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Forensic Technology Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028F Segmented By Type (PCR, Capillary Electrophoresis), By Services [Deoxyribonucleic acid (DNA) Profiling, Chemical Analysis, Biometric Analysis, Digital Forensics, and Others], By Application (Law Enforcement, Healthcare, Biodefense, and Others), By Region and Competition

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Abstracts

Global Forensic Technology Market was valued at USD 9.27 billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 11.44% through 2028. Forensic technology encompasses the scientific methodology of investigating, searching, retrieving, and analyzing evidence collected from crime scenes. This technology empowers users to gather information to address investigations, litigation matters, regulatory compliance, and financial crime requirements. Various procedures and equipment, including data examination and charting tools, record management systems (RMS), closed circuit television (CCTV), license plate recognition (LPR) systems, and DNA confirmation equipment, are employed to conduct forensic investigations. Additionally, advanced technologies such as alternative light photography, which employs blue and orange light filters to assess skin damage, as well as facial reconstruction and drug testing, have become integral components of modern forensic investigations.

Key Market Drivers

Increasing Crime Rate

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The increasing crime rate is a significant driver for market growth. Moreover, the level of sophistication in these crimes has contributed to the high demand for advanced forensic technologies across various industries, such as banking, healthcare, and telecommunications. The rise in cybercrimes has also boosted the adoption of digital forensic technologies for investigating incidents of procurement fraud, white-collar crimes, and IP infringement. Cybercrime experts utilize technology-based approaches for data preservation, document control, data recovery, and analysis. Additionally, the rapid development of DNA testing technology has positively impacted the market. Procedures like DNA sequencing, magnetic fingerprinting, facial reconstruction, and integrated ballistic systems are widely adopted due to their advantages, such as high accuracy, investigator compliance, and greater reproducibility. Furthermore, the implementation of favorable government policies and funding to support forensic research and development (R&D) are expected to have a positive impact on the industry's growth. Several factors drive the growth of the global market for forensics technology. These include an increase in crime rates and the adoption of advanced technologies in criminal investigations. As a result, the market for forensics technology is projected to experience significant expansion. Moreover, advancements in forensic science and the introduction of innovative technologies contribute to the growth of the forensics technology sector. For instance, in November 2020, Agilent Technology Inc., a leading manufacturer of forensic technologies, unveiled a new nanodis system designed for nanoparticle dissolving testing.

Growing Investments and Funding

Collaboration between public and private entities, including forensic laboratories, research institutions, and technology companies, accelerates the development and adoption of cutting-edge forensic solutions. The market is propelled by the increasing investments and funding in forensic research by various private and public organizations. For instance, in January 2022, the National Institute of Justice announced a funding of USD 4.5 million for the Forensic Technology Center of Excellence, aimed at providing evidence-based knowledge and advanced technology tools for criminal justice agencies. Moreover, the Forensic Capability Network achieved a significant milestone with funding of USD 1.15 million for forensic research, supporting nine research projects focused on the utilization of artificial intelligence (AI) to enhance evidence gathering from crime scenes.

Increasing Medicolegal Investigations

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Forensic technology is also crucial in the field of medicolegal investigations, including determining causes of death, identifying human remains, and providing evidence for medical malpractice cases. Forensic technology enhances the accuracy, objectivity, and scientific rigor of medicolegal investigations. It provides an unbiased and evidence-based approach to resolving complex medical and legal issues, ensuring that justice is served and accurate conclusions are reached. Additionally, forensic technology contributes to the continuous improvement of medical practices and standards, as it highlights areas of concern and helps prevent future instances of medical malpractice.

Technological Advancement

Technological advancements in forensic laboratories and infrastructure are expanding the growth opportunities of the market. Recent developments, including automated extraction methodologies, predictive dual quantitation assay, next-generation STR multiplexes, and mini-STR kits, further enhance the analysis of degraded and compromised samples, thereby improving forensic capabilities. Technological advancements, such as magnetic fingerprinting, automated fingerprint identification, alternative light and ballistics photography, DNA sequencing, laser ablation coupled plasma mass spectrometry, and alternative light and ballistics, are expected to drive growth in the industry. For example, India's state forensic labs have expanded their infrastructure in response to the growing demand for DNA testing. These upgrades are anticipated to enhance existing technologies, reduce the time and costs associated with case resolution, and increase the accuracy and efficiency of DNA analysis, thus creating lucrative growth opportunities.

Key Market Challenges

Stringent Regulatory Constraints

Stringent regulatory constraints can impede the growth of forensic technology by creating barriers that hinder innovation, research, development, and adoption of new technologies within the field. While regulations are essential to ensure ethical and accurate forensic practices, overly burdensome or inflexible regulations can stifle progress and limit the ability of forensic professionals to leverage cutting-edge tools and techniques. Stringent regulations can lead to lengthy and complex approval processes for new forensic technologies. Delays in obtaining regulatory approvals can hinder the timely implementation of innovative solutions. Meeting strict regulatory requirements can be resource-intensive, requiring significant financial investments and administrative efforts. Small forensic technology companies or laboratories with limited resources may

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struggle to comply with these costs. Collaborative efforts between forensic professionals, researchers, and technology developers can be hindered by regulatory constraints. Sharing data, expertise, and resources across borders may be limited due to varying regulatory requirements.

Data Inaccuracy

Data inaccuracy can significantly impede the growth of forensic technology by undermining the reliability, validity, and effectiveness of forensic analyses and conclusions. Inaccurate data can lead to incorrect interpretations, flawed findings, and unreliable evidence, which can have serious consequences for justice, investigations, and public trust in the forensic field. Data inaccuracies can lead to misidentification of individuals, incorrect attributions, and faulty interpretations of evidence. These errors can have serious legal and ethical implications in criminal investigations. Inaccurate data can contribute to wrongful convictions or wrongful acquittals. When forensic evidence is based on flawed or inaccurate data, innocent individuals may be wrongly accused, or guilty parties may evade justice. Inaccurate data can lead to legal challenges and the rejection of forensic evidence in court. Legal battles over the admissibility and reliability of evidence can delay or obstruct the judicial process.

Key Market Trends

Advancements in Technology

The continuous advancement of technology, including DNA analysis, digital forensics, and forensic imaging, drives the demand for new and improved tools that offer higher accuracy and efficiency in evidence analysis. As more data is stored in cloud environments, digital forensic tools and techniques have evolved to extract, analyze, and preserve evidence from cloud-based sources. The proliferation of smartphones and other mobile devices has led to the development of specialized tools for extracting and analyzing digital evidence from these devices. With the growth of the Internet of Things (IoT), digital forensics extends to the analysis of data from smart devices, wearables, and interconnected systems. The continuous advancement of technology propels the demand for new and improved forensic tools that enhance evidence analysis, accuracy, and efficiency. This ongoing evolution plays a pivotal role in the progression of the forensic field and its ability to meet the challenges of modern crime investigation and justice.

Private Sector Demand

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Private entities, such as private investigative agencies and corporations, require forensic technology for internal investigations and compliance purposes. Private companies may conduct internal investigations to address issues such as employee misconduct, fraud, theft, intellectual property theft, and conflicts of interest. Forensic technology tools help gather, analyze, and preserve electronic evidence, including emails, documents, and digital communications. Private entities use digital forensics to investigate cyber incidents, data breaches, and unauthorized access to company systems. This involves analyzing digital evidence to identify the source of the breach, the extent of the damage, and potential vulnerabilities. By leveraging forensic technology, private investigative agencies and corporations can enhance their ability to conduct thorough and effective investigations, mitigate risks, maintain compliance, and protect their interests.

Segmental Insights

Services Insights

DNA profiling is expected to hold the largest revenue share in these categories during the projected period. As a critical tool in criminal investigations, DNA profiling is widely used for identifying individuals and their biological traits. The global rise in crime rates has fueled the demand for DNA profiling technology, thereby driving the expansion of the market. Similarly, the chemical analysis segment is also anticipated to witness significant growth throughout the projection period. Chemical analysis plays a crucial role in identifying various substances, including narcotics, explosives, and poisons, which is vital for crime-solving. The increasing need for chemical analysis technology is driven by law enforcement organizations aiming to enhance their investigative capabilities and reduce crime. Biometric analysis is another area expected to experience substantial growth during the predicted period. By utilizing distinct physical traits such as fingerprints, facial recognition, and iris recognition, biometric analysis enables the identification of individuals. Law enforcement organizations are actively seeking to strengthen their identification and verification procedures to combat identity fraud, thereby boosting the demand for biometric analysis technologies. Furthermore, the digital forensics segment is projected to expand significantly throughout the projection period. In digital forensics, digital devices such as computers, smartphones, and storage devices are examined to uncover evidence of criminal activity. The increasing global rates of cybercrime have led to a higher demand for digital forensics technology, driving the growth of this segment.

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Application Insights

Over the projected period, the law enforcement sector is expected to hold a significant revenue share in the global forensic technology market. The worldwide forensic technology market has been segmented based on application into law enforcement, healthcare, biodefense, and other sectors. With the increasing use of forensic technology in criminal investigations, the law enforcement segment is expected to contribute a substantial portion of the revenue during the forecast period. Forensic technology enables the analysis and identification of crucial evidence, such as DNA, fingerprints, and digital evidence, which play a vital role in resolving complex criminal cases. The rising global criminal activity has led to a substantial growth in the adoption of forensic technology in law enforcement in recent years. Furthermore, advancements in forensic technology, including portable devices and sophisticated software for data analysis and processing, are anticipated to drive the growth of the law enforcement segment throughout the forecast period. During the forecast period, the healthcare segment is expected to exhibit the highest revenue CAGR. The expansion of this market segment is attributed to the increasing use of forensic technology in healthcare for disease identification and diagnosis. Forensic technology enables the examination of medical samples to detect pathogens, poisons, and other elements that can cause illness. Additionally, forensic technology can be utilized for drug testing and monitoring, which are becoming increasingly important in the healthcare industry. The growing prevalence of chronic diseases and the need for accurate and timely diagnosis further drive the adoption of forensic technology in healthcare.

Regional Insights

In terms of revenue, the North American market emerged as the dominant force in the global forensic technology market in 2022. This is primarily attributed to the presence of key market players and the extensive utilization of forensic technologies by law enforcement organizations, with the United States leading the region with the largest market share. The North American market is witnessing significant growth driven by the escalating crime rates and the pressing need for advanced solutions to combat them. Furthermore, the expanding use of DNA analysis in criminal investigations acts as a catalyst for the adoption of forensic technologies. During the projected period, the Asia-Pacific market is expected to exhibit the highest revenue compound annual growth rate (CAGR). This growth can be attributed to the increasing utilization of forensic technology in countries such as China, India, and Japan. Factors driving market expansion in this region include the mounting crime rates, government initiatives to enhance forensic capabilities, and the demand for accurate and timely investigations.

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Additionally, the presence of major players in the market further fuels its growth in this region. Over the forecast period, the European market is anticipated to experience moderate expansion. The heightened usage of forensic technologies in countries like Germany, the United Kingdom, and France propels the growth of this market. The demand for cutting-edge forensic technologies to solve complex criminal cases, coupled with the presence of significant industry competitors, drives market expansion in this region.

Key Market Players

- Agilent Technologies
- Ge Healthcare
- Thermo Fisher Scientific Inc.
- Nms Labs
- Eurofins Medigenomix GmbH
- Lgc Forensics
- Forensic Pathways
- Spex Forensics
- Forensic Fluids Laboratories
- Pyramidal Technologies Ltd.

Report Scope:

In this report, the Global Forensic Technology Market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

- Forensic Technology Market, By Type:

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PCR

Capillary Electrophoresis

Forensic Technology Market, By Services:

Deoxyribonucleic acid (DNA) Profiling

Chemical Analysis

Biometric Analysis

Digital Forensics

Others

Forensic Technology Market, By Application:

Law Enforcement

Healthcare

Biodefense

Others

Forensic Technology Market, By Region:

North America

United States

Canada

Mexico

Europe

France

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United Kingdom

Italy

Germany

Spain

Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Kuwait

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Turkey

Egypt

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Forensic Technology Market.

Available Customizations:

Global Forensic Technology market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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