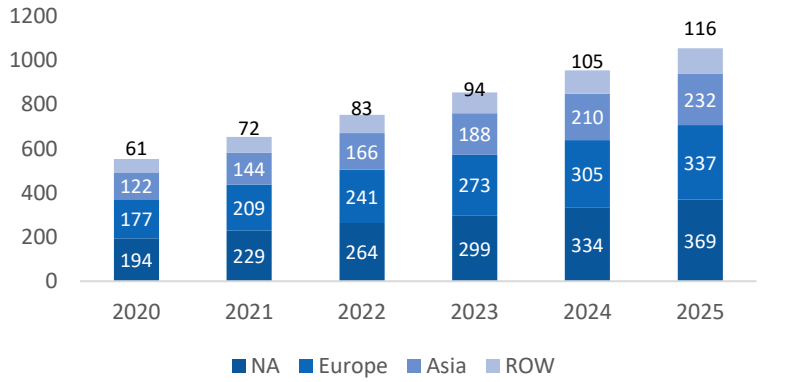
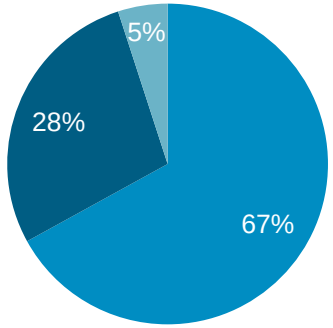
By Region



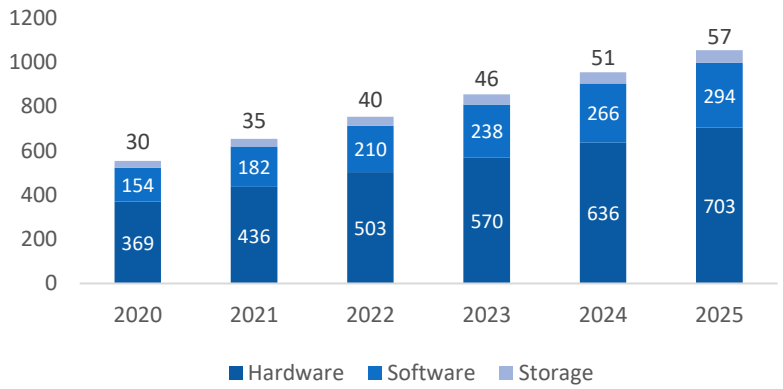
North America Europe Asia ROW



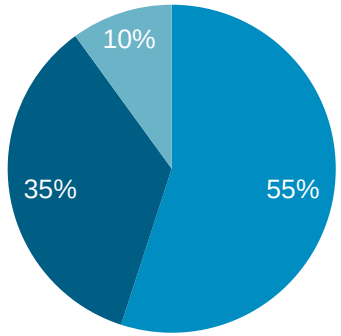
By Product Segment



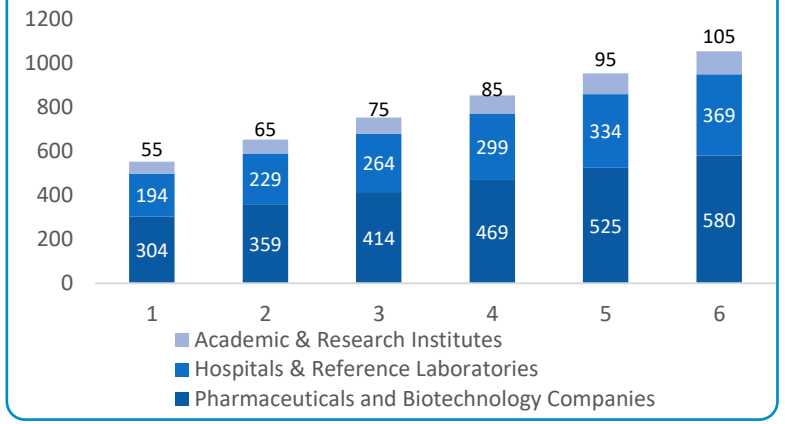
Hardware Software Storage



By End-User Demand



Pharmaceuticals and Biotechnology Companies
Hospitals & Reference Laboratories
Academic & Research Institutes



Source: markets&markets, aabme, envisioninteligence

MARKET DYNAMICS AND KEY PLAYERS

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Market Dynamics

1 Drivers

- Improved lab efficiency by reducing costs and decreasing turnaround times as patients and physicians are dependent on lab results for diagnostic decisions, so diagnostic tests are required to be completed and reported quickly and accurately. Also, access to digital slides via web alleviates shipping costs and pathologists' travel time
- Access to subject-matter expertise for the users
- Remote viewing helps in pandemic situations like COVID-19 and increased the demand for Digital Pathology solutions as it can be used by pathologists to view the diagnostic results remotely

2 Restraints

- End-users like hospitals with limited budgets or IT support often cannot afford Digital Pathology
- Shortage of skilled personnel to hands on Digital Pathology Systems also indicates the lower adoption rate
- Uncertain reimbursement policies
- Unacceptance of novel technologies by older pathologists

3 Opportunities

- The introduction of affordable scanners will encourage their adoption among pathologists with low or limited budgets
- In countries like India, government is raising funds for the research and development in the healthcare sector. In addition, Union government announced a plan to set up over 42 diagnostic and virology research laboratories in the country at a cost of Rs. 324 crores
- Dearth of pathologists is expected to result in the increased utilization of Digital Pathology for providing remote pathological consultation and services.

4 Challenges

- Presently, gap between the supply and demand of pathologists worldwide is observed, especially in countries in the Asia Pacific and Africa

Key Players

DANAHER, Roche, PHILIPS Healthcare, Leica, OLYMPUS, HURON Digital Pathology, HAMAMATSU

Other Players

3DHISTECH, Apollo, XIFIN, SECTRA, VISIOPHARM, corista, KFBIO, Objective Imaging, OptraScan On-Demand Digital Pathology, Glencoe SOFTWARE, kanteron systems, inspirata, MICROSCAN, PROSCIA

Source: markets&markets

COMPETITION AND RECENT ADVANCEMENTS

Inspirata and Visiopharm acquired Omnyx and LRI Imaging AB respectively. Digital Pathology with integrated Artificial Intelligence and analysis algorithms are preferred as it provides faster and accurate diagnosis

Product Launches and Product Expansion

2021

- In January, Roche introduced an automated Digital Pathology algorithms called uPath HER2 (4B5) image analysis and uPath Dual ISH image analysis for breast cancer. This image analysis algorithms use artificial intelligence to help pathologists in gaining quick and more precise patient diagnoses in breast cancer

2020

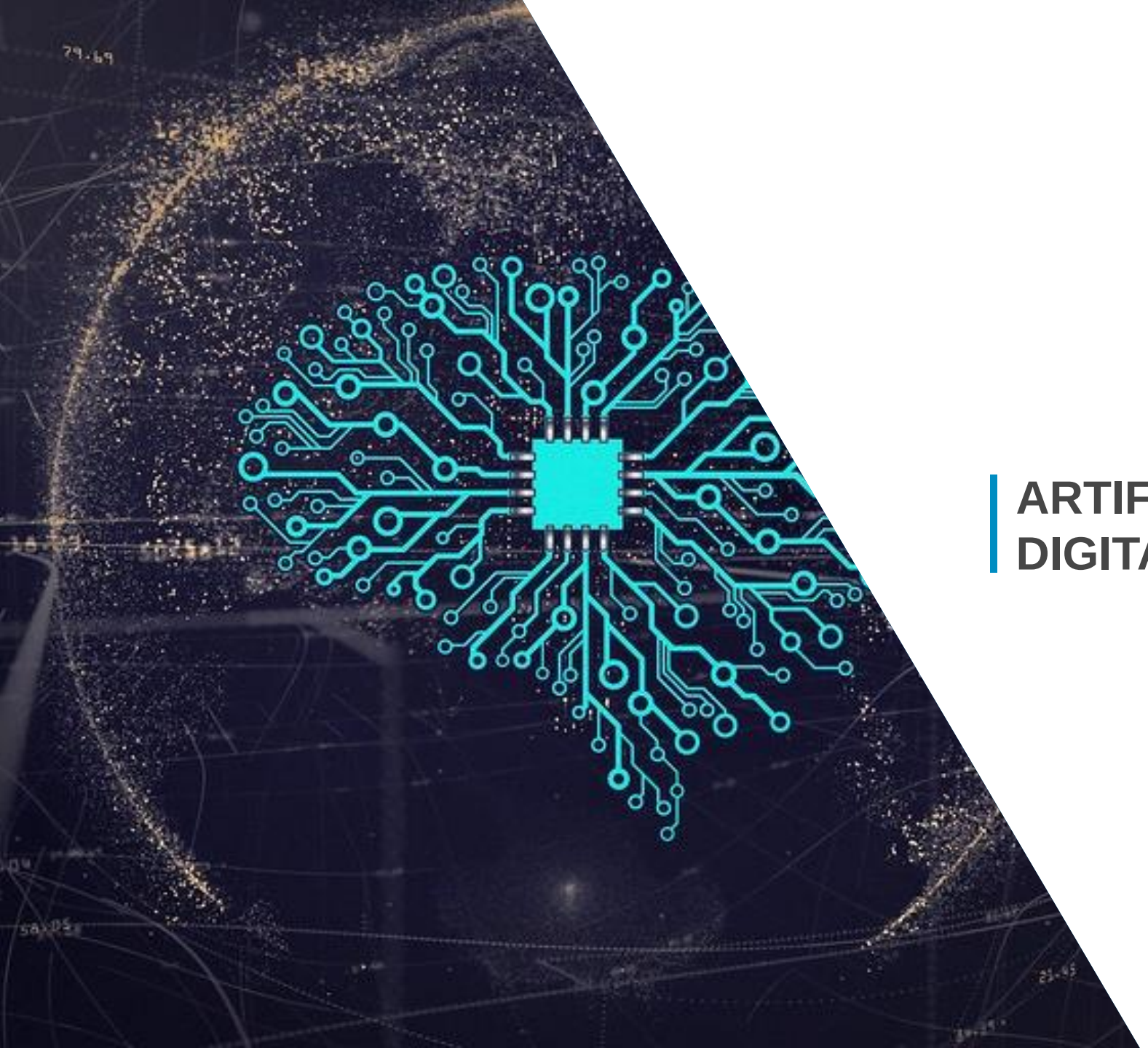
- In Dec, 3DHISTECH launched New Clinical Pathology Product Line, known as PANNORAMIC Pathology Diagnostic System. This system is a new and combined Digital Pathology solution from 3DHISTECH that aids the pathologist to offer a quicker diagnosis. PANNORAMIC is an all-in-one solution accustomed to the requirements of routine pathology laboratories which assist in achieving higher throughput, lower turnaround times, and helping in rapid diagnosis
- In Aug, Leica Biosystems launched, Aperio GT 450 DX Digital Pathology scanner in the European region. This scanner helps in delivering the best image quality and faster scanning. Also, it allowed laboratories to increase Digital Pathology for high-throughput, and routine diagnostics
- In June, Roche unveiled an automated Digital Pathology platform, uPath PD-L1 (SP263) for non-small cell lung cancer (NSCLC). This platform implements AI technology to deliver pathologists with automated assessments of scanned slide images, which help in diagnosis and target treatment options for patients
- In May, Leica Biosystems introduced a valuable development for anatomical pathology laboratories by briding together its Aperio AT2 DX System, Digital Pathology whole slide imaging along with Aperio Path DX web-based, state-of-the-art, case management software. In addition, Leica has implemented a complete clinical and operational proficiency, which explains its efficiency
- In August, Leica Biosystems also introduced the Aperio GT 450, its next-generation Digital Pathology scanner. This product delivers a continuous rack loading with priority scanning and takes 32 seconds to scan a 15mm by 15mm tissue area on a pathology slide at 40x magnification with the ability of 81 slides/hr

2019

- In January, Roche launched, uPath enterprise software for Digital Pathology. This software intensify the early version, Ventana Virtuoso, with new customised offerings for pathology workflows. uPath boosts the customer experience by significantly reducing image rendering times, combining automated image analysis, and increase efficiency by permitting an advanced workflow for sharing cases between pathologists

Acquisition and Mergers

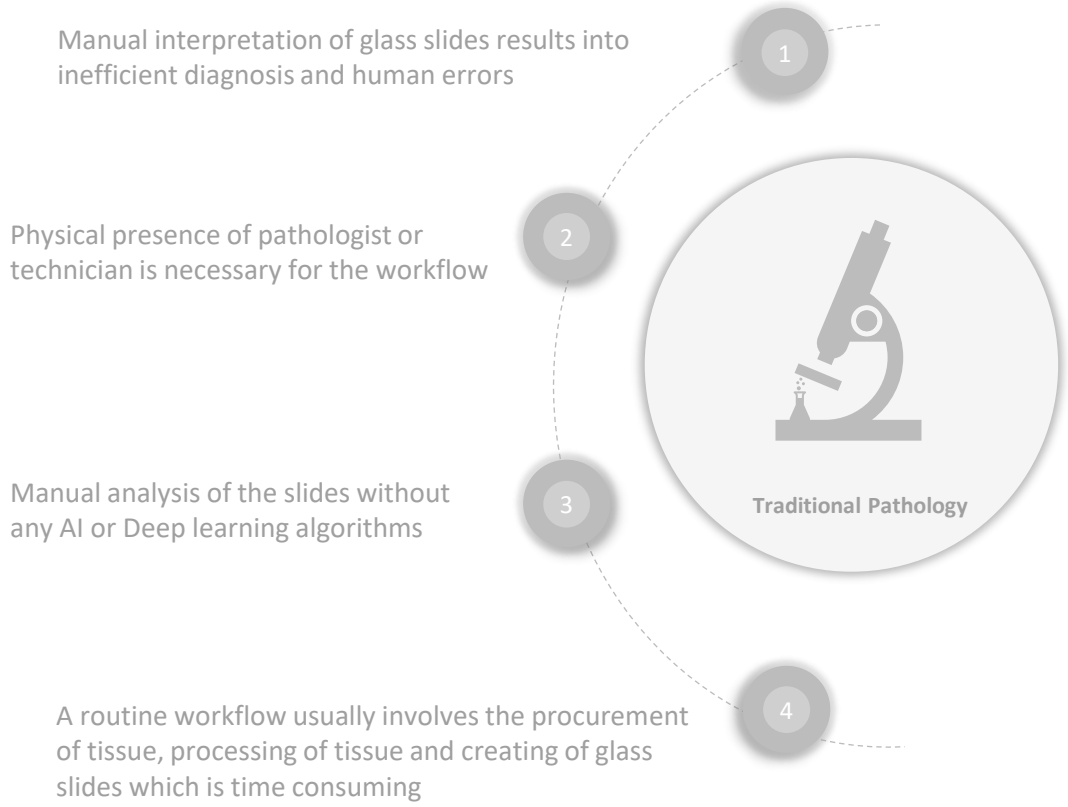
- In 2018, Inspirata united with Pittsburgh-based Omnyx from GE Healthcare. The acquisition aided Inspirata to power up its position with a complete Digital Pathology workflow solution and enlages its Digital Pathology Portfolio
- In 2016, Visiopharm acquired LRI Imaging AB. This resulted Visiopharm as a highly specialized European leader in diagnostic Digital Pathology solutions

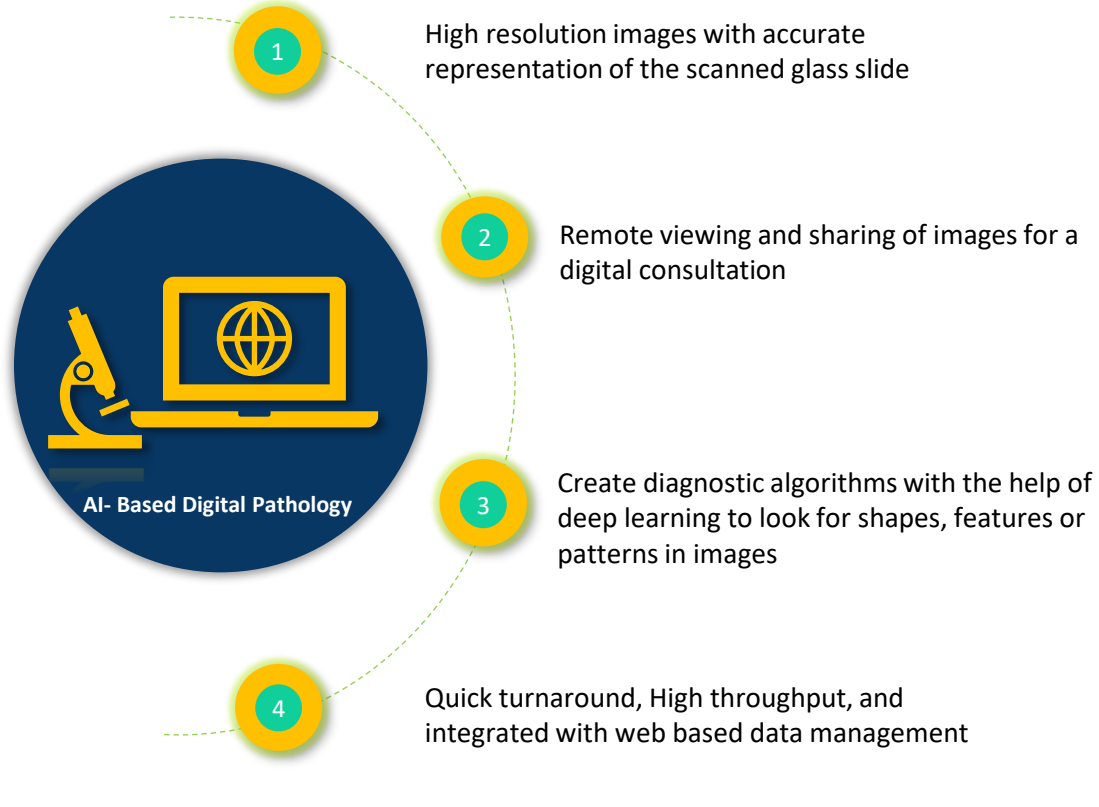


ARTIFICIAL INTELLIGENCE IN DIGITAL PATHOLOGY MARKET

ARTIFICIAL INTELLIGENCE IN GLOBAL DIGITAL PATHOLOGY MARKET

Digital Pathology-based AI tools have the potential against Traditional Pathology due to on-time and accurate diagnosis. However, traditional Molecular and Genetic tests currently hold the capability of predicting re-occurrence and therapy response outcomes





The pathologist evaluate glass slides locally within each hospital or a pathology group which may be serving several hospitals. Manual workflow requires many steps and the end result is that these glass slides are moved around and sent to pathologists to render a diagnosis which is a time consuming and expensive process as slides are moved around, especially if the pathologist is not directly in the local area where the slides are prepared

Additionally, one slides at a time can be visualized along with troublesome archival and retrieval process when using the traditional approach

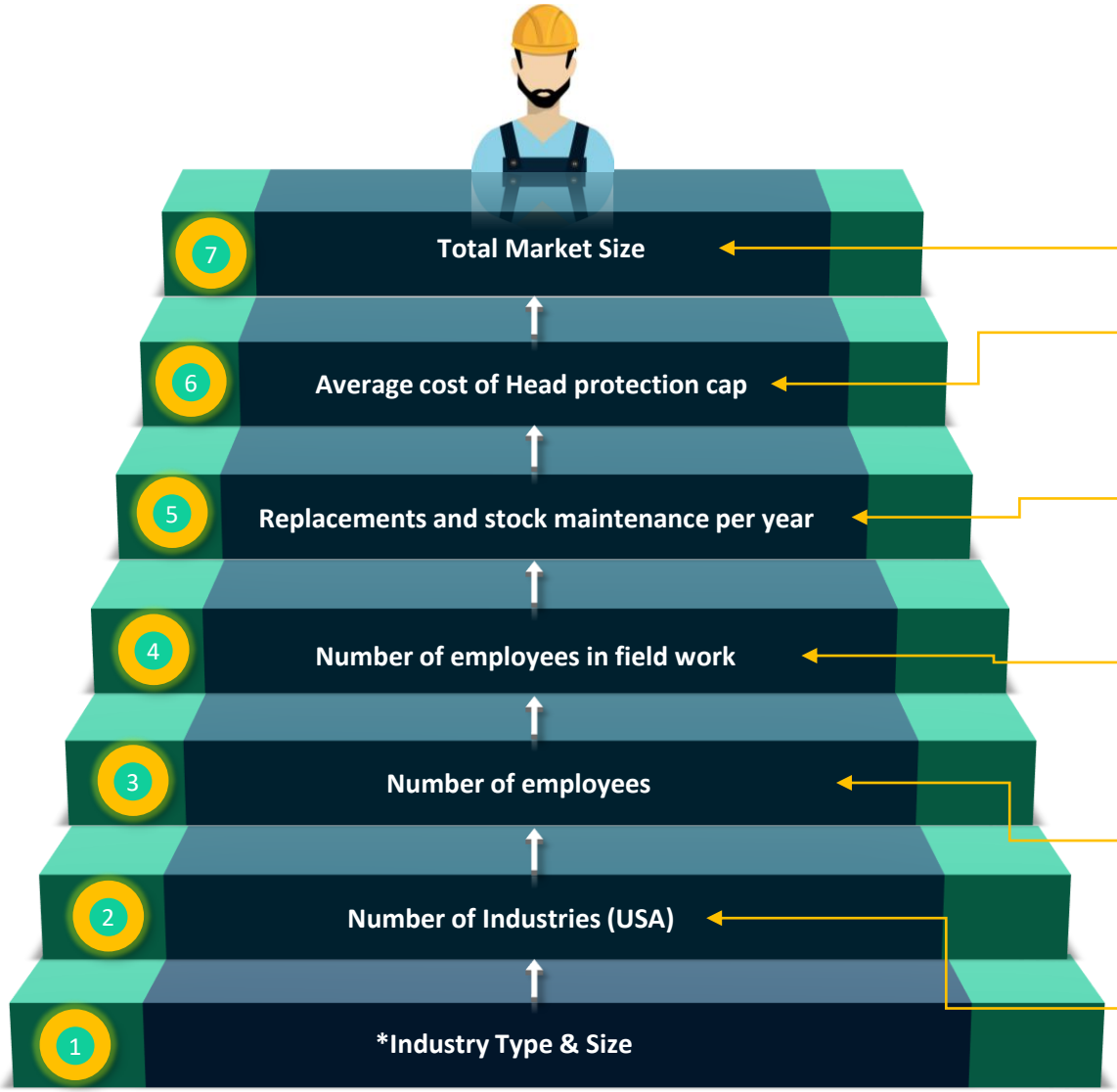
Source: BMC

The images can be analyzed using Deep Learning and AI tools to observe specific features like the number of mitotic figures, presence of infectious agents such as acid fast bacilli or even grade cancer. Due to the ease of availability of cloud computing, powerful processors and robust infrastructure today. Deep Learning systems have been developed to help pathologists segregate between benign and malignant prostate tumors. In addition, the architectural patterns of prostate cancers to aid in grading of these cancers can also be achieved

TOTAL HEAD PROTECTION MARKET SIZE IN NORTH AMERICA

TOTAL HEAD PROTECTION MARKET SIZE IN NORTH AMERICA

Estimated value of head protection market in North America is $ 1 billion



Approach/Method	Estimated values
Average cost of Head protection cap is around ~35 USD/piece	Total Market Size in USD– $ 1 Billion ([Field work employees + Replacements]*35)
Replacement/Stock needed in Small, Medium, and Large companies are 5%, 7%, and 10% of the number of employees respectively	Total number of Replacements/Stocks across all the Industries- 19,60,705
Number of employees in field work (using head protection are around 50% of the total workforce)	Cumulative number of Employees across all the Industries (field work)- 2,63,01,404
Average number of employees in Small companies are between the range -20-50, Medium - 50-300, and Large -300-10000	Cumulative number of Employees across all the Industries- 6,78,11,255
Industries based on size (Small (75%), Medium (20%), Large (5%)	Cumulative number of Industries - 16,12,414

*Industries using head protection equipment are - Oil & gas, Construction, Manufacturing, Mining, Transport and storage, Fire fighters, Army, and Civil engineering Institutes

As per the 1926.100(a), Employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be protected by protective helmets.