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Exploring the Reliability of Forensic Science Within the Criminal Justice System

INTRODUCTION

The field of Forensic Science is an engaging domain that sits at the intersection of law, science and justice. The motive of the discipline is to unveil the truth behind the criminal acts and legal conflicts. As idealised in criminal documentaries, television dramas and fictional streaming, it helps as the backbone of investigations done on the crime scene and court proceedings. Despite the irrefutable portrayal, the reliability of forensic science has come under assessment in the recent years. The process of analysing and matching DNA profiles, identifying latent fingerprints, and comparing ballistic markings on firearms, accelerates the investigation process and provides more accurate results.

THE PROMISE OF FORENSIC SCIENCE

Criminal investigations have been transformed by forensic science, which has produced vital evidence that can clear innocent people or connect suspects to crimes. Methods such as DNA profiling have emerged as critical in breaking cold cases and vacating erroneous convictions. Furthermore, by eschewing prejudice and depending instead on factual data to establish facts, forensic evidence frequently operates as an impartial arbitrator in court.

CHALLENGES AND LIMITATIONS

But there are several difficulties with forensic science's dependability. The absence of standards throughout forensic disciplines is a major problem. Different approaches, procedures, and interpretations can produce different outcomes. Furthermore, there is a

significant chance that human mistake in sample collection or analysis will compromise the accuracy of forensic results. Furthermore, instances of misidentification and incorrect convictions have brought to light the shortcomings of some methods, such as fingerprint analysis.

THE INFLUENCE OF BIAS

Bias is a significant factor that also impacts the dependability of forensic science. The forensic procedure is bound to incorporate human judgment, whether intentionally or inadvertently. For example, confirmation bias might cause analysts to read the evidence in a way that supports their preconceptions or the prosecution's understanding of the case. Contextual elements, including socioeconomic class or colour, can also affect how forensic evidence is viewed and presented in court, which jeopardizes its credibility even more.

ADVANCEMENTS AND SOLUTIONS

Attempts are being made to improve the forensic science's dependability in the criminal justice system in spite of these obstacles. Standardizing techniques and raising forensic analysts' level of expertise are the goals of increased financing for research and training. Furthermore, integrating technology—such as machine learning and artificial intelligence—holds promise for automating some forensic activities and lowering the rate of human error.

Moreover, resolving the structural problems besetting forensic science requires interdisciplinary cooperation between scientists, legal professionals, and legislators. In forensic laboratories, accountability and transparency are crucial for guaranteeing that procedures follow ethical and scientific guidelines.

CONCLUSION

Forensic science remains an invaluable tool in the criminal justice system, capable of uncovering the truth behind the most complex crimes. However, its reliability depends on the challenges of standardization, human error and bias. By fostering a culture of innovation, accountability and interdisciplinary collaboration, we can strengthen the integrity of forensic science and ensure that it serves justice faithfully and fairly. As we navigate the evolving

landscape of forensic science, it is imperative to recognize its potential and limitations in striving for a system that is both rigorous and fair.